Effective Health Care Program

Comparative Effectiveness Review
Number 160

Management and Outcomes of Binge-Eating Disorder

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Number 160

Management and Outcomes of Binge-Eating Disorder

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This report is based on research conducted by the RTI International–University of North Carolina Evidence-based Practice Center (EPC) under contract to the Agency for Healthcare Research and Quality (AHRQ), Rockville, MD (Contract No. 290-2012-00008-I). The findings and conclusions in this document are those of the authors, who are responsible for its contents; the findings and conclusions do not necessarily represent the views of AHRQ. Therefore, no statement in this report should be construed as an official position of AHRQ or of the U.S. Department of Health and Human Services.

Two of the coinvestigators on this report have a financial conflict of interest in the subject matter (ongoing grants and consultancy to a pharmaceutical company; ongoing National Institute of Mental Health grants). Neither was a reviewer of any of her own studies or any studies in the drug class in which a financial conflict of interest is held. The lead investigator, who has no affiliation or financial involvement that conflicts with the material presented in this report, made the final determination in the assessment of studies and the body of evidence. None of the other investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

The information in this report is intended to help health care decisionmakers—patients and clinicians, health system leaders, and policymakers, among others—make well informed decisions and thereby improve the quality of health care services. This report is not intended to be a substitute for the application of clinical judgment. Anyone who makes decisions concerning the provision of clinical care should consider this report in the same way as any medical reference and in conjunction with all other pertinent information, i.e., in the context of available resources and circumstances presented by individual patients.

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Preface

The Agency for Healthcare Research and Quality (AHRQ), through its Evidence-based Practice Centers (EPCs), sponsors the development of systematic reviews to assist public- and private-sector organizations in their efforts to improve the quality of health care in the United States. These reviews provide comprehensive, science-based information on common, costly medical conditions, and new health care technologies and strategies.

Systematic reviews are the building blocks underlying evidence-based practice; they focus attention on the strength and limits of evidence from research studies about the effectiveness and safety of a clinical intervention. In the context of developing recommendations for practice, systematic reviews can help clarify whether assertions about the value of the intervention are based on strong evidence from clinical studies. For more information about AHRQ EPC systematic reviews, see www.effectivehealthcare.ahrq.gov/reference/purpose.cfm.

AHRQ expects that these systematic reviews will be helpful to health plans, providers, purchasers, government programs, and the health care system as a whole. Transparency and stakeholder input are essential to the Effective Health Care Program. Please visit the Web site (www.effectivehealthcare.ahrq.gov) to see draft research questions and reports or to join an email list to learn about new program products and opportunities for input.

We welcome comments on this systematic review. They may be sent by mail to the Task Order Officer named below at: Agency for Healthcare Research and Quality, 5600 Fishers Lane, Rockville, MD 20857, or by email to epc@ahrq.hhs.gov.

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Key Informants

In designing the study questions, the EPC consulted several Key Informants who represent the end-users of research. The EPC sought the Key Informant input on the priority areas for research and synthesis. Key Informants are not involved in the analysis of the evidence or the writing of the report. Therefore, in the end, study questions, design, methodological approaches, and/or conclusions do not necessarily represent the views of individual Key Informants.

Key Informants must disclose any financial conflicts of interest greater than $10,000 and any other relevant business or professional conflicts of interest. Because of their role as end-users, individuals with potential conflicts may be retained. The TOO and the EPC work to balance, manage, or mitigate any conflicts of interest.

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Technical Expert Panel

In designing the study questions and methodology at the outset of this report, the EPC consulted several technical and content experts. Broad expertise and perspectives were sought. Divergent and conflicted opinions are common and perceived as healthy scientific discourse that results in a thoughtful, relevant systematic review. Therefore, in the end, study questions, design, methodological approaches, and/or conclusions do not necessarily represent the views of individual technical and content experts.

Technical Experts must disclose any financial conflicts of interest greater than $10,000 and any other relevant business or professional conflicts of interest. Because of their unique clinical or content expertise, individuals with potential conflicts may be retained. The TOO and the EPC work to balance, manage, or mitigate any potential conflicts of interest identified.

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Peer Reviewers

Before publication of the final evidence report, EPCs sought input from independent Peer Reviewers without financial conflicts of interest. However, the conclusions and synthesis of the scientific literature presented in this report do not necessarily represent the views of individual reviewers.

Peer Reviewers must disclose any financial conflicts of interest greater than $10,000 and any other relevant business or professional conflicts of interest. Because of their unique clinical or content expertise, individuals with potential nonfinancial conflicts may be retained. The TOO and the EPC work to balance, manage, or mitigate any potential nonfinancial conflicts of interest identified.

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Management and Outcomes of Binge-Eating Disorder

Structured Abstract

Objectives. To evaluate the effectiveness and comparative effectiveness of treatments for patients with binge-eating disorder (BED) and bariatric surgery patients and children with loss-of-control (LOC) eating. Studies of BED therapies include pharmacological interventions, psychological and behavioral interventions, or combinations of approaches. We examined whether treatment effectiveness differed in patient subgroups and described course of illness for BED and LOC eating.

Data sources. We searched MEDLINE®, EMBASE®, the Cochrane Library, Academic OneFile, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) through January 19, 2015. Eligible studies included randomized controlled trials (RCTs), nonrandomized trials, meta-analyses, and, for course of illness, cohort and case-control studies.

Review methods. Pairs of reviewers independently selected, extracted data from, and rated the risk of bias of relevant studies; they graded the strength of evidence using established criteria. We conducted meta-analysis for some treatment outcomes.

Results. Of 52 included RCTs of treatment; 48 concerned BED therapy. Course-of-illness evidence came from 15 observational studies. We examined four major outcomes: binge eating and abstinence, eating-related psychopathology, weight, and general psychological and other outcomes. Second-generation antidepressants (as a class), topiramate (an anticonvulsant), and lisdexamfetamine (a stimulant) were superior to placebo in achieving abstinence and reducing binge episodes and/or binge days and eating-related obsessions and compulsions. Second-generation antidepressants decreased depression. Topiramate and lisdexamfetamine produced weight reduction in study populations whose members were virtually all overweight or obese. A few formats of cognitive behavioral therapy (CBT)—therapist led, partially therapist led, and guided self-help—were superior to placebo in achieving abstinence and reducing binge frequency. CBT for BED was generally ineffective for reducing weight or depression in this population. Therapist-led CBT was not superior to either partially therapist-led CBT or structured self-help CBT for binge-eating and weight outcomes. Behavioral weight loss treatment produced greater weight loss than CBT at the end of treatment but not over the longer run. Topiramate, fluvoxamine, and lisdexamfetamine were associated with sleep disturbance, including insomnia; topiramate and lisdexamfetamine were associated with sympathetic nervous system arousal and headache. We found no evidence on bariatric surgery patients. Treatments for LOC eating in children did not achieve superior weight reduction outcomes. Evidence on the course of either illness was limited. Early adolescent BED and LOC eating predicts such behaviors in the future.

Conclusions. BED patients may benefit from treatment with second-generation antidepressants, lisdexamfetamine, topiramate, and CBT. Additional studies should address other treatments, combinations of treatment, and comparisons between treatments; treatment for postbariatric surgery patients and children; and the course of these illnesses.

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Executive Summary

Background

Definition of Binge-Eating Disorder and Loss-of-Control Eating

Binge-eating disorder (BED) is characterized by recurrent episodes of binge eating—i.e., eating episodes that occur in a discrete period of time (≤2 hours) and involve the consumption of an amount of food that is definitely larger than most people would consume under similar circumstances. Other core features of BED are a sense of lack of control over eating during binge episodes, significant psychological distress (e.g., shame, guilt) about binge eating, and the absence of regular use of inappropriate compensatory behaviors, such as purging, fasting, and excessive exercise.

In May 2013, the American Psychiatric Association (APA) recognized BED as a distinct eating disorder in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5).[1] Previously (in the DSM-IV), BED had been designated as a provisional diagnosis.

Table A presents the DSM-IV and DSM-5 diagnostic criteria for BED. In the shift from provisional to formal diagnosis for BED, APA experts changed the criterion for frequency of BED from twice per week to once per week and the duration criterion from 6 months to 3 months, in line with those for bulimia nervosa.

Table A. DSM-IV and DSM-5 diagnostic criteria for binge-eating disorder

Criteria Set and Severity Grading	Specific Definitions for Each Criterion
Criterion 1	Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following: a. Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat in a similar period of time under similar circumstances b. The sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating)
Criterion 2	Binge-eating episodes are associated with 3 or more of the following: a. Eating much more rapidly than normal b. Eating until feeling uncomfortably full c. Eating large amounts of food when not feeling physically hungry d. Eating alone because of being embarrassed by how much one is eating e. Feeling disgusted with oneself, depressed, or very guilty after overeating
Criterion 3	Marked distress regarding binge eating is present.
Criterion 4	The binge eating occurs, on average— a. At least 2 days a week for 6 months (DSM-IV frequency and duration criteria) b. At least 1 day a week for 3 months (DSM-5 frequency and duration criteria)
Criterion 5	The binge eating is not associated with the regular use of inappropriate compensatory behavior (e.g., purging, fasting, excessive exercise) and does not occur exclusively during the course of anorexia nervosa or bulimia nervosa.
Severity Grading	DSM-IV does not include a BED severity grading scale. Applicable to DSM-5 only, BED severity is graded as follows: Mild: 1 to 3 episodes per week Moderate: 4 to 7 episodes per week Severe: 8 to 13 episodes per week Extreme: 14 or more episodes per week

BED = binge-eating disorder; DSM = Diagnostic and Statistical Manual of Mental Disorders

A sense of loss of control (LOC) during binge episodes is a core feature of BED. The term "LOC eating" is used to describe these episodes, but it is also used more broadly throughout the

literature to describe binge-like eating behavior accompanied by a sense of LOC that occurs across a wide spectrum of individuals. That spectrum includes, among others, individuals who exhibit some features of BED but do not meet full diagnostic criteria for the disorder (i.e., subthreshold BED) and individuals with other eating disorders (bulimia nervosa, anorexia nervosa binge-eating/purge subtype).

The spectrum of those described as exhibiting LOC eating also includes individuals for whom diagnosis of threshold BED is challenging for unique reasons, such as postbariatric surgery patients and children. Bariatric surgery significantly reduces the stomach size and capacity, effectively rendering it physically impossible for a patient to meet BED criterion 1a (Table A; i.e., to consume a definitely large amount of food). In the bariatric surgery literature, LOC eating is used not only to describe binge-like behavior that falls short of meeting criterion 1a, but also to describe eating behavior that is contraindicated based on meal size and meal content. Children, especially young children, may not meet BED criterion 1a because their parents or others limit the quantity of food they consume or because they are unable to provide accurate quantification of the amount they eat. For the purposes of our review, LOC eating treatment and outcomes are limited to postbariatric surgery patients and children, and do not include individuals in other groups who may meet subclinical diagnosis of BED.

Prevalence of Binge-Eating Disorder and Loss-of-Control Eating

Prevalence estimates (and citations) are covered in more detail in the full report. In the United States, the prevalence of BED among adults is about 3.5 percent in women and about 2 percent in men based on DSM-IV criteria and slightly higher based on DSM-5 criteria.[2,3] BED is more common among obese individuals[4,5] and slightly lower among Latino- and Asian-Americans (1.9% and 2.0%, respectively) than among the general population.[6,7] BED is typically first diagnosed in young adulthood (early to mid-20s);[8,9] symptoms often persist well beyond midlife.[10-12]

The prevalence of LOC eating is unknown. In postbariatric surgery patients, it may be as high as 25 percent.[13,14] In children at risk for adult obesity because of either their own overweight or that of their parents, prevalence may be as high as 32 percent.[15]

Current Challenges and Controversies in Diagnosing These Disorders

In diagnosing BED, assessing whether a patient is eating an atypically large amount of food is not wholly quantitative; it requires the clinician's evaluation of the patient's self-report. Assessment by a structured clinical interview is considered the gold standard. We included only studies in which participants were identified as meeting DSM-IV or DSM-5 criteria for BED as determined through a structured interview.

Assessing BED and LOC in children poses unique challenges, in part because neither the DSM-IV nor the DSM-5 established a minimum age for a BED diagnosis. As a result, when diagnosing adolescents, some clinicians consider BED criteria and others consider LOC eating criteria. We included studies of LOC eating in children ages 6–17 years.

In the postbariatric surgery circumstance, defining LOC eating is not straightforward; assessment methods are not standardized. Patients may report their disordered eating behaviors as a general subjective sense of lack of control over their eating rather than in terms of specific

overconsumption based on the amount of food. Also, LOC eating may manifest in the consumption of food types and patterns of intake that are contraindicated after surgery.

Current Challenges and Controversies in Treating These Disorders

Treating patients with BED targets the core behavioral features (binge eating) and psychological features (i.e., eating, weight, and shape concerns, and distress) of this condition. Other important targets of treatment include metabolic health (in patients who are obese, have diabetes, or both) and mood regulation (e.g., in patients with coexisting depression or anxiety). Table B describes commonly used approaches. Treatments for LOC eating for postbariatric surgery patients and children reflect BED treatment options; treatment of children may include a role for parents.

Table B. Treatments commonly used for binge-eating disorder

Intervention Type	Treatment	Description
Psychological and behavioral	Cognitive behavioral therapy	Psychotherapy that focuses on identifying relations among thoughts, feelings, and behaviors, aiming to change negative thoughts about oneself and the world and, by doing so, reduce negative emotions and undesirable behavior patterns. Cognitive behavioral therapy is delivered is various ways—e.g., therapist-led individual and group sessions, self-help, and guided self-help.
Psychological and behavioral	Dialectical behavioral therapy	Behavioral therapy that focuses on increasing mindfulness and developing skills to improve emotion regulation, distress tolerance, and interpersonal relationships.
Psychological and behavioral	Interpersonal psychotherapy	Psychotherapy that focuses on the role of interpersonal functioning in negative mood, psychological distress, and unhealthy behaviors.
Psychological and behavioral	Behavioral weight loss	Treatment that incorporates various behavioral strategies to promote weight loss, such as caloric restriction and increased physical activity.
Pharmacological	Second-generation and tricyclic antidepressants	Treatment with a class of medications that works by selectively inhibiting reuptake of neurotransmitters involved in the regulation of mood and appetite (i.e., dopamine, norepinephrine, and serotonin). Common examples include bupropion, citalopram, desipramine, duloxetine, fluoxetine, and sertraline, commonly indicated for patients with depression.
Pharmacological	Anticonvulsants	Treatment with a class of medications used to treat epilepsy, bipolar disorder, major depression, and migraines; most commonly, topiramate.
Pharmacological	Antiobesity	Treatment with medications used to treat obesity. One example is orlistat, which inhibits pancreatic lipase, thereby decreasing fat absorption in the gut.
Pharmacological	Central nervous system stimulants	Treatment with a class of medications generally used to enhance or accelerate mental and physical processes, and specifically for treating patients with attention-deficit hyperactivity disorder and certain sleep problems. The only medication approved by the U.S. Food and Drug Administration for binge-eating disorder (lisdexamfetamine) belongs to this class.

Scope and Key Questions

This review addresses the efficacy and effectiveness of interventions for individuals meeting DSM-IV or DSM-5 criteria for BED, for postbariatric surgery patients with LOC eating, and for children with LOC eating. (Hereafter, the term “effectiveness” refers to both efficacy and effectiveness, including comparative effectiveness.) We also attempted to examine whether treatment effectiveness differed in subgroups based on sex, race, ethnicity, sexual orientation, body mass index (BMI), duration of illness, or coexisting conditions.

Broadly, we included pharmacological, psychological, behavioral, and combination interventions. We considered physical and psychological health outcomes in four major categories: (1) binge behavior (binge eating or LOC eating); (2) binge-eating–related psychopathology (e.g., weight and shape concerns, dietary restraint); (3) physical health functioning (i.e., weight and other indexes of metabolic health—e.g., diabetes); and (4) general psychopathology (e.g., depression, anxiety). Additional outcomes of interest included social and occupational functioning and harms of treatment.

We also examined the course of illness of BED and of LOC eating, particularly given their relatively high comorbidity with other medical and psychiatric conditions. In addition, clinical interest in understanding whether LOC eating reliably predicts poorer weight outcomes and new-onset BED over time is considerable. Little is known about the temporal stability of BED in the community generally, and of LOC in postbariatric surgery patients and children specifically.

Ultimately, the information produced in this review is intended to contribute to improved care for patients, better decisionmaking capacity for clinicians, and more sophisticated policies from those responsible for establishing treatment guidelines or making various insurance and related decisions.

Key Questions

We addressed 15 Key Questions (KQs). Nine are about effectiveness of treatment (benefits and harms overall and benefits for various patient subgroups)—three for BED, three for LOC eating among bariatric surgery patients, and three for LOC eating among children. The other six KQs deal with course of illness, overall and for various subgroups, for BED or LOC eating.

KQ 1. What is the evidence for the effectiveness of treatments or combinations of treatments for binge-eating disorder?

KQ 2. What is the evidence for harms associated with treatments for binge-eating disorder?

KQ 3. Does the effectiveness of treatments for binge-eating disorder differ by age, sex, race, ethnicity, initial body mass index, duration of illness, or coexisting conditions?

KQ 4. What is the course of illness of binge-eating disorder?

KQ 5. Does the course of illness of binge-eating disorder differ by age, sex, race, ethnicity, sexual orientation, body mass index, duration of illness, or coexisting conditions?

KQ 6. What is the evidence for the effectiveness of treatments or combinations of treatments for loss-of-control eating among bariatric surgery patients?

KQ 7. What is the evidence for harms associated with treatments for loss-of-control eating among bariatric surgery patients?

KQ 8. Does the effectiveness of treatments for loss-of-control eating among bariatric surgery patients differ by age, sex, race, ethnicity, initial body mass index, duration of illness, or coexisting conditions?

KQ 9. What is the course of illness of loss-of-control eating among bariatric surgery patients?

KQ 10. Does the course of illness of loss-of-control eating among bariatric surgery patients differ by age, sex, race, ethnicity, sexual orientation, initial body mass index, duration of illness, or coexisting conditions?

KQ 11. What is the evidence for the effectiveness of treatments or combinations of treatments for loss-of-control eating among children?

KQ 12. What is the evidence for harms associated with treatments for loss-of-control eating among children?

KQ 13. Does the effectiveness of treatments for loss-of-control eating among children differ by age, sex, race, ethnicity, initial body mass index, duration of illness, or coexisting conditions?

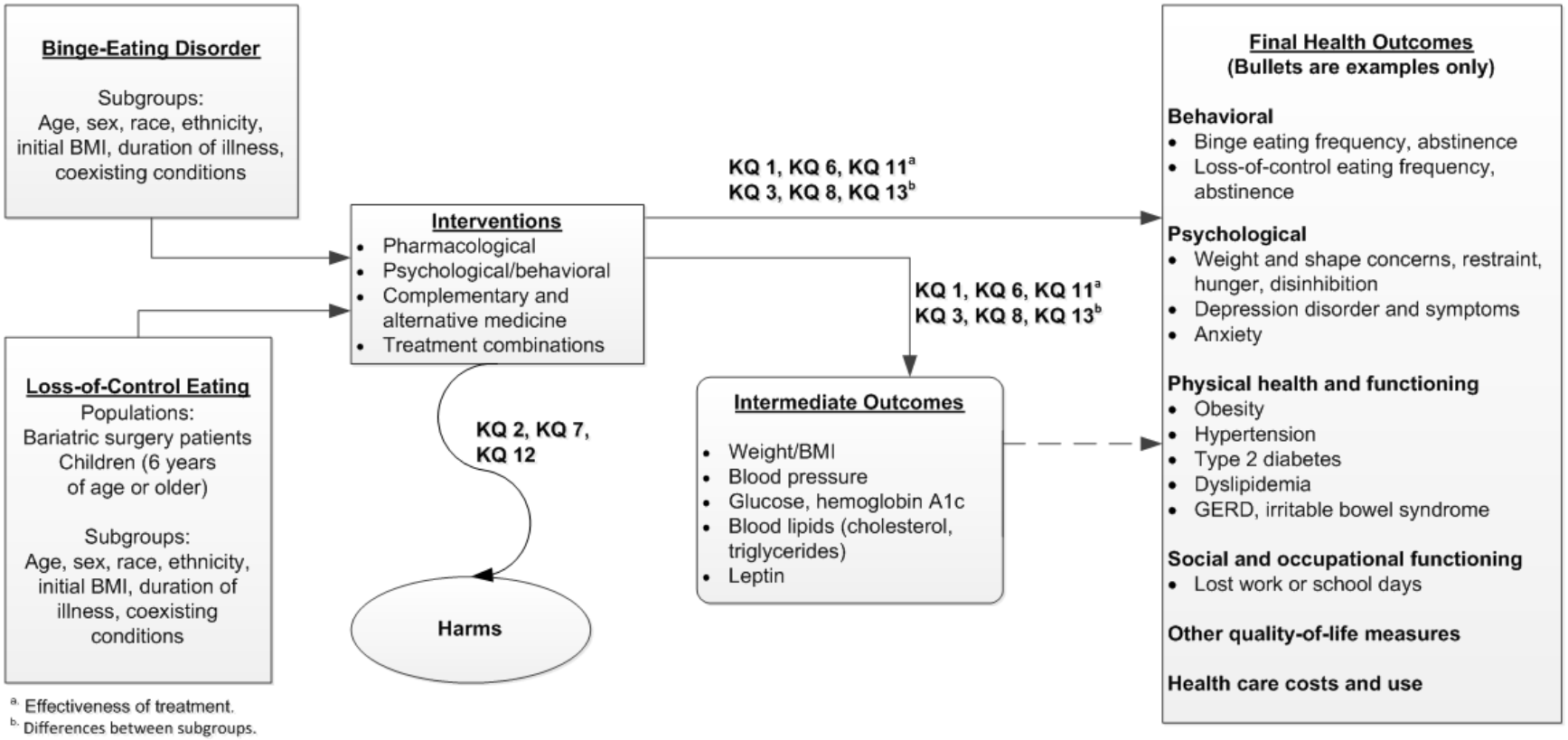
KQ 14. What is the course of illness of loss-of-control eating among children?

KQ 15. Does the course of illness of loss-of-control eating among children differ by age, sex, race, ethnicity, initial body mass index, duration of illness, or coexisting conditions?

Analytic Frameworks

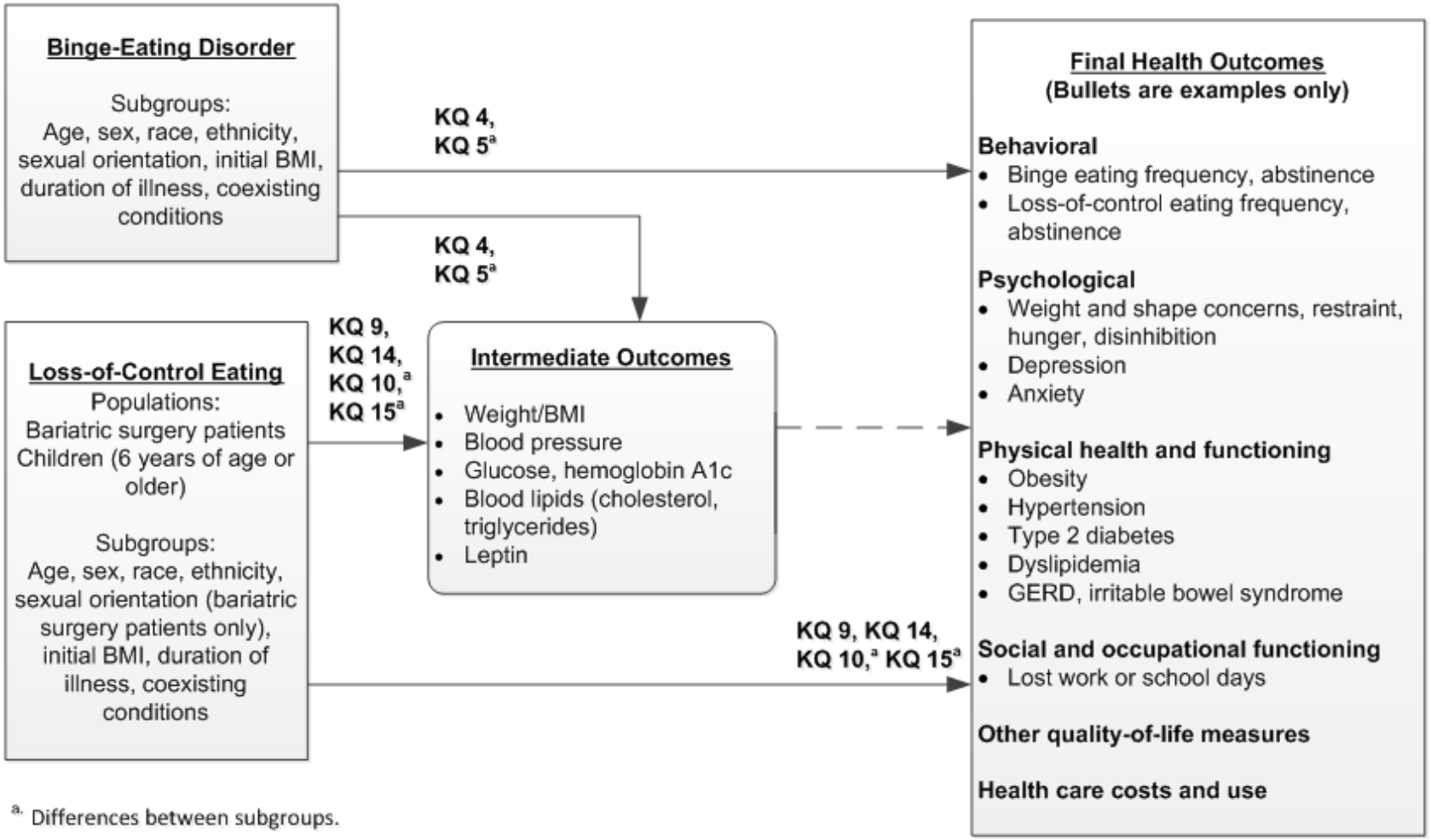
The relationships among the patient populations, interventions, comparators, and outcomes are depicted for each treatment KQ in Figure A and for each course-of-illness KQ in Figure B.

Figure A. Analytic framework for binge-eating disorder and loss-of-control eating: effectiveness and harms of interventions



BMI = body mass index; GERD = gastroesophageal reflux disease; KQ = Key Question

Figure B. Analytic framework for binge-eating disorder and loss-of-control eating: course of illness (outcomes of the disorders)



BMI = body mass index; GERD = gastroesophageal reflux disease; KQ = Key Question

Methods

Topic Refinement and Protocol Review

This topic and its KQs were developed through a public process. The Binge-Eating Disorder Association nominated the topic. The RTI International–University of North Carolina Evidence-based Practice Center (EPC) further developed and refined the topic with input from Key Informants in the field. The Agency for Healthcare Research and Quality (AHRQ) posted provisional KQs for public comment on January 13, 2014. We incorporated public comments and guidance from a Technical Expert Panel into the final research protocol (posted on the AHRQ Web site on April 4, 2014).

Literature Search Strategy

Search Strategy

We conducted focused searches of MEDLINE® (via PubMed®), Embase®, CINAHL (nursing and allied health database), Academic OneFile, and the Cochrane Library. An experienced research librarian used a predefined list of search terms and medical subject headings. The librarian completed the searches for the draft report on June 23, 2014; she conducted a second (update) search on January 19, 2015, during peer review.

We searched for relevant unpublished and gray literature, including trial registries, specifically ClinicalTrials.gov and Health Services Research Projects in Progress. AHRQ requested Scientific Information Packets (SIPs) from the developers and distributors of interventions identified in the literature review. We also requested Technical Expert Panel members' and Peer Reviewers' recommendations of additional published, unpublished, and gray literature not identified by the review team. We included unpublished studies that met all inclusion criteria and contained enough information on their research methods to permit us to make a standard risk-of-bias assessment of individual studies. This could include, but was not limited to, conference posters and proceedings, studies posted on the Web site ClinicalTrials.gov, and U.S. Food and Drug Administration (FDA) medication approval packages. We included unpublished studies that met all inclusion criteria and contained enough information to permit us to make a standard risk-of-bias assessment. We searched reference lists of pertinent review articles for studies that we should consider for inclusion in this review, including our earlier review on this topic.[16-18]

Inclusion and Exclusion Criteria

We developed inclusion and exclusion criteria with a framework in mind that considered the relationship among the patient populations, interventions, comparators, outcomes, timing of outcome assessments, and settings (PICOTS). We considered only trials or studies written in English; additional evidence possibly available in non–English-language studies that had an abstract in English is also discussed.

The populations of interest are (1) individuals meeting DSM-IV or DSM-5 criteria for BED, (2) postbariatric surgery patients with LOC eating, and (3) children with LOC eating. We excluded studies of individuals with co-occurring anorexia nervosa or bulimia nervosa and studies of children younger than 6 years of age. We excluded trials with fewer than 10 participants and nonrandomized studies with fewer than 50 participants.

Treatments of interest include pharmacological interventions (e.g., antidepressants, anticonvulsants, attention-deficit hyperactivity disorder [ADHD] medications, and weight loss medications) and interventions that combine various psychological and behavioral techniques and principles to varying degrees (e.g., cognitive behavioral therapy [CBT], interpersonal psychotherapy [IPT], behavioral weight loss [BWL], dialectical behavioral therapy [DBT], and psychodynamic interpersonal therapy [PIPT]). We sought evidence on complementary and alternative medicine treatments but did not find any, and such interventions are not further discussed. Treatment combinations could involve psychological and behavioral interventions or psychological and behavioral with pharmacological interventions. Included studies had to have at least two groups. Acceptable comparisons included one of the other treatment comparisons, placebo, nonintervention, wait-list controls, or treatment as usual.

For psychological and behavioral interventions, we evaluated evidence by modality separately: individual and group therapy, and therapist-led and self-help approaches. The modalities involve a different therapist-patient relationship and level of health care resources; and only group therapy includes the influence of other patients suffering from the condition in the therapeutic process.

We specified a broad range of outcomes—intermediate and final health benefit outcomes and treatment harms (Figures A and B). We analyzed five groups of treatment effectiveness and course-of-illness outcomes: binge-eating outcomes, eating-related psychopathology outcomes, weight-related outcomes, general psychological outcomes (e.g., depression), and other (e.g., quality of life). Potential harms (also a broad range of minor to severe side effects or adverse events) varied across intervention types. Outcome differences for subgroups were evaluated for both treatment effectiveness and course of illness. We reported treatment outcomes at the end of treatment or later, but course-of-illness studies had a 1-year minimum followup from the diagnosis.

We included studies with inpatient or outpatient settings. We did not exclude studies based on geography.

Study designs included meta-analyses, systematic reviews, randomized controlled trials (RCTs), nonrandomized controlled trials, prospective and retrospective cohort studies, and case-control studies. We counted systematic reviews only if they provided information used in the evidence synthesis.

Study Selection

Trained members of the research team reviewed article abstracts and full-text articles. Two members independently reviewed each title and abstract using the predefined inclusion and exclusion criteria. Studies marked for possible inclusion by either reviewer underwent a full-text review. Two members of the team independently reviewed each full-text article. If both reviewers agreed that a study did not meet the eligibility criteria, it was excluded; each reviewer recorded the primary reason for exclusion. If reviewers disagreed, they resolved conflicts by discussion and consensus or by consulting a third member of the review team. We screened unpublished studies and reviewed SIPs using the same title/abstract and full-text review processes. The project coordinator tracked abstract and full-text reviews in an EndNote database (EndNote® X4).

Data Abstraction

We developed a template for evidence tables using the PICOTS framework and abstracted relevant information into the tables using Microsoft Excel. We recorded characteristics of study populations, interventions, comparators, settings, study designs, methods, and results. Six trained members of the team participated in the data abstraction. One reviewer initially abstracted the relevant data from each included article; a second more senior member of the team reviewed each data abstraction against the original article for completeness and accuracy.

Risk-of-Bias Assessment

We assessed risk of bias with three appropriate tools, described in more detail in the full report: (1) one for judging trials based on the Cochrane risk-of-bias tool for RCTs and summary judgments corresponding with EPC guidance; (2) one for evaluating risk of bias in non-RCTs and observational studies (modified from 2 existing tools); and (3) AMSTAR (A Measurement Tool To Assess Systematic Reviews) for assessing the quality of a systematic review. Two independent reviewers rated the risk of bias for each study. Disagreements between the two reviewers were resolved by discussion and consensus or by consulting a third member of the team.

Risk of bias is reported as a rating of low, medium, or high. RCTs with a high risk of bias are those with at least one major issue that has the potential to cause significant bias and thus might invalidate its results; such flaws include different application of inclusion/exclusion criteria between arms, substantial differences in arms at baseline, high overall attrition, differential attrition across arms that is not adequately addressed through analytic methods, or lack of control for concurrent treatment. An RCT may be evaluated as medium risk of bias, in contrast to low risk of bias, if the study does not have an obvious source of significant bias but, while it is unlikely that the study is biased because of the reported conduct in relation to other aspects of the trial, information on multiple bias criteria is unclear because of gaps in reporting. A key consideration in evaluating the risk of bias of cohort and case-control studies (only for our course-of-illness analyses) was control for critical potential confounding through design or statistical analyses. If critical information for making that assessment was not reported or was unclear, or if the conduct or analysis was severely flawed, we rated the study as high risk of bias.

To maintain a focus on interpretable evidence, we opted generally not to use trials with a high risk of bias in synthesizing treatment benefits. However, we did consider studies with high risk of bias in sensitivity analyses of our meta-analyses of treatment benefits and as allowable evidence for both treatment harms and course of illness.

Data Synthesis

For quantitative synthesis (meta-analyses to estimate overall effect sizes using Comprehensive Meta-Analysis, version 3.2), we had sufficiently similar evidence for placebo-controlled trials of second-generation antidepressants and lisdexamfetamine and for wait-list–controlled trials of therapist-led CBT. We did all other analyses qualitatively, based on our reasoned judgment of similarities in measurement of interventions and outcomes, and homogeneity of patient populations.

Strength of the Body of Evidence

We graded the strength of evidence based on the "Methods Guide for Effectiveness and Comparative Effectiveness Reviews."[19] This EPC approach incorporates five key domains: study limitations, directness, consistency, precision of the evidence, and reporting bias. Reviewers may also consider three optional domains if relevant to the evidence: increasing dose response, large magnitude of effect, and an effect that would have been larger if confounding variables had not been controlled for in the analysis.

Grades reflect the strength of the body of evidence to answer each KQ. A grade of high strength of evidence indicates that we have high confidence that the evidence reflects the true effect. Moderate strength of evidence indicates that we have moderate confidence that the evidence reflects the true effect. Low strength of evidence suggests that we have low confidence that the evidence reflects the true effect. Insufficient evidence signifies that the evidence is not available, that we are unable to estimate an effect, or that we have no confidence in the estimate of the effect.

Two reviewers assessed each domain independently and also assigned an overall grade for comparisons for each key outcome; they resolved any conflicts through consensus discussion. If they did not reach consensus, the team brought in a third party to settle the conflict.

Applicability

We assessed the applicability both of individual studies and of the body of evidence. For individual studies, we examined factors that may limit applicability (e.g., characteristics of populations, interventions, or comparators). Such factors may lessen our ability to generalize the effectiveness of an intervention for use in everyday practice. We abstracted key characteristics of applicability into evidence tables. During data synthesis, we assessed the applicability of the body of evidence using the abstracted characteristics.

Peer Review and Public Commentary

Experts in BED and LOC eating, specifically clinicians and researchers specializing in pharmacotherapy treatment, psychotherapy and behavioral treatment, pediatrics, and evidence-based interventions, were invited to provide external peer review of the draft review. AHRQ staff (Task Order Officer and EPC Program Director) and an Associate Editor also provided comments. Associate Editors are leaders in their fields who are also actively involved as directors or leaders at their EPC. The draft report was posted on the AHRQ Web site for 4 weeks to elicit public comment. We responded to all reviewer comments and noted any resulting revisions to the text in the Disposition of Comments Report. This disposition report will be made available 3 months after AHRQ posts the final review on its Web site.

Results

We report results by KQ, grouped basically by intervention comparison (for treatment effectiveness and harms). We cover BED, LOC eating, and then course-of-illness findings in that order. Tables C–E summarize key findings and strength-of-evidence grades. The full report contains summary tables for results. Appendix D of the full report documents risk-of-bias assessments; Appendix E presents evidence tables for all included studies.

Literature Searches

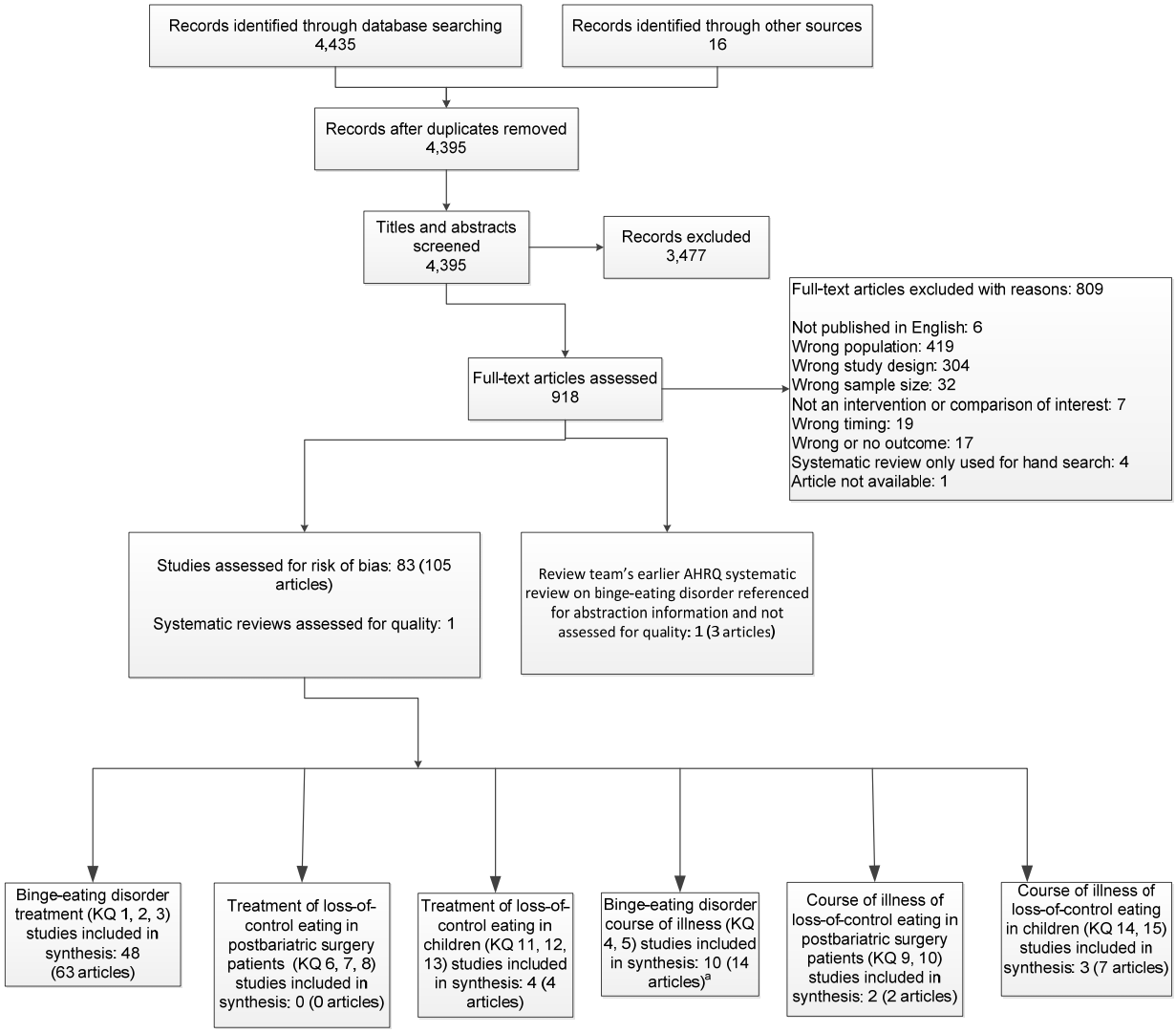
Figure C, a PRISMA [Preferred Reporting Items for Systematic Reviews and Meta-Analyses] diagram, depicts our literature search results. We identified a total of 4,395 unduplicated citations and determined that 918 met criteria for full-text review. We excluded 809 full-text articles based on our inclusion criteria and retained 105 articles reporting on a total of 83 trials or studies and 1 systematic review. Because we used some abstractions from our 2006 systematic review on eating disorders to develop some BED treatment and course-of-illness results, we consider that review as included evidence.[16-18] However, we reevaluated the risk of bias for all earlier included studies because we updated our assessment tools.

We did not use 19 studies in our main analyses of treatment benefits because of their high risk of bias. In keeping with standard approaches, however, we included one of these studies, which compared an antidepressant medication with placebo, in sensitivity analysis of our meta-analysis findings.[20] This was the only study with high risk of bias that reported on a treatment comparison that we evaluated through meta-analysis. We also used seven of the studies with high risk of bias in our assessment of treatment harms.[20-26]

We used 52 studies (67 articles) in our main analysis of treatment benefits (both BED and LOC eating). Fifteen studies (23 articles) met inclusion criteria for course-of-illness KQs. We used all 15 studies in that evidence synthesis, regardless of our risk-of-bias rating for the study.

Of the 20 fair- or good-quality studies on treatment for BED from our previous systematic review, 19 trials met the inclusion criteria for this review. One study was excluded because it used sibutramine, a treatment method no longer available in the United States.[27] Four studies[20,24,28,29] that we had rated as good or fair quality for the earlier review were newly rated as high risk of bias; we omitted them, therefore, from our main analyses. The earlier review also included three studies on BED course of illness that we have used here.[30-32]

Figure C. PRISMA diagram for binge-eating disorder treatment and course of illness



AHRQ = Agency for Healthcare Research and Quality; KQ = Key Question; PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses
[a]Three studies (3 articles) also included for binge-eating disorder treatment (KQ1, 2, 3) synthesis.

Key Question 1. Effectiveness of Interventions for Binge-Eating Disorder

For treatment effectiveness for BED, we address three broad categories of treatment: pharmacological, psychological or behavioral, and combination treatments.

For medications, the 18 included trials involved second-generation antidepressants, anticonvulsants, ADHD medications, an antiobesity drug, and a variety of other agents, including one dietary supplement. Among the antidepressants were several selective serotonin reuptake inhibitors (SSRIs) and several agents that primarily inhibit norepinephrine reuptake (i.e., norepinephrine-dopamine reuptake inhibitor [NDRI] or selective serotonin-norepinephrine reuptake inhibitor [SNRI]). Among the ADHD medications were lisdexamfetamine and atomoxetine.

In the category of psychological and behavioral treatments, the 23 included trials involved CBT, DBT, IPT, BWL, PIPT, and inpatient treatment.

Seven trials provided data on combination treatments, including pairings of CBT, BWL, hypocaloric diet, and diet counseling with either an antidepressant or an antiobesity medication. Two of the seven trials paired compound nonpharmacotherapy treatments (i.e., CBT plus BWL, CBT plus diet counseling) with an antidepressant. All trials testing a combination psychological plus pharmacological treatment arm also included a comparable combination placebo-controlled treatment arm (e.g., CBT plus antidepressant compared with CBT plus placebo).

Given the variability in outcome reporting and treatment comparisons, we were able to conduct meta-analyses only to measure the effectiveness on several outcomes of antidepressant treatments, as a class, compared with placebo; lisdexamfetamine compared with placebo; and therapist-led CBT compared with wait-list.

Pharmacological Interventions: Antidepressants Compared With Placebo

Eight RCTs (all placebo controlled) examined the effectiveness of antidepressants for treating BED patients. Of these, six involved an SSRI,[33-38] and one each involved an NDRI[39] or an SNRI.[40] In the six SSRI trials, two studied fluoxetine,[33,34] and one each studied citalopram,[38] escitalopram,[35] fluvoxamine,[36] and sertraline.[37] Assessments were conducted at the end of treatment.

As a class, antidepressants were associated with better binge-eating outcomes than placebo: abstinence (high strength of evidence for benefit), reduction in frequency of binge episodes per week (high strength of evidence for benefit), and reduction in binge days per week (moderate strength of evidence for benefit). Antidepressants were also associated with greater reductions in eating-related obsessions and compulsions (moderate strength of evidence for benefit). Weight reductions and BMI reductions were no greater with antidepressants (for both outcomes, low strength of evidence for no difference). Lastly, antidepressants were associated with greater reductions in symptoms of depression (low strength of evidence for benefit). The evidence was insufficient to evaluate outcomes for any specific antidepressant medication.

Pharmacological Interventions: Antidepressants Compared With Other Active Interventions

One trial involved a head-to-head comparison of two second-generation antidepressants (fluoxetine and sertraline).[41] The evidence was insufficient for concluding anything about treatment superiority.

Pharmacological Interventions: Anticonvulsants Compared With Placebo

Three placebo-controlled RCTs provided evidence about treating BED patients with anticonvulsants; two involved topiramate[42,43] and one lamotrigine.[44] Topiramate was associated with abstinence among a greater percentage of participants and with greater reductions in binge eating, obsessions and compulsions related to binge-eating, and weight (moderate strength of evidence for benefit); it also produced greater increases in cognitive restraint and reductions in hunger, disinhibition, and impulsivity (low strength of evidence for benefit). The evidence on the efficacy of lamotrigine was limited to one small trial (insufficient strength of evidence).

Pharmacological Interventions: Attention-Deficit Hyperactivity Disorder Medications Compared With Placebo

The included evidence consisted of four placebo-controlled RCTs of pharmacological interventions that were originally formulated for ADHD and were now being tested for treating patients with BED. One trial investigated the norepinephrine reuptake inhibitor atomoxetine,[45] which has been associated with weight loss; the other three studied the stimulant lisdexamfetamine.[46] The effectiveness of atomoxetine was examined in one small RCT (insufficient strength of evidence). Based on evidence from three RCTs, lisdexamfetamine was associated with abstinence among a greater percentage of participants, greater reductions in binge episodes per week, decreased eating-related obsessions and compulsions, and greater reductions in weight (high strength of evidence for all of these outcomes). Depression measures were not consistently reported across the three studies; one of the studies found no difference from placebo (insufficient strength of evidence). Recently, lisdexamfetamine became the first medication approved by the FDA for treating BED patients.[47]

Pharmacological Interventions: Other Medications Compared With Placebo

Three placebo-controlled RCTs dealt with other pharmacological interventions. One trial each investigated the following: the sulfonic acid acamprosate, which is a mixed $GABA_A$ receptor agonist/NMDA receptor antagonist;[48] the μ-opioid antagonist ALKS-33 (also known as samidorphan);[49] and the dietary supplement chromium picolinate.[50] The strength of evidence is insufficient to determine effectiveness of any of these treatments because each was studied in a single, small sample trial.

Behavioral Interventions: Cognitive Behavioral Therapy Compared With No or Limited Intervention

CBT can be delivered in various formats; approaches include therapist-led, partially therapist-led, and self-help strategies (i.e., structured, guided, and pure). The two therapist-led approaches can involve either individual sessions (one-on-one) or group sessions.

Nine trials compared CBT with limited or no intervention.[51-59] Of 12 comparisons (in 7 separate trials) involving CBT and wait-list controls, 5 involved therapist-led CBT,[51-55] 2 involved partially therapist-led CBT,[54,55] 2 used structured self-help CBT,[54,55] 2 used guided self-help CBT including one Internet-based guide[56] and one in-person guide,[57] and 1 used pure self-help CBT.[57] Two wait-list trials delivered CBT in an individual format[56,57] and five delivered CBT in a group format.[51-55]

Therapist-led CBT was related to various improved outcomes, including abstinence, binge frequency, and eating-related psychopathology (high strength of evidence for all outcomes). In contrast, reductions in BMI and symptoms of depression were not greater (both moderate strength of evidence for no difference). Similarly, partially therapist-led CBT was related to a greater likelihood of abstinence and reduced binge frequency (both low strength of evidence), but reductions in BMI and symptoms of depression were not greater (both low strength of evidence for no difference). Structured self-help was associated with reduced binge frequency (low strength of evidence) but no greater reduction in BMI or symptoms of depression (low strength of evidence for no difference).

Five small RCTs examined the effectiveness of guided or pure self-help CBT, but they differed in delivery format or comparator, and therefore evidence was insufficient for all comparisons and outcomes.

Behavioral Interventions: Cognitive Behavioral Therapy Compared With Cognitive Behavioral Therapy Variants

Seven trials compared CBT delivered in one format with CBT delivered in a different format.[54,55,57,60-63] Variations across trials resulted in four therapist-led comparisons: exposure versus cognitive restructuring,[60] CBT alone versus CBT plus ecological momentary assessment,[61] individual versus group,[62] and fully therapist-led versus partially therapist-led interventions.[54,55,63] Several self-help comparisons were also tested: one for guided self-help versus pure self-help[57] and two for therapist-led versus structured self-help.[54,63]

Only three of these comparisons were replicated in more than one trial. Binge-eating outcomes did not differ across comparisons of variations in therapist-led CBT, with one exception favoring therapist-led over structured self-help in one trial (low strength of evidence for no difference). BMI and depression outcomes did not differ across types of CBT (both moderate strength of evidence for no difference).

Behavioral Interventions: Cognitive Behavioral Therapy Compared With Behavioral Weight Loss

Four trials compared CBT with BWL approaches;[59,64-66] one also compared CBT and BWL (separately) with CBT plus BWL.[65] The CBT format varied across trials and included both therapist-led[64,65] and guided self-help.[59,66] For comparisons with therapist-led CBT, results were mixed. Binge frequency was lower in the therapist-led CBT arm (low strength of evidence), and BMI reduction was greater in the BWL arm at the end of treatment (moderate strength of evidence); the groups did not differ with respect to abstinence, eating-related psychopathology, or depression outcomes (low strength of evidence for no difference). Evidence on comparisons with guided self-help was insufficient because all comparisons were limited to single, small trials.

Behavioral Interventions: Cognitive Behavioral Therapy Compared With Interpersonal Therapy

Three trials compared CBT with interpersonal therapy strategies in treating patients with BED.[51,66,67] Two trials compared therapist-led IPT with either therapist-led CBT[68] or guided self-help CBT.[66] Another trial compared therapist-led CBT with therapist-led PIPT.[51] Because trials differed in the intervention types that were compared, we could not synthesize results across trials (insufficient strength of evidence for all outcomes).

Behavioral Interventions: Cognitive Behavioral Therapy Combined With Diet or Weight-Loss Interventions

Three trials examined the use of CBT plus additional interventions involving either diet or weight-loss strategies (or both) in treating patients with BED. These involved two trials comparing CBT alone with CBT plus a diet or weight-loss intervention[65,69] and a single trial comparing CBT plus a low-energy dense diet with CBT plus general nutritional counseling. No significant differences were found for virtually any outcomes (insufficient strength of evidence in all cases).

Behavioral Interventions: Behavioral Weight Loss

Two trials tested BWL interventions for BED patients. These compared guided self-help BWL with an active control[59] and therapist-led BWL with therapist-led IPT.[66] Strength of evidence was insufficient because each comparison was limited to one small trial.

Behavioral Interventions: Psychodynamic Interpersonal Therapy Versus Wait-List

One small trial examined the effectiveness of therapist-led group PIPT.[51] Strength of evidence was insufficient for all outcomes.

Behavioral Interventions: Dialectical Behavioral Therapy

One trial evaluated therapist-led DBT against therapist-led active comparison-group therapy (insufficient strength of evidence for all outcomes).[70-72]

Behavioral Interventions: Inpatient Treatment Versus Inpatient Treatment Plus Active Therapies

Three trials examined treatment in an inpatient setting.[73-75] In each trial, patients received a standard inpatient care program and were randomized to additional active therapies. Two trials used virtual reality treatments that aimed to reduce body image distortions and food-related anxiety. However, these trials differed in several ways, so results were all based on single, small studies (insufficient strength of evidence for all outcomes).

Pharmacological Interventions: Combination Treatments Compared With Placebo and With Other Treatments

Evidence about combination interventions came from seven placebo-controlled RCTs. In all seven trials, investigators combined a medication with a psychological treatment; in two, they combined a medication with two psychological treatments.[34,76] Three trials used an antidepressant;[34,76,77] one, an anticonvulsant;[78] and three, an antiobesity agent.[79-81] The psychological interventions included CBT in three trials,[34,78,80] BWL in one trial,[80] CBT plus BWL in one trial,[77] hypocaloric diet in one trial,[81] and group psychological support plus diet counseling in one trial.[76] The strength of evidence was insufficient to reach a conclusion concerning the effectiveness of any specific combination treatment because each combination was studied only in a single, small trial.

Key Question 2. Harms Associated With Treatments or Combinations of Treatments for Binge-Eating Disorder

Virtually all harms were limited to pharmacotherapy intervention trials (reported in 33 trials). Harms associated with treating BED patients and discontinuations from studies attributable to harms occurred approximately twice as often in patients receiving pharmacotherapy as in those receiving placebo. The number of serious adverse events was extremely low. Topiramate was associated with a significantly higher number of events involving sympathetic nervous system arousal (e.g., sweating, dry mouth, rapid heart rate) and "other" events (moderate strength of evidence), as well as a higher number of events related to sleep disturbance (low strength of evidence). Fluvoxamine was associated with greater gastrointestinal (GI) upset and sleep disturbances (low strength of evidence). Lisdexamfetamine was associated with a significantly

higher likelihood of insomnia and headache (high strength of evidence), as well as greater GI upset, central nervous system arousal, and decreased appetite (moderate strength of evidence).

Key Questions 6 and 7. Effectiveness of Interventions (and Harms From Interventions) for Loss-of-Control Eating in Bariatric Surgery Patients

We found no evidence meeting our inclusion criteria that examined treatments or combinations of treatments for LOC eating among bariatric surgery patients.

Key Questions 11 and 12. Effectiveness of Interventions (and Harms From Interventions) for Loss-of-Control Eating in Children

Four small trials examined behavioral interventions for children with LOC eating.[82-85] One trial was a pilot for a larger trial by the same investigator group. The trials differed in the age range of participants (adolescents only or both adolescents and younger children), the definition of LOC eating that the investigators used to determine participant eligibility, treatment comparisons, and measures used to evaluate binge outcomes. With the exception of weight (low strength of evidence for no difference), strength of evidence was insufficient across all outcomes.

Key Questions 3, 8, and 13. Differences in the Effectiveness of Treatments or Combinations of Treatments for Subgroups

We found no evidence on differences by age, sex, race, ethnicity, sexual orientation, initial BMI, duration of illness, or coexisting conditions in any of our three populations of interest: patients with binge-eating disorder, bariatric surgery patients with LOC eating, and children with LOC eating.

Key Question 4. Course of Illness Among Individuals With Binge-Eating Disorder

Our evidence included 10 studies; all followed patients who had been identified through their earlier participation in a treatment study.[30,31,62,66,67,86-93] Factors that individual studies identified as being related to better outcomes included more rapid response to treatment, improvement in eating-related psychopathology, and improvement in non–eating-related psychopathology. Studies differed in the characteristics that the investigators had hypothesized might be related to better outcomes (insufficient strength of evidence). Binge outcomes were the most commonly reported outcomes across studies. Four studies reported weight outcomes (BMI), but results were mixed (insufficient strength of evidence). One study found an increased risk of miscarriage among women with BED (insufficient strength of evidence).[94] Finally, one study (of attempted suicides)[93] and a review article of three studies (of suicides)[92] found no evidence of increased risk of suicide among BED patients 5 years after treatment (moderate strength of evidence for no effect).

Key Question 9. Course of Illness Among Bariatric Surgery Patients With Loss-of-Control Eating

Two studies met our inclusion criteria but differed in the criteria they used for defining LOC eating before surgery.[32,95] One study found that LOC eating before surgery was related to LOC eating following surgery but not to weight loss or weight regain (insufficient strength of evidence across all outcomes because of a lack of clear and consistent findings in more than 1 study.)

Key Question 14. Course of Illness Among Children With Loss-of-Control Eating

Evidence concerning the course of illness among children with LOC eating behavior came from three longitudinal cohort studies.[96-102] Early adolescent binge or LOC eating predicted similar behavior in later adolescence in two studies (low strength of evidence). Evidence of additional outcomes was limited or inconsistent across studies (insufficient strength of evidence).

Key Questions 5, 10, and 15. Differences in Course of Illness for Subgroups

We found no evidence examining differences in the course of illness based on differences in sociodemographic or health characteristics (age, sex, race, ethnicity, sexual orientation, initial BMI, duration of illness, or coexisting conditions) in any of our three populations of interest: individuals with binge-eating disorder, bariatric surgery patients with LOC eating, and children with LOC eating.

Discussion

Key Findings and Strength of Evidence

We limit our discussion to key findings, chiefly on effectiveness (KQ 1) and harms (KQ 2) of common therapies for BED patients. Tables document main findings and strength-of-evidence grades (arrived at following AHRQ guidance). Other treatment results for BED and all treatment results for LOC eating can be found in the previous results section and in more detail in the full report. We comment briefly on course of illness in this section.

Key Question 1. Effectiveness of Treatments or Combinations of Treatments for Binge-Eating Disorder

Commonly studied treatments for BED patients are pharmacological agents and therapies that combine psychological and behavioral approaches. For outcomes of pharmaceuticals (compared with placebo) and psychological and behavioral treatments (compared with wait-list or inactive controls), findings are limited to outcomes measured at the end of treatment. In contrast, patients enrolled in comparative effectiveness trials comparing two or more psychological and behavioral treatments or two or more formats of the same intervention tended to be assessed beyond the end of treatment, most commonly less than 1 year but in some instances 2 years or more.

Pharmacological Interventions

Table C summarizes the pharmacological interventions on which we had low, moderate, or high strength of evidence for clinical outcomes. Evidence based on meta-analyses pertains to second-generation antidepressants and lisdexamfetamine; evidence based on qualitative synthesis pertains to topiramate and lisdexamfetamine.

As a class, second-generation antidepressants were superior to placebo for achieving BED-specific and related clinical outcomes; the magnitude of the benefits generally was modest. Evidence was insufficient to demonstrate the effectiveness or comparative effectiveness of specific second-generation antidepressants for treating BED patients. Antidepressants were 1.67 times as likely as placebo to help patients achieve abstinence from binge eating (high strength of evidence). They reduced the weekly frequency of binge-eating episodes by approximately two-thirds of a binge episode per week (high strength of evidence) and approximately one binge-eating day (moderate strength of evidence). Even though patients improved, many did not achieve abstinence with antidepressants; 41 percent of those receiving antidepressants and 23 percent of those receiving placebo achieved abstinence.

For treating psychological aspects and correlates of BED, antidepressants helped reduce obsessive thoughts and compulsions related to binge eating and modestly improved symptoms of depression (low strength of evidence for benefit).

Overweight and obese patients treated with antidepressants did not lose significantly more weight during treatment than those who did not receive an antidepressant; BMI did not differ between groups (low strength of evidence for no difference in both cases). Given the limited impact on weight and the short length of treatment (6 to 12 weeks), finding no difference in the change in BMI at the end of treatment is not surprising.

Table C. Strength of evidence for pharmacological interventions to improve outcomes in binge-eating disorder

Intervention and Comparator	Number of Studies (Sample Sizes)	Outcome and Results	Strength of Evidence
Second-generation antidepressants vs. placebo	MA of 8 RCTs (N = 416)	Antidepressants increased binge abstinence: RR, 1.67 (95% CI, 1.24 to 2.26; p = 0.001)	High for benefit
	MA of 7 RCTs (N = 331)	Antidepressants decreased the frequency of binge episodes per week: mean difference, −0.67 (95% CI, −1.26 to −0.09; p = 0.024)	High for benefit
	MA of 3 RCTs (N = 122)	Antidepressants decreased the frequency of binge days: mean difference, −0.90 (95% CI, −1.48 to −0.32; p = 0.002)	Moderate for benefit
	MA of 3 RCTs (N = 122)	Antidepressants decreased eating-related obsessions and compulsions based on— • Mean difference in YBOCS-BE: total, −3.84 (95% CI, −6.56 to −1.12; p = 0.006) • YBOCS-BE obsessions: −1.53 (95% CI, −2.69 to −0.37; p = 0.010) • YBOCS-BE compulsions: −2.31 (95% CI, −3.85 to −0.76; p = 0.003)	Moderate for benefit for total, obsessions, and compulsions
	MA of 4 RCTs (N = 182)	No difference in weight: mean difference in kg, -3.91 (95% CI, -10.14 to 2.32; p = 0.219)	Low for no difference
	MA of 6 RCTs (N = 297)	No difference in BMI: mean difference, −1.05 (95% CI, 2.64 to 0.55; p = 0.198)	Low for no difference
	MA of 3 RCTs (N = 142)	Antidepressants decreased symptoms of depression: mean difference, −1.98 (95% CI, −3.67 to −0.28; p = 0.022)	Low for benefit

Table C. Strength of evidence for pharmacological interventions to improve outcomes in binge-eating disorder (continued)

Intervention and Comparator	Number of Studies (Sample Sizes)	Outcome and Results	Strength of Evidence
Topiramate vs. placebo	2 RCTs (N = 468)	Topiramate increased binge abstinence	Moderate for benefit
	2 RCTs (N = 468)	Topiramate decreased the frequency of binge episodes	Moderate for benefit
	2 RCTs (N = 468)	Topiramate decreased eating-related obsessions and compulsions	Moderate for benefit
	2 RCTs (N = 468)	Topiramate decreased weight	Moderate for benefit
	1 RCT (N = 407)	Topiramate improved general and eating-related psychological functioning, as indicated by increases in cognitive control of eating and decreases in symptoms of psychological distress, susceptibility to hunger, and disinhibition of control over eating	Low for benefit
	1 RCT (N = 407)	Topiramate decreased impulsivity	Low for benefit
	1 RCT (N = 407)	Topiramate decreased disability in family and social domains	Low for benefit
Lisdexamfetamine vs. placebo	MA of 3 RCTs (N = 966)	Lisdexamfetamine increased binge abstinence: RR, 2.61 (95% CI, 2.04 to 3.33; p = 0.000)	High for benefit
	3 RCTs (N = 966)	Lisdexamfetamine decreased binge episodes per week	High for benefit
	3 RCTs (N = 966)	Lisdexamfetamine decreased eating-related obsessions and compulsions based on mean difference in YBOCS-BE total	High for benefit
	3 RCTs (N = 966)	Lisdexamfetamine decreased weight	High for benefit

BMI = body mass index; CI = confidence interval; MA = meta-analysis; RCT = randomized controlled trial; RR = risk ratio; YBOCS-BE = Yale-Brown Obsessive Compulsive Scale Modified for Binge Eating.

Topiramate reduced the frequency of binge eating by approximately 1 binge day per week more than placebo; it helped more patients (BED, 58%; placebo, 28%) achieve abstinence from binge eating (moderate strength of evidence for benefit).Topiramate helped lower obsessive thoughts and compulsions related to binge eating by approximately 30 percent more than placebo and reduce greater general psychological distress symptoms by approximately 23 percent more than placebo (moderate strength of evidence for benefit). Among overweight and obese patients, those treated with topiramate lost, on average, approximately 10 pounds more (equivalent to ~4% more total body weight) than those who received placebo (moderate strength of evidence for benefit). Compared with placebo, topiramate also decreased patients' susceptibility to hunger as a trigger for binge eating, improved their general tendency to act less impulsively, increased their sense of cognitive control over their binge eating, and decreased disruptions in their social and family life (low strength of evidence for benefit).

Lisdexamfetamine improved binge-eating outcomes. Patients treated with lisdexamfetamine were 2.61 times as likely to achieve abstinence from binge eating as those who received placebo (high strength of evidence for benefit): across all study participants, 40 percent in the treatment arm, compared with 15 percent in the placebo arm, achieved abstinence. Patients treated with lisdexamfetamine also experienced a greater reduction in binge-eating days per week than those receiving placebo: point estimates of the differences in two Phase 3 trials were 1.3 and 1.7 fewer days, respectively (high strength of evidence for benefit). Lisdexamfetamine was associated with superior eating-related psychopathology outcomes, as measured through the Yale-Brown Obsessive Compulsive Scale Modified for Binge Eating (YBOCS-BE) (high strength of evidence for benefit), and with weight reduction (high strength of evidence). However, data on

depression and other psychological outcomes were too limited to be evaluated (insufficient strength of evidence).

Psychological and Behavioral Interventions

Table D summarizes the psychological and behavioral interventions for which we had low, moderate, or high strength of evidence for treatment benefits. We found evidence for all outcomes at the end of treatment and for some outcomes over periods as long as 6 years after treatment ended.

CBT reduced outcomes related to BED, measured as binge frequency and achieved abstinence, compared with those on wait-list. These benefits were apparent for four forms of CBT (therapist led, high strength of evidence; partially therapist led, structured self-help CBT, and guided self-help CBT, all low strength of evidence). Evidence of the benefits of therapist-led CBT was particularly compelling; meta-analyses estimated a 4.95 times greater likelihood of abstinence (59% CBT; 11% wait-list) and a reduction of 2.3 binge episodes per week. For reducing general and eating-related psychological symptoms, therapist-led CBT reduced patients' susceptibility to hunger and eating concerns and improved their sense of control over eating (high strength of evidence); guided self-help CBT helped patients reduce global eating-related psychopathology (low strength of evidence). However, across the various forms of CBT, treatment was generally no better than wait-list for reducing weight or symptoms of depression (low strength of evidence for no difference). Collectively, this body of evidence suggests that some forms of CBT help patients with BED improve in several key behavioral and eating-specific psychological domains.

Table D. Strength of evidence for psychological or behavioral interventions to improve outcomes in binge-eating disorder

Intervention and Comparator	Number of Studies (Sample Sizes)	Outcome and Results	Strength of Evidence
Therapist-led CBT vs. wait-list	MA of 4 RCTs (N = 295)	CBT increased binge abstinence: RR, 4.95 (95% CI, 3.06 to 8.00; p = 0.000)	High for benefit
	MA of 3 RCTs (N = 208)	CBT decreased the frequency of binge episodes per week: mean difference, −2.32 (95% CI, −4.56 to −0.09; p = 0.04)	High for benefit
	5 RCTs (N = 344)	CBT decreased eating-related psychopathology	High for benefit
	5 RCTs (N = 344)	No difference for BMI	Moderate for no difference
	5 RCTs (N = 344)	No difference for symptoms of depression	Moderate for no difference
Partially therapist-led CBT vs. wait-list	2 RCTs (N = 162)	CBT decreased binge frequency	Low for benefit
	2 RCTs (N = 162)	CBT increased binge abstinence	Low for benefit
	2 RCTs (N = 162)	No difference for BMI	Low for no difference
	2 RCTs (N = 162)	No difference for symptoms of depression	Low for no difference
Structured self-help CBT vs. wait-list	2 RCTs (N = 162)	CBT decreased binge frequency	Low for benefit
	2 RCTs (N = 162)	No difference for BMI	Low for no difference
	2 RCTs (N = 162)	No difference for symptoms of depression	Low for no difference
Guided self-help CBT vs. wait-list	2 RCTs (N = 122)	CBT increased binge abstinence	Low for benefit
	2 RCTs (N = 122)	CBT decreased binge frequency	Low for benefit
	2 RCTs (N = 122)	CBT decreased eating-related psychopathology	Low for benefit

Table D. Strength of evidence for psychological or behavioral interventions to improve outcomes in binge-eating disorder (continued)

Intervention and Comparator	Number of Studies (Sample Sizes)	Outcome and Results	Strength of Evidence
Therapist-led vs. partially therapist-led CBT	2 RCTs (N = 158)	No difference in binge frequency or abstinence	Low for no difference
	2 RCTs (N = 158)	No difference in eating-related psychopathology	Low for no difference
	2 RCTs (N = 158)	No difference in BMI	Low for no difference
	2 RCTs (N = 158)	No difference in symptoms of depression	Low for no difference
Therapist-led vs. structured self-help CBT	2 RCTs (N = 158)	No difference in eating-related psychopathology	Low for no difference
	2 RCTs (N = 158)	No difference in BMI	Low for no difference
	2 RCTs (N = 158)	No difference in symptoms of depression	Low for no difference
Partially therapist-led vs. structured self-help CBT	2 RCTs (N = 164)	No difference in binge frequency or abstinence	Low for no difference
	2 RCTs (N = 164)	No difference in eating-related psychopathology	Low for no difference
	2 RCTs (N = 164)	No difference in BMI	Low for no difference
	2 RCTs (N = 164)	No difference in symptoms of depression	Low for no difference
Therapist-led CBT vs. BWL	2 RCTs (N = 170)	CBT decreased binge frequency more than BWL at end of treatment and up to 12-month followup	Low for benefit
	2 RCTs (N = 170)	No difference in abstinence	Low for no difference
	2 RCTs (N = 170)	No difference in eating-related psychopathology	Low for no difference
	2 RCTs (N = 170)	BWL decreased BMI more than CBT at end of treatment	Moderate for BWL benefit
	2 RCTs (N = 170)	No difference in symptoms of depression	Low for no difference

BMI = body mass index; BWL = behavioral weight loss; CBT = cognitive behavioral therapy; MA = meta-analysis; RCT = randomized controlled trial; RR = risk ratio

We examined the comparative effectiveness of three different forms of CBT with each other: therapist-led CBT, partially therapist-led CBT, and structured self-help CBT. These comparisons are of interest, as they provide insight about the relative importance of therapist involvement in the effectiveness of CBT. Across comparisons, we found virtually no differences in binge-eating, BMI, or depression outcomes (low strength of evidence for no difference). All three of the CBT approaches were generally effective at helping patients both achieve binge abstinence and reduce binge frequency, most notably at end of treatment but throughout both short-term (6 month) and long-term (12 month) followup. Thus, although CBT variations generally did not differ in their ability to improve outcomes related to binge eating, they produced significant improvements in core outcome domains (regardless of treatment arm) over time.

We compared therapist-led CBT with therapist-led BWL treatment on outcomes assessed at the end of treatment and, in limited studies, for up to 6 years after treatment ended. CBT was superior to BWL for decreasing binge frequency at end of treatment and up to 12-month followup (low strength of evidence for benefit). BWL produced better BMI outcomes than CBT at end of treatment (moderate strength of evidence), but BWL patients tended to regain the weight they had lost during treatment. However, groups did not differ in abstinence, eating-related psychopathology, or symptoms of depression at end of treatment or at 12-month or 6-year followup.

Key Question 2. Evidence for Harms Associated With Treatments for Binge-Eating Disorder

We identified potential harms or side effects only for pharmacotherapy trials (comparisons with placebo). Table E summarizes the interventions for which we had low, moderate, or high strength of evidence for harms. Symptoms of sympathetic nervous system arousal were more common among patients who received topiramate than those who received placebo (moderate strength of evidence). Topiramate was also associated with headaches and sleep disturbances (low strength of evidence) and with a collection of other symptoms, including rash, high blood pressure, confusion, and taste aversion (moderate strength of evidence). Patients treated with fluvoxamine reported symptoms of GI upset and sleep disturbances more frequently than patients who received placebo (low strength of evidence). Patients treated with lisdexamfetamine more commonly experienced GI upset (moderate strength of evidence), sympathetic nervous system arousal (moderate strength of evidence), insomnia (high strength of evidence), headache (high strength of evidence) and decreased appetite (moderate strength of evidence).

Table E. Strength of evidence for harms of pharmacological interventions to improve outcomes in binge-eating disorder

Intervention and Comparator	Number of Studies (Sample Sizes, Number of Reported Events)	Outcome and Results	Strength of Evidence
Topiramate versus placebo	2 RCTs (N = 468, 94)	Topiramate and placebo: no difference related to GI upset	Low for no difference
	2 RCTs (N = 468, 243)	Topiramate: higher number of events related to sympathetic nervous system arousal	Moderate for harm
	2 RCTs (N = 468, 89)	Topiramate: higher number of events related to sleep disturbance	Low for harm
	2 RCTs (N = 468, 73)	Topiramate: higher number of headaches	Moderate for harm
	2 RCTs (N = 468, 179)	Topiramate: higher number of other events[a]	Moderate for harm
Fluvoxamine vs. placebo	2 RCTs (N = 105, 24)	Fluvoxamine: higher number of events related to GI upset	Low for harm
	2 RCTs (N=105, 22)	Fluvoxamine higher number of events related to sympathetic nervous system arousal	Low for harm
	2 RCTs (N = 105, 57)	Fluvoxamine: higher number of events related to sleep disturbance	Low for harm
Lisdexamfetamine vs. placebo	3 RCTs (N = 938, 119)	Lisdexamfetamine: higher number of events related to GI upset	Moderate for harm
	3 RCTs (N = 938, 342)	Lisdexamfetamine: higher number of events related to sympathetic nervous system arousal	Moderate for harm
	MA, 3 RCTs (N = 938, 78)	Lisdexamfetamine: higher likelihood of insomnia (RR, 2.66; 95% CI, 1.63 to 4.31; p = 0.00)	High for harm
	3 RCTs (N = 938, 111)	Lisdexamfetamine: higher likelihood of headache (RR, 1.63; 95% CI, 1.13 to 2.36; p = 0.009)	High for harm
	3 RCTs (N = 938, 66)	Lisdexamfetamine: higher number of events related to decreased appetite	Moderate for harm

CI = confidence interval; GI = gastrointestinal; MA = meta-analysis; RCT = randomized controlled trial; RR = risk ratio
[a]Includes confusion, depression, eructation, high blood pressure, language problems, rash or itching, respiratory illness, rhinitis, sinusitis, taste aversion, urinary hesitancy, bone fracture resulting from accidental injury, and other problems.

Key Question 4. Course of Illness Among Individuals With Binge-Eating Disorder

Ten studies (trials or observational studies, including 3 rated high risk of bias) provided information on outcomes of BED patients 1 year or longer after their diagnosis; all involved only

individuals who had participated in BED treatment studies. Investigators commonly reported binge outcomes, but they tended to offer different hypotheses about what factors might be related to better outcomes; these variables included more rapid response to treatment, improvement in eating-related psychopathology, and improvement in non–eating-related psychopathology. One study found that the odds of miscarriage were higher among women with BED (1 study, insufficient evidence); a review article (3 studies) and an additional study found no evidence of increased risk of suicide among BED patients 5 years after treatment (moderate strength of evidence for no effect.)

Findings in Relation to What Is Already Known

Our 2006 review, "Management of Eating Disorders,"[16-18] included evidence on treatment and course of illness for BED. Based on our qualitative analysis of eight RCTs, we concluded that medications improved clinical outcomes. Two later meta-analyses reached a similar conclusion. Stefano and colleagues[103] included seven (of our 8) RCTs and focused specifically on antidepressant medications; Reas and Grilo[104] included six of those RCTs and two new trials of SSRIs, and focused specifically on SSRIs. Those studies estimated similar effect sizes for abstinence (risk ratio of nonabstinence from binge eating: 0.77 and 0.81, respectively), but they reached different conclusions about weight and depression outcomes.

For the current review, we excluded two of the eight RCTs from our earlier review (one because it was newly rated as high risk of bias and a second because it used a medication no longer available in the United States). Also, we included two newer antidepressant trials,[39,40] one anticonvulsant trial,[44] one trial of atomoxetine,[45] and three new trials of lisdexamfetamine[46,105-107] not included in either the 2008 or 2009 meta-analyses.

Based on this additional evidence, we confirmed our earlier conclusion about the effectiveness of second-generation antidepressants for binge abstinence and binge frequency. We also provided new findings regarding the effectiveness of second-generation antidepressants for eating-related obsessions and compulsions, weight, and depression outcomes. In the current review, we included one additional anticonvulsant RCT but were not able to add new information regarding effect size for anticonvulsant medications because of high variability among studies.

With regard to psychological and behavioral interventions, our previous review concluded that CBT effectively reduces binge frequency and increases binge abstinence, based on a qualitative synthesis of eight RCTs. For the current review, we excluded 2 of the 8 RCTs from our earlier review (newly rated as high risk of bias[28,29]) and added 16 new RCTs.[51-53,56,58,59,61,62,64-66,69,70,74,75,108] Based on this newer body of evidence, we confirmed our earlier conclusion establishing CBT as an effective treatment for improving binge abstinence and reducing binge frequency; we also reported its effectiveness at reducing eating-related psychopathology. We provided new findings about the effectiveness of different forms of therapist involvement in CBT interventions and for promising interventions such as IPT and DBT.

For BED course of illness, our earlier review identified only three studies. Although the evidence base is larger for this review, the new studies provide little additional insight. They are mostly case series designs without comparisons or controls for potential confounding factors associated with outcomes, and they are limited to patients followed after treatment.

Our review is the only one that we have identified that has summarized the evidence on treatment and course of illness for bariatric surgery patients and children with LOC eating.

Implications for Clinical and Policy Decisionmaking

We had hoped to comment on the effectiveness and harms of specific pharmacological and psychological or behavioral treatments for BED and on the comparative effectiveness of specific treatments for BED. Unfortunately, the heterogeneity in approaches precluded offering much in the way of implications for clinical practice or policy decisionmaking. Key conclusions with meaningful ramifications for either clinical applications or policymaking follow.

For several key outcomes, we found clear evidence of benefits with second-generation antidepressants; however, we cannot comment on the effectiveness of any specific second-generation antidepressant. We confirmed previous observations of benefit with topiramate and presented new evidence of clear benefit from lisdexamfetamine. We also found strong evidence of benefit with therapist-led CBT for several key outcomes and support for the effectiveness of other forms of CBT (i.e., partially therapist-led CBT and guided self-help CBT).

Harms of psychological and behavioral treatments were rarely reported but commonly known side effects with topiramate, fluvoxamine, and lisdexamfetamine were reported. The FDA has determined that these three drugs are associated with potential risk during pregnancy; in particular, topiramate is associated with increased risk of oral clefts in newborns.[109] No pregnancy-related harms occurred in the included studies, in which women of childbearing age were overrepresented.[8] Nonetheless, clinicians may want to counsel women patients of childbearing age about the pregnancy risks of these medications in determining their long-term treatment plans.

Overall, based on the available evidence for both benefits and harms, clinicians may find second-generation antidepressants, topiramate, medications formulated for ADHD (notably lisdexamfetamine), and a few forms of CBT to be reasonable choices for the treatment of BED.

The superiority of a few CBT formats was determined for efficacy but not for comparative effectiveness; outcomes from CBT interventions were assessed in comparison with no intervention at all (wait-list control). Limited data emerged on the comparative effectiveness of various formats of CBT or comparisons between CBT formats and other approaches. Although virtually none of the available evidence showed superiority of one approach over another, we caution readers not to conclude that this implies that the various behavioral and psychological intervention formats are identical in terms of outcomes; the point is that they are not significantly different. None of the included comparative effectiveness studies was designed to examine the equivalence or noninferiority of approaches.[110] These findings have implications for decisionmakers who may be considering the resources needed for therapist-led interventions relative to those for other, less therapist-intensive forms of CBT or other behavioral interventions. These considerations may be particularly relevant for broader community settings, such as rural areas that may have limited availability of specialized treatment for BED or LOC eating.

Data on other promising treatment options, such as IPT and DBT, were limited to single trials because investigators used a wide array of delivery formats. Clinicians may want to consider these treatments for some patients. The effect of IPT on binge abstinence may be particularly durable; one study found that at 4-year followup, binge abstinence was greater in IPT than CBT patients.

We had wanted to examine the potential impact of the DSM-5 changes to make the BED diagnostic criteria less stringent: the binge frequency criterion was lessened and the duration of illness shortened. Clinicians, patients, and policymakers might have considerable interest in knowing whether effective treatment options may differ in this newly included group of patients.

Unfortunately, no study provided separate results for a patient population diagnosed according to DSM-5.

We also sought to provide useful evidence concerning effective treatments for two specific populations of individuals with LOC eating. Given the complete lack of studies for bariatric surgery patients and only inconclusive or inconsistent information about children, we cannot pose any definitive implications for clinicians or policymakers at this time.

Applicability

Population

Findings about BED treatment interventions are likely to be applicable to all adults age 18 and older with the disorder, but chiefly to overweight or obese women. We cannot comment on the applicability of treatment findings for specific subgroups of adults (even among women) or whether findings extend to BED patients diagnosed based on DSM-5 criteria (which are less stringent than those for DSM-IV). Also unclear is whether our findings apply to adolescents with BED or to various minority groups.

The evidence base about treating LOC eating was small for children and nonexistent for bariatric surgery patients. Thus, generalizing to child patient populations is probably inappropriate, and generalizing to bariatric surgery patients is impossible. A key drawback is that appropriate and consistent diagnostic criteria that clinicians might reliably use to identify LOC eating have not been established.

For BED course of illness, generalizing our findings to an untreated population would be inappropriate. We can, however, offer hypotheses about several ongoing concerns. In particular, untreated BED could likely become a chronic condition that might, in turn, result in deleterious mental and physical health effects. Left untreated, the condition may lead to or worsen other mental health concerns (e.g., depression or anxiety) or physical health conditions (e.g., diabetes or irritable bowel syndrome).

Interventions and Comparators

In general, we believe that the findings about selected second-generation antidepressants, topiramate, ADHD medications, and a few forms of CBT are applicable to the BED patient populations studied. Only lisdexamfetamine has FDA approval for treating BED (presumably taking both benefits and adverse events into account).

For most treatments, tested in only a single study, we cannot draw any clear implications for clinical or policy decisionmaking. This is true for classes of interventions and single agents, such as individual antidepressants. No evidence is available on complementary and alternative medicine approaches for either BED or LOC eating.

Outcomes

Although we cast a wide net for outcomes, our primary focus was on reductions in commonly measured BED symptomatology, including binge frequency, eating-related obsessions and compulsions, restraint, shape and weight concerns, weight, and depression. Investigators used a considerable array of different measures or instruments to assess these outcomes; this heterogeneity constrains our ability to conclude that findings can be generalized with confidence across all outcome categories of interest. We did not find sufficient information to draw any conclusions about treatment effectiveness for more global measures, such as quality

of life or lost productivity; neither did we find evidence about treatment effectiveness as it relates to final health outcomes such as diabetes, gastric reflux, and irritable bowel syndrome. Given the scarcity of information about LOC eating, we can conclude little or nothing about the applicability of these trials to proposed or potential outcomes of treatment among bariatric surgery patients or children.

Timeframes

All trials of medications measured outcomes at the end of treatment, but many of these trials were relatively short; only two trials reported followup beyond the end of treatment.[111,112] Similar studies examining the efficacy of psychological and behavioral interventions measured outcomes at the end of treatment. Comparative effectiveness studies on different psychological or behavioral interventions or different intervention formats were more likely to include both short- and long-term followup; one trial extended to 6 years after the end of treatment. Generally, the applicability of these trials for understanding the long-term impacts of treatment (benefits or harms) is relatively limited because the long-term efficacy of the individual treatments has not been established; the applicability of these studies (especially the pharmacological trials) for short-term benefits may be somewhat stronger.

Settings

The evidence base for both BED and, in children, LOC eating was largely outpatient care, which is the standard of care in the United States. We found very limited evidence about inpatient therapies, and the patient populations in studies of inpatient care (all conducted in Italy) would be unlikely to be eligible to receive inpatient care in the United States. Of all the trials we included for either BED or LOC, most were conducted in clinical settings in North America (mainly United States but also Canada); evidence also came from studies conducted in Scandinavia or elsewhere in Europe.

Generally, apart from considerations relating to health systems and insurance for the few investigations done outside North America, results are applicable to U.S. patient populations. However, most studies were conducted in supervised settings generally associated with academic research and medical centers, where medication treatment was likely managed by a psychiatrist, and psychological and behavioral treatments were likely delivered by highly trained personnel. It is unclear whether our findings apply to the real-world settings in which individuals seek and receive treatment in their local community through contact with their primary care physician or other community-based providers who do not have specific expertise in BED treatment.

Limitations of the Review Process

For this review, we excluded non–English-language studies based largely on limitations of time and resources. However, we examined English-language abstracts of non–English-language studies to assess the potential size of the literature that would be missed through this approach. Based on this exercise, we concluded that by limiting our review to English-language studies only, we may have missed only one systematic review of exercise as treatment for BED patients.

Limitations of the Evidence Base

For all medications except fluoxetine, topiramate, and lisdexamfetamine; many psychological and behavioral studies; and all combination treatment studies, the evidence base for treatment efficacy comprised only single studies. The evidence base was extremely limited in

scope and volume for treatment of LOC eating in children and nonexistent for bariatric surgery patients after surgery. Evidence about harms was limited because adverse events, serious adverse events, and study discontinuations clearly attributable to adverse events were not uniformly collected or reported in studies.

We also encountered a nontrivial number of trials or other studies with substantial drawbacks in methods. The problems involved randomization and allocation concealment, masking of outcomes assessors, attrition (or differential attrition), and questionable analytic techniques (e.g., no intention-to-treat analyses). Other issues in the overall evidence base included small sample sizes (and thus lack of power for determining intended effects), lack of clarity in defining the conditions (or not reporting data separately for DSM-IV and DSM-5 patients), short studies (e.g., outcomes measured only at end of treatment, which could be just a matter of weeks), and lack of information on statistical methods (or data on confidence intervals or similar information on statistical tests).

Research Gaps

Subgroups Studied

No study addressed differences in treatment outcomes among important subgroups defined by age, sex, race, ethnicity, or other relevant patient characteristics. Observational and cross-sectional studies have shown that binge eating may be more common among certain racial minorities, yet treatment studies have failed to address whether outcomes differ between groups defined by race. These gaps limit applicability to these important groups.

Secondary analyses of data from treatment studies have shed some light on factors that may be important for future consideration, including age and sex. Nevertheless, the specific analyses that were conducted did not address whether treatment effectiveness was the same or different in these subgroups. For instance, as in our earlier systematic review of eating disorders, we identified very little information about the impact of treatments on either men or boys.

Moreover, despite the high comorbidity between BED and depression and between BED and obesity, no studies specifically compared outcomes in groups of patients defined either by baseline level of depression or by baseline weight status. Second-generation antidepressants have a small but significant impact on symptoms of depression in BED patients with low levels of depressive symptoms. Whether the small benefit of second-generation antidepressants is meaningful, or perhaps amplified, in BED patients with higher levels of depression warrants further study.

In light of growing awareness of LOC eating in children and concerns that LOC eating has negative health effects and predisposes to BED later in life, treatment studies focusing on children are needed.

Outcomes Measured (Benefits or Harms)

The evidence base was deficient for outcomes related to social and occupational functioning or quality of life more generally. It was similarly poor in relation to final health outcomes such as glucose intolerance or dysregulation that may predispose patients to diabetes and other chronic conditions. Also lacking is evidence of harms associated with psychological or behavioral treatments. A fourth critical gap concerns longer term benefits and harms for all single and combination treatment modalities.

Interventions

We found strong evidence that CBT is beneficial for patients with BED; however, that conclusion was limited largely to therapist-led CBT because of insufficient information regarding other CBT formats. At present, the body of evidence for CBT constitutes a collection of disparate studies testing variations in format; furthermore, the rationale for comparing different formats is not consistently grounded in an a priori mechanism of action.

The number of therapists with expertise in CBT for BED is limited. This limitation poses a challenge for implementation of our findings. One useful step might be to compare directly, in adequately powered head-to-head trials, whether therapist-led CBT is superior to other CBT formats. If modified versions that require less therapist involvement can be shown to be as effective as therapist-led CBT through equivalence or noninferiority trials, such information could help make CBT more scalable than it has been to this point. Findings might then guide the next generation of studies that are needed to move the field closer to an individualized approach to treatment. Those future studies should consider other psychological or behavioral interventions that have shown promise (IPT and DBT). In addition, they should be adequately powered to test for differences in outcomes across key subgroups (e.g., groups defined by age, sex, race, ethnicity, mental health comorbidities, and weight), for which a dearth of information still exists.

Second-generation antidepressants were beneficial in reducing symptoms of depression, and topiramate was beneficial for reducing symptoms of impulsivity. A head-to-head comparison of the effectiveness of these two treatment options on mood and impulse regulation outcomes might help clinicians and patients make first-line pharmacotherapy treatment choices based on individual patients' needs and preferences. Further examination of lamotrigine may also be warranted, despite the negative findings for abstinence in one small trial; in that trial, the lamotrigine response rate (50%) was similar to that of topiramate (58% percent), but the placebo response rate was extremely high (71%). Further examination of lamotrigine may also be justified because, owing to its unique biochemical structure and function relative to topiramate, it may be associated with fewer sympathetic nervous system and other side effects.[113,114]

Head-to-head comparisons involving pharmacological treatment, psychological treatment, and combination treatments are also needed to determine whether, as one study suggests,[34] gains persist longer following psychological (CBT) or combination (CBT + fluoxetine) treatment than following pharmacological (fluoxetine) treatment alone. This information would help patients and providers optimize their plans to address both short- and long-term goals of treatment.

CBT comparative effectiveness evidence has focused on whether less specialized care can be as effective as more intensive services (e.g., those with substantial involvement of therapists); more studies of these comparisons are needed. In addition, studies of stepped-care models can elucidate whether and when a combination treatment or a shift to higher levels of care (e.g., intensive outpatient, partial hospitalization, residential treatment, or inpatient) is warranted for patients who are not responding adequately to conventional outpatient treatment.

Despite current interest in complementary and alternative medicine, neutraceuticals, and mindfulness-based interventions for regulating appetite, eating behavior, and weight, the literature is deficient regarding these types of interventions for BED. We searched clinical trial registries to determine whether additional evidence was available from newly completed but as-yet unpublished studies. We also checked for evidence of studies that were selectively withheld from publication because of unfavorable outcomes (possible publication bias). Based on these activities, we did not determine that reporting bias was a concern.

We included as evidence a report of a Phase 2 trial of lisdexamfetamine dimesylate (Vyvanse®), one of two included medications originally formulated to treat patients with ADHD. In this trial, separate study arms compared dosages of 30 mg/day, 50 mg/day, and 70 mg/day with placebo. The FDA approved this medication for treatment of BED in January 2015, expanding significantly our earlier evidence base. The FDA approval was based on the results of two Phase 3 trials, limited to lisdexamfetamine dimesylate dosages of 50 or 70 mg/day (N = 773). We obtained data on these trials through the gray literature. Peer-reviewed publication of the Phase 3 trials would add to our confidence about the conduct and outcomes of these studies. In addition, the mechanism of action of lisdexamfetamine for treating BED patients is unknown, so whether similar results would emerge for other stimulants or other medications currently used to treat ADHD patients is unknown.

Deficiencies in Methods

Our 2006 review, "Management of Eating Disorders,"[16-18] identified several methodological issues within the BED treatment literature and recommended changes for future studies. Some of these deficiencies persist; they include inadequate reporting of randomization and allocation concealment and insufficient attention to treatment group differences in the use of cointerventions. These and other factors led us to change our risk-of-bias ratings (e.g., to high risk of bias) for some studies and, in turn, reduced the strength of the evidence for the current review.

The 2006 review also highlighted several critical needs for advancing the field. Our suggestions included conducting replication studies, doing longer term followup studies, and streamlining and standardizing outcome measures to eliminate reporting of false discoveries. Unfortunately, with few exceptions,[42,43,54,55] replication studies do not exist; thus, the evidence base remains insufficient to address whether gains achieved during short-term treatment persist after treatment ends. This gap is especially critical for pharmacological treatments, as patients and their providers seek to understand the need for ongoing medical management to maintain treatment gains.

The field would benefit from the development of universally accepted definitions of remission and recovery.[115] To reach this goal requires longer term followup periods with periodic reevaluation of a core set of psychological, behavioral, and physiological outcomes. Standard definitions of remission and recovery should consider a continuum approach rather than focus on just a fixed point in time.

We have two recommendations for improved designs. First, studies should implement a minimum 1-year followup period. Even longer periods of followup may be warranted to capture the remissions and improvements in illness that can occur long term. Similarly, longer trials might help clarify what treatments provide better outcomes with fewer side effects and are better for patients who do not fully recover but live with a chronic illness.

Second, future studies should include a reasonably limited set of eating-specific instruments (such as the Eating Disorder Examination questionnaire, the Three-Factor Eating Questionnaire, or the YBOCS-BE) and general psychological symptom (depression, anxiety, negative body image) self-report instruments. Adaptations of existing reliable and valid instruments[40] that are specific to binge eating might help to move the field closer to an understanding of the core determinants of recovery and relapse, but such adaptations should be used only if they are clearly described so that others can replicate their use. Such descriptions should include basic information on the reliability, validity, and reproducibility of these newer instruments.

Additionally, considering the perspective of the patient in defining remission and recovery is crucial. Using such preferences or values in developing consistent definitions of these types of patient-centered outcomes would be a major advance in this clinical area. Interweaving this information with reliable, validated measures would allow researchers and clinicians to generate a comprehensive set of parameters by which remission and recovery could be measured. Consistent and thorough reporting of these outcomes (e.g., fully descriptive data at each major assessment point) would help improve calibration of these instruments against each other, which is ultimately needed for future efforts to use meta-analysis to evaluate treatment effect size.

Further, there are several etiological and treatment considerations that might merit further study to better elucidate the onset, maintenance, and treatment of BED. For example, given the prevalence of underlying metabolic disorders (e.g., diabetes mellitus, polycystic ovary syndrome) in patients with BED, it would be useful to more fully examine the role of these disorders in the development and maintenance of BED. With regard to treatment, there may be utility in evaluating treatment interventions originally developed for post-traumatic stress disorder, given the incidence of BED in those with trauma histories.

Finally, we recommend that studies continue to measure and report binge frequency as both discrete binge episodes and binge days per week. More data are needed to resolve whether one or the other is the better choice for assessing treatment effects.

Conclusions

Overall, we found the body of evidence to be small; often uneven across treatment types and comparisons; and, in some areas of interest, nonexistent. Nevertheless, we can conclude that antidepressants as a class, lisdexamfetamine, topiramate, and CBT effectively address major characteristics of binge eating, On the other hand, we were able to draw few conclusions regarding the comparative effectiveness of interventions or combinations of interventions. In addition, we found that harms were measured in only pharmacotherapeutic treatments. In light of the timing of this report so soon after publication of the DSM-5, the body of evidence may reasonably be expected to grow over the next few years.

Our meta-analyses provided strong evidence that second-generation antidepressants, lisdexamfetamine, and therapist-led CBT increase the likelihood of achieving abstinence. Meta-analyses also provided strong evidence that CBT and second-generation antidepressants reduce binge frequency and that second-generation antidepressants reduce obsessions and compulsions related to binge eating. Our qualitative assessments provided additional support for lisdexamfetamine (reduced binge frequency and obsessions and compulsions related to binge eating) and topiramate for treating BED patients as well. Overall, treatment benefits outweighed harms; harms were limited to medications and were severe and treatment limiting in very rare cases only.

Additional, adequately powered, multisite RCTs are needed to replicate encouraging findings observed to date only in single trials. Investigators should increase the sample sizes on which they base conclusions about treatment effectiveness; in designing comparative effectiveness studies, they should consider whether the goal is to determine whether treatment options are equivalent or superior.

The possible course of illness of LOC eating in children has been studied in three well-designed cohort studies that followed children through adolescence and into adulthood. Of particular concern in these studies is examining the important clinical and policy aspects of the role of early LOC eating on future risk of obesity and BED. The strength of conclusions that we

could draw were limited by the diversity of definitions of LOC eating across both treatment trials and the longitudinal cohort studies. In particular, studies differed in the length of time that the adolescent or preadolescent respondents needed to manifest the behavior, varying from occurrence in the past year, at least once in the past 3 months, or at least weekly during the past year.

Several studies considered the relative role and importance of objective or subjective binge episodes. Distinguishing between these two constructs may be an important step for improving clinical understanding of the course of illness, in part because the frequency of subjective binge-eating behavior can be highly distressing for bariatric surgery and other patients. Furthermore, developing a common core of outcomes and a convention for reporting and analyzing those outcomes would greatly improve the capacity to compile aggregate data, compare findings across trials, and combine data from different treatment trials. These enhancements would in turn improve the ability of clinical and policy decisionmakers to understand risk factors more clearly and to develop treatment guidelines in these patient populations.

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Introduction

Background

Definition of Binge-Eating Disorder

Binge-eating disorder (BED) is characterized by recurrent episodes of binge eating (i.e., eating episodes that occur in a discrete period of time [≤2 hours] and involve the consumption of an amount of food that is definitely larger than most people would consume under similar circumstances). Other core features of BED are a sense of lack of control over eating during binge episodes, significant psychological distress (e.g., shame, guilt) about binge eating, and the absence of recurrent inappropriate compensatory behaviors.

In May 2013, the American Psychiatric Association (APA) recognized BED as a distinct eating disorder in the *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (DSM-5).[1] Previously (in the DSM-IV), BED had been designated as a provisional diagnosis in need of further study for two main reasons: the literature on BED was insufficient in size and scope and the available tools for measuring and diagnosing the syndrome in clinical and community settings were too inconsistent to consider BED a distinct eating disorder. The provisional diagnostic criteria gave clinicians and researchers a working definition of BED with a common language they could use for studying BED.

Table 1 presents the DSM-IV and DSM-5 diagnostic criteria for BED. In the shift from provisional to formal diagnosis for BED itself, APA experts changed the criteria for frequency and duration of BED based on the expanded peer-reviewed literature. Specifically, the frequency criterion was reduced from twice per week to once per week, and the duration criterion was reduced from 6 months to 3 months, bringing the criteria in line with those for bulimia nervosa.

Experts expect that the shift from provisional to formal diagnosis will facilitate reimbursement for clinicians and insurance coverage for patients. In addition, the changes in frequency and duration criteria will likely result in more individuals being diagnosed with BED (i.e., individuals previously labeled as having "subthreshold" BED because their binge-eating frequency or duration was below criterion levels will now meet full diagnostic criteria). In a study of more than 13,000 adult females in Sweden, the BED lifetime prevalence estimate increased linearly as the binge frequency criterion decreased.[2] Similarly, the percentage of bariatric surgery patients diagnosed with BED increased by 3.4 percent when using DSM-5 compared with DSM-IV criteria.[3] In this review, we highlight which of the two definitions of BED investigators used in individual studies to examine whether any differences affected outcomes.

Table 1. DSM-IV and DSM-5 diagnostic criteria for binge-eating disorder

Criteria Set	Specific Definitions for Each Criterion
Criterion 1	Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following: a. Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat in a similar period of time under similar circumstances b. The sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating)
Criterion 2	Binge-eating episodes are associated with three (or more) of the following: a. Eating much more rapidly than normal b. Eating until feeling uncomfortably full c. Eating large amounts of food when not feeling physically hungry d. Eating alone because of being embarrassed by how much one is eating e. Feeling disgusted with oneself, depressed, or very guilty after overeating
Criterion 3	Marked distress regarding binge eating is present.
Criterion 4	The binge eating occurs, on average, a. at least 2 days a week for 6 months (DSM-IV frequency and duration criteria) b. at least 1 day a week for 3 months (DSM-5 frequency and duration criteria)
Criterion 5	The binge eating is not associated with the regular use of inappropriate compensatory behavior (e.g., purging, fasting, excessive exercise) and does not occur exclusively during the course of anorexia nervosa or bulimia nervosa.
Severity Grading	DSM-IV does not include a BED severity grading scale. Applicable to DSM-5 only, BED severity is graded as follows: Mild: 1 to 3 episodes per week Moderate: 4 to 7 episodes per week Severe: 8 to 13 episodes per week Extreme: 14 or more episodes per week

BED = binge-eating disorder; DSM = Diagnostic and Statistical Manual of Mental Disorders

Prevalence of BED

According to the National Comorbidity Survey Replication, the lifetime prevalence of BED among adults in the United States is 2.8 percent based on DSM-IV criteria;[4] it may be slightly higher based on DSM-5 criteria.[2,3] BED is more common among women (3.5 percent) than men (2 percent) and among younger and middle-aged adults than among those over age 60 years.[4] In a recent community-based World Health Organization survey of more than 24,000 adults older than 18 years of age living in 14 mostly upper-middle and high-income countries, the lifetime prevalence ranged from 0.2 percent to 4.7 percent; the United States had the second highest prevalence (2.6 percent) overall.[5]

Field- and community-based screening studies suggest the prevalence of BED may be higher among obese than nonobese individuals, particularly when those screened are individuals seeking treatment for their obesity.[6-9] According to the National Latino and Asian American Study of over 4,500 adults living in the United States, the lifetime prevalence of BED appears to be slightly lower among Latino- and Asian-Americans (1.9 percent and 2.0 percent, respectively) compared with the general population.[10,11] Smaller studies using various assessment methods have yielded mixed findings regarding differences in binge-eating behavior among whites and blacks.[12,13]

BED is typically first diagnosed in young adulthood (early to mid-20s),[14] and symptoms often persist well beyond midlife.[15] The general course of illness sometimes includes crossover to and from other eating disorders such as bulimia nervosa and anorexia nervosa.[14,16,17] BED is associated with significant role impairment[4,5] and relationship dissatisfaction;[18] it is considered a significant public health problem independently as well as for its association with chronic pain, other psychiatric disorders, obesity, and diabetes.[19-21]

Loss of Control (LOC) Eating

A sense of LOC during binge episodes is a core feature of BED. The term "LOC eating" is used to describe these episodes, but it is also used more broadly throughout the literature to describe binge-like eating behavior accompanied by a sense of LOC that occurs across a wide spectrum of individuals. That spectrum includes, among others, individuals who exhibit some features of BED but do not meet full diagnostic criteria for the disorder (i.e., subthreshold BED) and individuals with other eating disorders (bulimia nervosa, anorexia nervosa binge-eating/purge subtype).

The spectrum of those described as exhibiting LOC eating also includes individuals for whom diagnosis of threshold BED is challenging for unique reasons, such as postbariatric surgery patients and young children. Bariatric surgery significantly reduces the stomach size and capacity, effectively rendering it physically impossible for a patient to meet BED criterion 1a (Table 1; i.e., to consume a "definitely large" amount of food). In the bariatric surgery literature, LOC eating is used not only to describe binge-like behavior that falls short of meeting criterion 1a, but also to describe eating behavior that is contraindicated based on meal size and meal content. Children, especially young children, may not meet the BED criterion 1a because their parents or others limit the quantity of food they consume or because they are unable to provide accurate quantification of the amount they eat. For the purposes of our review, LOC eating treatment and outcomes are limited to postbariatric surgery patients and children and does not include individuals in other groups who may meet sub-clinical diagnosis of BED.

LOC eating has detrimental psychological and physical health effects,[22,23] including significant distress and symptoms of depression,[24,25] and may be related to excess weight gain in children and suboptimal weight loss and weight regain in postbariatric surgery patients.[26] As bariatric surgeries have become more commonplace in the treatment of severe obesity, clinical observations suggest that persistent binge eating as a continuation of presurgical BED or as de novo LOC eating subsequent to bariatric surgery may be an important risk factor for poorer outcomes; these may include less initial excess weight loss and impaired quality of life.[22,27-29] In light of these significant concerns about the health impact of LOC eating in bariatric surgery patients and children, for the purposes of this review, we elected to focus on studies of LOC eating in these two subgroups. Because this literature is emerging and no consensus definition of LOC eating exists, for our review we did not attempt to define LOC eating strictly a priori; rather we included studies of participants that met the definition of LOC eating as set forth by the study authors.[30]

Prevalence of LOC Eating

The prevalence of LOC eating is unknown. In postbariatric surgery patients, it may be as high as 25 percent.[31,32] In children at risk for adult obesity, because of either their own overweight (body mass index [BMI] at or above the 95th percentile) or that of their parents (BMI greater than 25 kg/m^2), prevalence may be as high as 32 percent.[23] Adolescents who identify as lesbian or gay are 2.1 and 7.2 times, respectively, more likely to report LOC eating than their heterosexual counterparts.[33] In a study of 409 obese, weight loss treatment-seeking youth, based on parents' reports of their children's eating behavior, white and Hispanic youth were more likely to engage in LOC eating (defined by criteria 1a and 1b in Table 1 above) than black youth.[34]

Current Challenges and Controversies in Diagnosing These Conditions

In making a diagnosis of BED, assessing whether a patient is eating an atypically large amount of food is not wholly quantitative. In the diagnostic process, it is not uncommon for the patient to describe binge-eating episodes that vary greatly in size and to have difficulty distinguishing between objective and subjective episodes because both are associated with a sense of LOC and engender significant distress. The diagnosis is sensitive to detection bias because the clinician must make the distinction between objective and subjective binge-eating episodes without clear metrics for either and based on a patient's self-report.[30]

Nevertheless, assessment by a structured clinical interview is considered the gold standard. The most widely used and accepted interview methods include the Structured Clinical Interview for DSM Disorders (SCID),[1,35] the Eating Disorder Examination (EDE),[36] and the Structured Interview for Anorexic and Bulimic Syndromes (SIAB-EX).[37] For this review, we included only studies in which participants were identified as meeting DSM-IV or -5 criteria for BED as determined through a structured interview. Table 2 describes instruments that may be used to make these diagnoses, along with other tools used to assess BED-related psychopathology.

Table 2. Common diagnostic and outcome measures used in the included trials

Abbreviated Name	Complete Name	Description of Instrument and Subscales	Improvement Indicated by
BAI	Beck Anxiety Inventory[38]	21-item self-report multiple choice questionnaire about common symptoms of anxiety (numbness, sweating, fear)	Decrease
BDI	Beck Depression Inventory[39]	21-item self-report multiple choice questionnaire about common emotional (irritability, hopelessness, guilt) and physical (fatigue, weight loss) symptoms of depression	Decrease
BES	Binge Eating Scale[40]	Self-report measure of binge-eating severity as measured by LOC over eating behavior; 8 items on behavioral manifestations, 8 items on feelings and cognitions	Decrease
BIS	Barratt Impulsiveness Scale[41]	30-item self-report questionnaire about impulsiveness in various domains such as attention and self-control	Decrease
BSI	Brief Symptom Inventory[42,43]	Brief self-report instrument to assess nine dimensions of psychiatric problems (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism)	Decrease
BSQ	Body Shape Questionnaire[36]	Self-report inventory to measure worries about weight and body shape	Decrease
CGI	Clinical Global Impressions—Improvement[44]	Clinician-rated scale to assess treatment response in psychiatric patients; 3 subscales: severity of illness (CGI-S), global improvement (CGI-I), efficacy index (CGI-EI)	Decrease Increase Increase
EAT	Eating Attitudes Test45	Standardized self-report measure of symptoms and concern characteristics of eating disorders; 2 versions: EAT-26, EAT-40	Decrease
EDO	Eating Disorders in Obesity[46]	Self-report measure to assess DSM-IV criteria for eating disorders in weight loss treatment patients; cannot be used to diagnose BED because it does not assess marked distress or impairment	Decrease
EDE[a]	Eating Disorder Examination[47]	Semistructured interview to measure specific psychopathology of eating disorders; 4 subscales: dietary restraint, eating concern, weight concern, shape concern	Decrease

Table 2. Common diagnostic and outcome measures used in the included trials (continued)

Abbreviated Name	Complete Name	Description of Instrument and Subscales	Improvement Indicated by
EDE-Q	Eating Disorder Examination - Questionnaire[48]	Self-report assessment of thoughts and behaviors commonly found in eating disorders; 4 subscales: dietary restraint, eating concern, weight concern, shape concern; assesses behaviors over the past 28 days	Decrease
EDI	Eating Disorder Inventory[49]	Standardized self-report measure of psychiatric symptoms commonly associated with AN, BN, or other eating disorders; also included scales for asceticism, impulse regulation, and social insecurity; version 3 has 91 items	Decrease
FCI	Food Craving Inventory[50]	Self-report questionnaire that measures cravings for different foods and generates a total score and 4 subscales: high fats, sweets, carbohydrates/starches, fast-food fats	Decrease
HADS	Hospital Anxiety and Depression Scale[51]	14-item self-report questionnaire that measures common symptoms such as anxiety and depression, feeling tense, having worry thoughts, and loss of enjoyment	Decrease
HAM-A	Hamilton Anxiety Scale[52]	Semistructured interview to assess severity of anxiety symptomatology	Decrease
HAM-D or HDRS or HRSD	Hamilton Depression Rating Scale[53]	Semistructured interview to assess an array of behavioral, affective, and vegetative symptoms of depression	Decrease
IIP	Inventory of Interpersonal Problems[54]	Instrument to measure interpersonal problems and level of distress arising from interpersonal sources	Decrease
IWQOL	Impact of Weight on Quality of Life Questionnaire[55]	Questionnaire designed to assess the effects of obesity on health-related quality of life (QOL); five subscales that address QOL as it relates to physical function, self-esteem, sexual life, public distress, and work	Increase
MADRS	Montgomery-Åsberg Depression Rating Scale[56]	10-item questionnaire about common symptoms of depression such as sadness, tension, sleep and concentration difficulties, and suicidal thoughts	Decrease
QEWP-R	Questionnaire of Eating and Weight Patterns–Revised[57]	Self-report questionnaire to assess a range of features and problems associated with obesity and eating disorders	Decrease
RSE	Rosenberg Self-Esteem Scale[58]	A widely used 10-item questionnaire that assesses one's sense of self-worth, pride, failure, self-satisfaction, and self-respect	Increase
SF-12	12-Item Short Form Health Survey[59]	Self-report questionnaire based on the SF-36[60,61] to assess health-related quality of life; 8 subscales: physical function, role physical, bodily pain, general health, mental health, role emotional, social function, vitality	Increase
SCID-I[a]	Structured Clinical Interview for DSM-IV Axis I Disorders[62]	Semistructured interview for making the major DSM-IV Axis I diagnoses; facilitates the assessment of all criteria for BED in interview form	Decrease
SCL-90-R	Symptom Checklist-90-Revised[43]	General measure of psychopathology, including various forms of anxiety, depression, paranoia, psychotic features. Subscales: Global Severity Index to measure overall psychological distress; Positive Symptom Distress Index to measure the intensity of symptoms; Positive Symptom Total of number of self-reported symptoms (somatization, obsessive-compulsive, interpersonal sensitivity, depression, hostility, phobic anxiety, paranoid ideation, psychoticism)	Decrease

Table 2. Common diagnostic and outcome measures used in the included trials (continued)

Abbreviated Name	Complete Name	Description of Instrument and Subscales	Improvement Indicated by
SDS	Sheehan Disability Scale[63,64]	Consists of three self-rated items that measure the extent of impairment in work, social, and family life due to panic, anxiety, phobic, or depressive symptoms	Decrease
SIAB-EX[a]	Structured Interview for Anorexic and Bulimic Syndromes[37]	Interview to assess severity of current eating disorder symptoms; 6 subscales: body image and ideal of slimness, social integration and sexuality, depression, obsessive compulsive syndromes and anxiety, bulimic symptoms, laxative abuse. Can be used to determine DSM-IV BED diagnosis based on an established algorithm	Decrease
STAI	State–Trait Anxiety Inventory[65,66]	Standardized self-report assessment of both state and trait anxiety (2 subscales)	Decrease
TFEQ	Three Factor Eating Questionnaire[67]	Self-report inventory; 3 subscales: cognitive-restraint, hunger, disinhibition. Also known as the Eating Inventory	Decrease
YBOCS	Yale-Brown Obsessions and Compulsions Scale[68,69]	Clinician-rated scale with separate subtotals for severity of obsessions and compulsions; 2 subscales: obsessions, compulsions	Decrease

AN = anorexia nervosa; BED = binge-eating disorder; BN = bulimia nervosa; DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition; LOC = loss of control; QOL = quality of life

[a] Can be used to diagnose BED.

Assessing BED and LOC eating in children poses unique challenges. Neither the DSM-IV nor DSM-5 established a minimum age for a diagnosis of BED. In practice, when assessing adolescents, some clinicians focus on LOC eating and others assess more broadly the criteria for BED. Typically, the term *LOC eating* is used more consistently when focusing on preadolescents or younger children who may not meet the BED criterion 1a with respect to the amount of food consumed. An added challenge stems from the difficulty that some children have in describing LOC. LOC eating has no consistently endorsed definition, and assessment techniques lack standardization. For this review, using input from our Technical Expert Panel (TEP), we included studies of LOC eating in children ages 6 years or older. We set this lower age limit partly to avoid capturing studies of infant feeding in our literature searches; it is consistent with the direct experience of one of our TEP members in assessing LOC eating by questionnaire in children as young as 6 years old.

In the postbariatric setting, the definition of LOC eating is not straightforward, and the assessment of LOC eating also lacks standardization but for reasons different from those for children. The definition is not straightforward because some patients may report their disordered eating behaviors as a general *subjective* sense of lack of control over their eating rather than in terms of specific overconsumption based on the amount of food. Also, LOC eating may manifest in the consumption of food types and patterns of intake that are contraindicated after surgery, so the lack of control is related to adhering to the recommended nutritional plan. Using TEP input, for this review we included studies that measured both subjective and objective LOC eating; including subjective LOC eating as an outcome permitted us to examine nonstandardized detrimental eating behaviors that are relevant to the well-being of postbariatric surgery patients.

Current Challenges and Controversies in Treating These Disorders

Current Treatment Options for BED

Treatment for BED includes various approaches that target the core behavioral features (binge eating) and psychological features (i.e., eating, weight, and shape concerns; distress) of this condition. Other important targets of treatment include metabolic health (in patients who are obese, diabetic, or both) and mood regulation (in patients with coexisting depression or anxiety, for example). Commonly used approaches are described in Table 3.

Psychological and behavioral approaches include cognitive behavioral therapy (CBT),[70-79] interpersonal psychotherapy,[80-82] dialectical behavior therapy,[83,84] and behavioral weight loss.[73,85,86] In January 2015, lisdexamfetamine became the first medication to receive Food and Drug Administration (FDA) approval for treating BED.[87] Numerous other medications are used off-label in the clinical management of BED patients; among these, the most commonly used are antidepressants[88-98] and anticonvulsants.[97,99]

Three recent meta-analyses addressed the benefits of treatment across broad categories of approaches (i.e., pharmacotherapy consisting of antidepressants;[100] pharmacotherapy consisting of antidepressants, anticonvulsants, antiobesity agents, and other medications;[101,102] and psychotherapy[102]). These meta-analyses included data from nonrandomized and randomized trials and single-arm studies using a variety of study designs (e.g., open label, single blind, and double blind). For this review, we compared the findings from the two systematic reviews that focused on randomized controlled trials and searched for additional evidence that would allow us to expand or refine them and to address, through further meta-analyses, the efficacy of *specific* approaches. We also expanded the evidence base by including any new studies of alternative or novel approaches published since the prior systematic review of managing eating disorders from the Agency for Healthcare Research and Quality (AHRQ);[103] for example, we searched for studies using complementary and alternative medicine and dietary interventions, among others.

Table 3. Psychological and behavioral treatments commonly used for binge-eating disorder

Treatment	Description
Cognitive behavioral therapy (CBT)	A form of psychotherapy that focuses on identifying relations among thoughts, feelings, and behaviors, aiming to change negative thoughts about oneself and the world and, by doing so, reduce negative emotions and undesirable behavior patterns. Variations exist in how CBT is delivered including therapist-led individual and group sessions, self-help, and guided self-help.
Dialectical behavioral therapy	A specific form of behavioral therapy that focuses on increasing mindfulness and developing skills to improve emotion regulation, distress tolerance, and interpersonal relationships to help patients respond to stress and negative affect more effectively.
Interpersonal psychotherapy	A form of psychotherapy that focuses on the role of interpersonal functioning in causing and maintaining negative mood, psychological distress, and unhealthy behaviors.
Behavioral weight loss	Treatment that incorporates various behavioral strategies to promote weight loss, such as caloric restriction and increased physical activity.
Antidepressants	A class of medications that works by selectively inhibiting reuptake of neurotransmitters involved in regulating mood and appetite (i.e., dopamine, norepinephrine, and serotonin). Common examples include bupropion, citalopram, desipramine, duloxetine, fluoxetine, and sertraline, which are indicated for treating patients with depression.
Anticonvulsants	A class of medications indicated for the treatment of epilepsy, bipolar disorder, major depression, and migraines. The most commonly used one, topiramate, is a carbonic anhydrase inhibitor.
Antiobesity	Medications used to treat obesity. One example is orlistat; it inhibits pancreatic lipase and thus decreases fat absorption in the gut.
Central nervous system (CNS) stimulants	A class of medications generally used to enhance or accelerate mental and physical processes and specifically for treating patients with attention deficit hyperactivity disorder and certain sleep problems. The only Food and Drug Administration (FDA)-approved medication for BED (lisdexamfetamine) belongs to this class.

BED = binge-eating disorder; CBT = cognitive behavioral therapy; CNS = central nervous system; FDA = Food and Drug Administration

Currently available treatment options all have relative advantages and disadvantages. Pharmacological interventions have negative physical side effects. For example, antidepressants and anticonvulsants are commonly associated with diarrhea, dizziness, dry mouth, fatigue, sexual dysfunction, and somnolence, which can interfere with treatment compliance.[104-106] However, pharmacological treatment may be more easily accessible than psychological and behavioral interventions that require access to practitioners with specialized training in BED. Individuals living in geographically remote areas may be especially disadvantaged with limited access to specialized care providers. In addition, most psychological treatments are relatively lengthy (approximately 16 to 20 weeks) and are thus less scalable, which limits the extent to which these treatments can be widely disseminated to more generalist practices. We address not only benefits but also harms associated with treatment and their impact on treatment dropout.

Current Treatment Options for LOC Eating

Treatments for LOC eating for postbariatric surgery patients and children reflect the treatment options described above for BED. Family-based treatments have proven effective in treating children with anorexia nervosa,[107] so theoretically they may be of interest for BED and LOC eating as well. To date, no treatments specifically addressing LOC eating have been developed.

Existing Clinical Practice Guidelines for Treating Patients With BED or LOC Eating

The APA,[108,109] the National Institute for Health and Clinical Excellence (NICE) in the United Kingdom,[110] the Task Force on Eating Disorders of the World Federation of Societies of

Biological Psychiatry,[111] and the American Dietetic Association (now the Academy of Nutrition and Dietetics)[112] have issued treatment recommendations for BED. Generally, these strongly support use of CBT and selective serotonin reuptake inhibitors, but they give less strong support for other psychological, behavioral, and pharmacological approaches.

Recommendations differ markedly about the manner and timing with which treatment is offered. First, the APA recommends that CBT be incorporated into a team approach (including psychiatrists, psychologists, dietitians, and social workers); by contrast, NICE recommends that treatment begin with a course of CBT-based self-help that is followed, if necessary for nonresponders, by CBT adapted specifically for BED. Second, within the APA's recommended team approach, medication is considered as adjunctive therapy; the NICE guidelines indicate that medication monotherapy may be sufficient treatment for a subset of patients. Third, because of very limited data on efficacy, support is minimal (only from the APA) for non-weight-directed psychosocial approaches (e.g., Health at Every Size [HAES]), Overeaters Anonymous), and nutritional approaches, although the latter approaches are consistent with the American Dietetic Association's endorsement of nutrition counseling by a registered dietitian to support health-centered behaviors rather than weight-centered dieting. The organizations do agree, however, that the long-term effects of selective serotonin reuptake inhibitors are unknown. Our previous AHRQ review highlighted this gap in knowledge and the need for additional studies on novel agents and approaches in more diverse patient samples.[103]

Considerable uncertainty surrounds the question of which treatment(s) is best suited for a particular patient; efficacy needs to be understood as a function of the presence or level of coexisting psychopathology, metabolic complications, or other physical or psychiatric conditions.[113] Patients enter treatment for BED with varying levels of concern about body shape and weight; they also seek treatment having different levels of health care insurance. These factors can strongly influence choice of first-line treatment; formulation of a comprehensive treatment plan; and, ultimately, treatment outcome. In addition, individuals with BED seeking bariatric surgery can be denied coverage for their surgery even though no evidence base exists indicating that patients with BED may have poorer outcomes from surgery than those without BED.[114] Thus, considerable clinical and policy interest exists in understanding BED as a negative prognostic indicator for bariatric surgery, the extent to which nonsurgical interventions (e.g., psychotherapy) for BED may be beneficial in reducing or preventing LOC eating after surgery, and the appropriate timing of these nonsurgical interventions (before or after surgery).

In addition, Federal legislation enacted since the previous AHRQ review established or improved parity for mental health services relative to services for physical health and increased access to health insurance.[115] The 2008 Mental Health Parity and Addiction Equity Act required insurers offering mental health and substance use disorder benefits to provide coverage comparable to that for general medical and surgical care. Subsequently, the 2010 Patient Protection and Affordable Care Act, which took effect in 2014, is making health insurance more accessible for previously uninsured or underinsured Americans. Nonetheless, the impact of these laws on access to treatment options for BED or LOC eating is yet to be determined.

Children and adolescents with LOC eating are presenting for treatment and, in increasing numbers, for bariatric surgery. Also, patients are entering treatment using over-the-counter products and dietary supplements with known or suspected effects on appetite, mood, and weight regulation. These scenarios pose additional challenges for providers evaluating treatment options, but currently no guidelines are tailored to the specific needs of these subgroups. We

addressed the need for evidence regarding individual factors that influence treatment outcome by examining efficacy in subgroups defined by factors such as age, sex, race, and ethnicity.

Additional Considerations or Questions About Treatment for Patients With These Disorders

Many BED patients initially seek and obtain treatment through primary care physicians, who may be able to offer only a limited number of treatment options directly (usually just pharmacotherapy) or through referral to psychologists, dietitians, and psychiatrists, who may also lack specific expertise in BED or (especially) LOC eating. Patients often present as seeking treatment for obesity rather than a complaint of binge eating, and they are hesitant to admit to binge eating unless asked. In this setting, assessing patients believed to be at high risk with a screening tool, such as the Patient Health Questionnaire, Eating Disorder module,[116] may be useful. Whether treatment protocols that are used in research studies and that require clinically trained personnel with expertise in BED-specific interventions can be delivered effectively in more commonly available frontline settings is largely unknown. Some untapped areas of interest include stepped-care models and treatment efficacy in residential settings. In this review, we describe treatment settings and delivery methods and report, to the extent possible, their impact on treatment outcomes.

Commonly, along with achieving binge abstinence and reducing distress, weight reduction and improved metabolic health have been key outcomes in BED treatment studies and important treatment goals in clinical settings. According to the National Task Force on the Prevention and Treatment of Obesity, behavioral weight loss treatment including moderate caloric restriction is associated with improvements in binge eating and psychological health in overweight and obese adults with recurrent binge eating (but not BED per se).[117] In contrast, however, some advocates, including the HAES group (www.haescommunity.org/resources.php), have strongly endorsed removing weight-based outcomes in caring for patients with BED while emphasizing greater body acceptance and intuitive eating. Intuitive eating is an approach to healthy weight that focuses on increasing one's awareness of hunger signals and eating only when hungry. HAES maintains that weight-loss interventions are not only ineffective for treating BED patients but are also detrimental because they contribute to the development and perpetuation of disordered eating behavior and psychopathology (restrictive eating, food and body preoccupation, yo-yo weight cycles, reduced self-esteem) and to weight stigmatization and discrimination. Weight stigma awareness is also a central issue of another advocacy group, the Binge Eating Disorder Association (http://bedaonline.com/binge-eating-disorder-blog/#.Up9vItIwldw). In light of these stakeholder perspectives, the current report includes traditional weight-related outcomes and, when available, nontraditional, non-weight-focused body image and eating behavior outcomes and interventions.

Rationale for This Evidence Review

Previous systematic reviews have addressed psychological treatments for bulimia nervosa and BED (2009),[118] self-help and guided self-help for eating disorders (2006),[119] and management of eating disorders including BED (the AHRQ review, 2006).[103] The authors of the 2006 AHRQ review were unable to draw definitive conclusions concerning the best treatment choices for BED because many of the available treatments had been evaluated in only single studies with small sample sizes or too few studies of sufficient quality.[103] Since that report

appeared (see also Brownley et al., 2007[120]), the literature on treatment of BED has expanded, the diagnostic criteria have changed, and a greater interest in BED and LOC eating in bariatric patients and children has emerged. These factors underscored the need for the current systematic review that captures the new information and presents it in a format that can bridge the old and new diagnostic criteria; doing this should improve understanding of BED and LOC eating across the lifespan and clarify factors that influence the progression, maintenance, and resolution of these conditions.

Scope and Key Questions

This review is designed, first, to address the effectiveness of the interventions described above for individuals meeting DSM-IV or DSM-5 criteria for BED, for children with LOC eating, and for postbariatric surgery patients with LOC eating. We had a secondary interest in examining whether treatment effectiveness differed in subgroups based on sex, race, ethnicity, sexual orientation, BMI, duration of illness, or coexisting conditions. Given advice from TEP members, we did not attempt to review studies related to the genetics of BED because genetic risk factors for BED are as yet unknown. We placed few limitations on our review so we could be as inclusive as possible of the available literature.

Broadly, we included in this review psychological, behavioral, pharmacological, and combination interventions. We considered their efficacy with respect to physical and psychological health outcomes across four major categories: (1) binge behavior (binge eating or LOC eating), (2) binge-eating-related psychopathology (e.g., weight and shape concerns, dietary restraint), (3) physical health functioning (e.g., weight and other indices of metabolic health such as diabetes), and (4) general psychopathology (e.g., depression, anxiety). Additional outcomes of interest included health care costs, social and occupational functioning, harms of treatment, and intermediate factors associated with the primary outcomes such as blood levels of hormones associated with obesity and appetite regulation.

A third aim of this review was to examine the life course of BED and of LOC eating, especially as they relate to the primary outcomes. At the population level, diagnostic stability is low for all eating disorders, and within-patient diagnostic crossover is not uncommon, including BED to bulimia nervosa, for example. Given the recent inclusion of BED as a distinct diagnosis in the DSM-5, obtaining a better understanding of the course of illness in BED is important, particularly given its relatively high comorbidity with other medical conditions. In addition, clinical interest is considerable in understanding whether LOC eating is a reliable predictor of poorer weight outcomes and new-onset BED over time. However, little is known about the temporal stability of BED in the community, generally, and of LOC in postbariatric surgery patients and children, specifically. Increasing knowledge of BED and LOC course of illness would help inform the consolidation and concentration of early detection and prevention efforts to reduce these eating difficulties and their potentially deleterious effects on physical health outcomes.

The impetus for this review was primarily the continuing uncertainty about efficacy, harms, and long-term outcomes of common therapies for BED. Voids in knowledge regarding the course of illness of BED were another motivation for the review. In addition, novel approaches have become more popular since the previous AHRQ systematic review. Moreover, glaring gaps in knowledge about both treatment and course of illness related to LOC eating in children and postbariatric surgery patients have become more important in clinical circles. Clinicians and patients who are faced with these uncertainties need better guidance.

In sum, as reflected in our Key Questions (KQs) and analytic frameworks, we aim to increase knowledge about treatment efficacy, to determine whether efficacy varied because of any particular patient characteristic(s), and to describe the course of BED and LOC over time. Ultimately, the information produced in this review is intended to contribute to improved care for patients, better decisionmaking capacity for clinicians, and more sophisticated policies from those responsible for establishing treatment guidelines or making various insurance and related decisions.

Key Questions

The authors from the RTI International–University of North Carolina at Chapel Hill Evidence-based Practice Center (RTI-UNC EPC) addressed 15 KQs in this review. Of these KQs, nine address efficacy and effectiveness of treatment (benefits and harms overall and benefits for various patient subgroups)—three for BED, three for LOC eating among bariatric surgery patients, and three for LOC eating among children. The other six KQs deal with course of illness, overall and for various subgroups, for BED or LOC eating. For this review, we use the term *effectiveness* to include efficacy.

KQ 1: What is the evidence for the effectiveness of treatments or combinations of treatments for binge-eating disorder?

KQ 2: What is the evidence for harms associated with treatments for binge-eating disorder?

KQ 3: Does the effectiveness of treatments for binge-eating disorder differ by age, sex, race, ethnicity, initial body mass index, duration of illness, or coexisting conditions?

KQ 4: What is the course of illness of binge-eating disorder?

KQ 5: Does the course of illness of binge-eating disorder differ by age, sex, race, ethnicity, sexual orientation, body mass index, duration of illness, or coexisting conditions?

KQ 6: What is the evidence for the effectiveness of treatments or combinations of treatments for loss-of-control eating among bariatric surgery patients?

KQ 7: What is the evidence for harms associated with treatments for loss-of-control eating among bariatric surgery patients?

KQ 8: Does the effectiveness of treatments for loss-of-control eating among bariatric surgery patients differ by age, sex, race, ethnicity, initial body mass index, duration of illness, or coexisting conditions?

KQ 9: What is the course of illness of loss-of-control eating among bariatric surgery patients?

KQ 10: Does the course of illness of loss-of-control eating among bariatric surgery patients differ by age, sex, race, ethnicity, sexual orientation, initial body mass index, duration of illness, or coexisting conditions?

KQ 11: What is the evidence for the effectiveness of treatments or combinations of treatments for loss-of-control eating among children?

KQ 12: What is the evidence for harms associated with treatments for loss-of-control eating among children?

KQ 13: Does the effectiveness of treatments for loss-of-control eating among children differ by age, sex, race, ethnicity, initial body mass index, duration of illness, or coexisting conditions?

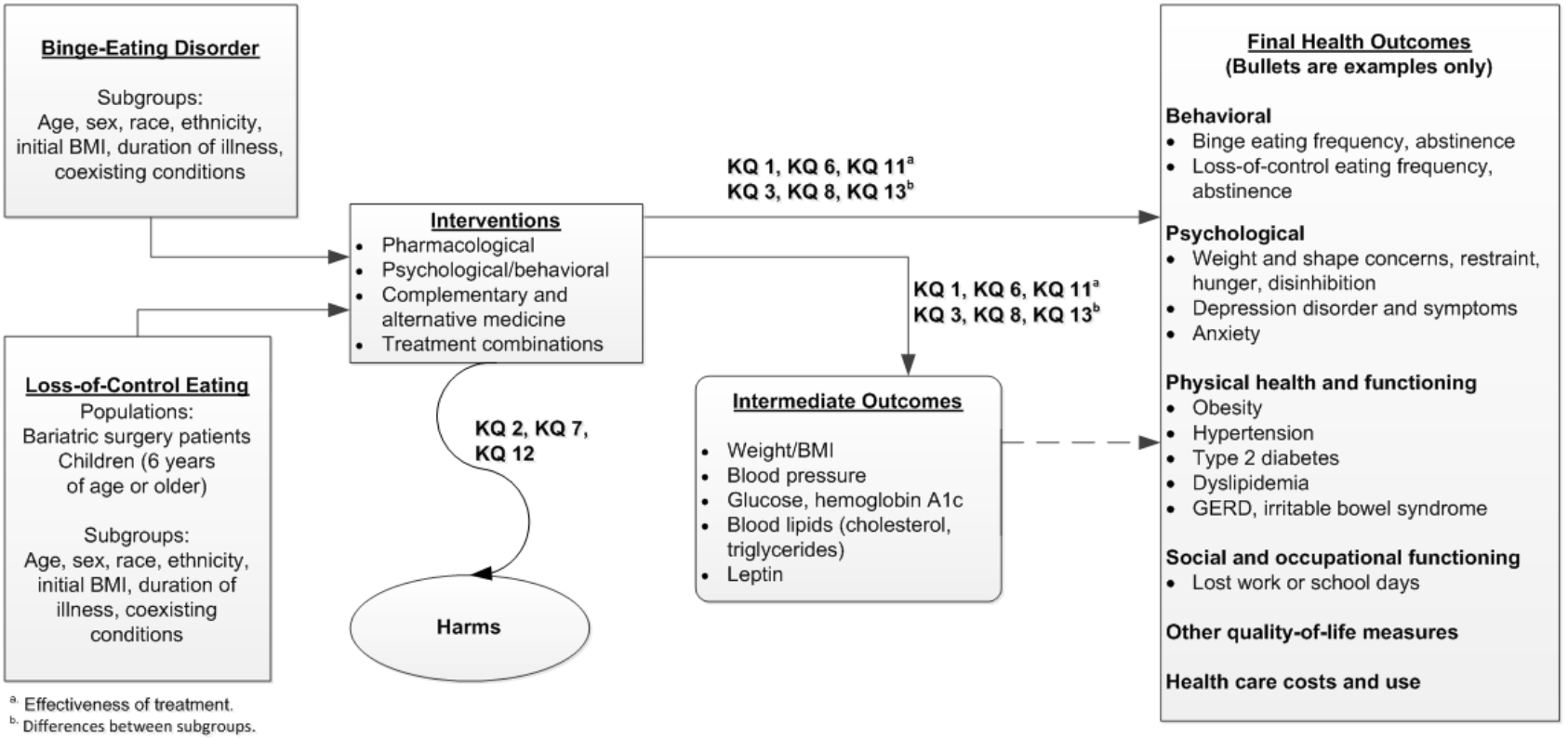
KQ 14: What is the course of illness of loss-of-control eating among children?

KQ 15: Does the course of illness of loss-of-control eating among children differ by age, sex, race, ethnicity, initial body mass index, duration of illness, or coexisting conditions?

Analytic Frameworks

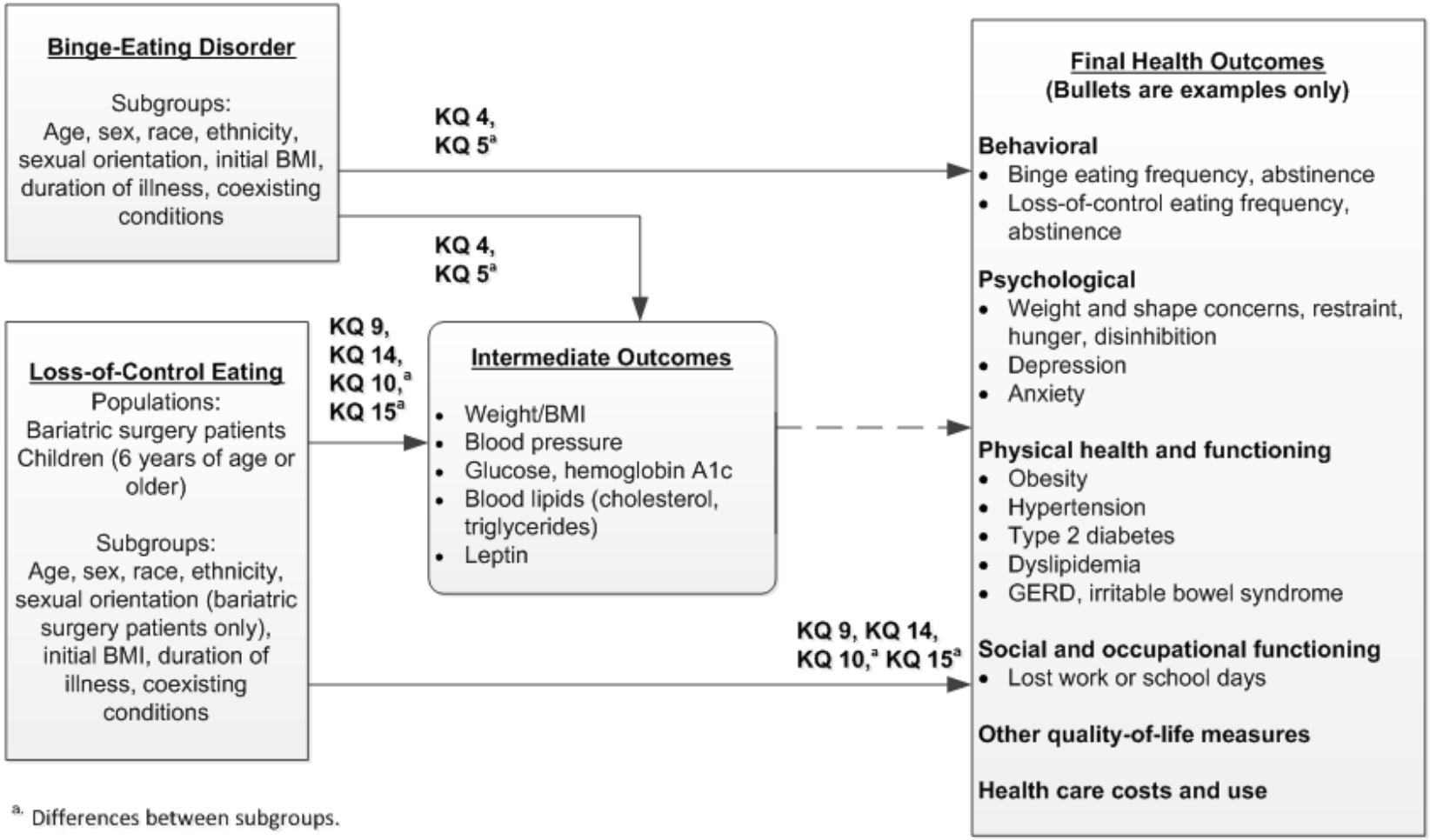
The relationships among the patient populations, interventions, comparators, outcomes, and timing of outcomes assessment (PICOTs) are depicted for each of the treatment KQs in Figure 1 and for each of the course of illness KQs in Figure 2. The populations of interest are displayed in the far left boxes; these boxes project through the central box displaying the interventions of interest (Figure 1 only) to the box on the far right that displays the final health outcomes either directly or through the intermediate outcomes.

Figure 1. Analytic framework for BED and LOC eating: Effectiveness and harms of interventions



BMI = body mass index; GERD = gastroesophageal reflux disease; KQ = Key Question

Figure 2. Analytic framework for BED and LOC eating: Course of illness (outcomes of the disorders)



BMI = body mass index; GERD = gastroesophageal reflux disease; KQ = Key Question

Organization of This Report

In the following five chapters we first describe our methods and then present our results in three chapters (Overview and Efficacy and Effectiveness of Interventions To Manage Patients With Binge-Eating Disorder; LOC Eating; and Course of Illness). In the final chapter (Discussion), we give our synthesis of the evidence base and discuss our findings; we examine the limitations of the evidence base and this review, clarify gaps in the knowledge base, and offer recommendations for future research. References follow the final chapter.

The main report has several appendices, as follows: A, search strategies; B, criteria to exclude at the full text stage; C, excluded studies; D, risk-of-bias tables; E, detailed evidence tables; F, strength of evidence tables and G, a list of abbreviations.

Methods

The Evidence-based Practice Center (EPC) conducted this review using the research methods described in the Agency for Healthcare Research and Quality (AHRQ) "Methods Guide for Effectiveness and Comparative Effectiveness Reviews."[121] Further, we used the PRISMA Statement as a guide to ensure transparent reporting.[122]

Topic Refinement and Protocol Review

The EPC developed this topic and key questions through a public process. The topic was nominated by the Binge-Eating Disorder Association and subsequently developed and refined by a team at the RTI-UNC EPC with input from Key Informants in the field. AHRQ posted key questions for public comment (1/13/2014). We incorporated public comments and guidance from a Technical Expert Panel (TEP) into the final research protocol, which was also posted on the AHRQ Web site (4/23/2014).

Literature Search Strategy

Search Strategy

We conducted focused searches of MEDLINE® (via PubMed), EMBASE®, CINAHL (nursing and allied health database), Academic OneFile, and the Cochrane Library. An experienced research librarian used a predefined list of search terms and medical subject headings. The librarian completed the search that was used to complete the draft report on 6/23/2014, and a second update search was conducted on 1/19/2015 during peer review. We limited included evidence to studies published in English, given limited resources. However, to enhance our discussion, we reviewed abstracts of articles not published in English that had English language abstracts. We comment in the discussion chapter on what we may have missed by limiting our included evidence based on language. The complete search strategies, including specific limitations used for each database, are presented in Appendix A.

We searched unpublished and gray literature relevant to the review topic. Methods for identifying gray literature included a review of trial registries, specifically ClinicalTrials.gov, Health Services Research Projects in Progress (www.nlm.nih.gov/hsrproj/), and the European Union Clinical Trials Register (www.clinicaltrialsregister.eu/). Further, AHRQ requested Scientific Information Packets (SIPs) from the developers and distributors of the interventions identified in the literature review. SIPs allow an opportunity for the intervention developers and distributors to provide the EPC with both published and unpublished data that they believe should be considered for the review. We also requested technical expert panel members' and peer reviewers' recommendations of additional published, unpublished, and gray literature not identified by the review team. We included unpublished studies that met all inclusion criteria and contained enough information on their research methods to permit us to make a standard risk-of-bias assessment of individual studies. This could include, but was not limited to, conference posters and proceedings, studies included on ClinicalTrials.gov, and U.S. Food and Drug Administration (FDA) medication approval packages.

We searched reference lists of pertinent review articles for studies that we should consider for inclusion in this review. For older studies on binge-eating disorder (BED) treatment and course of illness, we searched the relevant portion of the reference list of our 2006 review, "Management of Eating Disorders."[103,120,123] However, we did not rely on our earlier review to

identify relevant studies; our electronic database search identified studies published from root (the earliest entry in the search engine) to the search date.

Inclusion and Exclusion Criteria

Table 4 outlines the populations, interventions, comparators, outcomes, timing, and settings (PICOTS) that define the major inclusion criteria for studies in this review. In the following sections we provide additional detail related to each of these domains as needed.

Table 4. Inclusion and exclusion criteria for studies of binge-eating disorder and loss-of-control eating

Category	Inclusion Criteria	Exclusion Criteria
Population	Individuals of all races, ethnicities, and cultural groups in one of three subpopulations: (1) meeting DSM-IV or DSM-5 criteria for BED; (2) postbariatric surgery patients with LOC eating; or (3) children (6 years of age and older through adolescence) with LOC eating. Because LOC eating has no commonly accepted definition, studies included in the review may define LOC eating using different diagnostic criteria.	Co-occurring anorexia nervosa or bulimia nervosa LOC eating only: Children younger than 6 years of age Adults who have not undergone bariatric surgery Studies of RCTs with fewer than 10 participants and nonrandomized studies with fewer than 50 participants.
Interventions	Pharmacological, behavioral, psychological, or CAM treatments or combinations as described in the PICOTS criteria	Pharmacological interventions not marketed in the United States
Comparators	Any active intervention described in the PICOTS criteria, placebo, or usual care	Pharmacological interventions not marketed in the United States
Study duration	No limit	None
Settings	No limit; for treatment, studies include inpatient, outpatient, or home-based treatment settings for treatments such as self-help; course-of-illness studies include these setting and also community-based observation	None
Interventions	Pharmacological, behavioral, psychological, or CAM treatments or combinations as described in the PICOTS criteria	Pharmacological interventions not marketed in the United States
Comparators	Any active intervention described in the PICOTS criteria, placebo, or usual care	Pharmacological interventions not marketed in the United States
Outcomes	As described in the PICOTS criteria, intermediate and final health outcomes, treatment harms, and costs (e.g., health care cost and use, lost work days). Intermediate health outcomes will include biomarkers that can be linked directly to final physical health outcomes, such that an accumulation or worsening over time in that biomarker would result in the final health outcome	Studies that do not include at least one of the outcomes listed in the PICOTS criteria.
Timing of outcome measurement	Treatment studies: end of treatment or later Course-of-illness studies: 1 year or later after study entry or diagnosis; for treatment populations, 1 year following the end of treatment	Treatment studies: Outcome measurement prior to study completion only Course-of-illness studies: Outcome measurement less than 1 year post-study entry

BED = binge-eating disorder; CAM = complementary and alternative medicine; DSM = Diagnostic Statistical Manual; LOC = loss of control; PICOTS = populations, interventions, comparators, outcomes, timing, and setting; RCT = randomized controlled trial

Population

The populations of interest for this review included individuals meeting either DSM-IV or DSM-5 criteria for BED, postbariatric surgery patients meeting criteria for loss-of-control (LOC) eating after surgery, and children (6 years of age and older) meeting criteria for LOC eating. We excluded studies that focused on the interventions of interest but did not isolate results for individuals with only BED or LOC eating, because we could not measure the results in the BED or LOC eating population.

Interventions

Interventions included pharmaceutical, psychological, and behavioral treatments, as well as complementary and alternative medicine (CAM). Pharmaceutical interventions included but were not limited to antidepressants, anticonvulsants, attention deficit hyperactivity disorder medications, and weight loss medications. Psychological and behavioral interventions included but were not limited to cognitive behavioral therapy (CBT), interpersonal psychotherapy, and dialectical behavior therapy. Interventions could include a combination of these interventions, such as combinations of psychological and behavioral interventions or psychological and pharmacological interventions. Pharmacotherapy and CAM interventions may differ in dosages and duration of treatment. Psychological and behavioral interventions may differ in format (e.g., individual or group, therapist-led or self-help), frequency, and duration of treatment.

For psychological and behavioral interventions, we evaluated evidence by modality separately: individual and group therapy, and therapist-led and self-help approaches. The modalities involve a different therapist-patient relationship and level of healthcare resources; and only group therapy includes the influence of other patients suffering from the condition in the therapeutic process.

Comparators

All treatment studies included in this review had to have at least two groups. Acceptable comparisons included one of the other treatment comparisons included in the review, placebo, nonintervention, waitlist controls, or treatment as usual.

Studies that included adjunct therapies that were not the focus of the review, such as pharmaceutical interventions in behavioral treatment studies, were included if those therapeutic modalities were provided similarly to all study groups.

Outcomes

Corresponding to the Key Questions (KQs) specified in the introduction, we categorized study outcomes as evaluating treatment effectiveness (KQ 1, KQ 6, KQ 11), treatment harms (KQ 2, KQ 7, KQ 12), and course of illness (KQ 4, KQ 9, KQ 13). Treatment effectiveness and course-of-illness outcomes were grouped as binge-eating outcomes, eating-related psychopathology outcomes, weight-related outcomes, general psychological outcomes (such as depression), and other (such as quality of life). Potential harms varied across interventions (i.e., pharmaceutical, psychological, behavioral). Outcome differences between subgroups were evaluated in relation to treatment effectiveness and course of illness.

Timing

We included treatment studies that reported outcomes at the end of treatment or later. Course-of-illness studies were included if they had a 1-year minimum followup from the diagnosis of BED or LOC eating. To promote comparability in examining course of illness in patient populations who had received treatment, 1-year followup was measured from the end of treatment.

Setting

We included studies with an inpatient setting including hospitals and residential treatment centers; we also used studies in outpatient settings, including schools and homes.

Study Designs

Table 5 describes the study design inclusion criteria developed for this report.

Table 5. Study inclusion criteria for review of binge-eating disorder and loss-of-control eating

Category	Criteria for Inclusion
Study design	Meta-analyses, systematic reviews, RCTs, and nonrandomized controlled trials, prospective and retrospective cohort studies, and case-control studies. Evidence for treatment benefit was limited to RCTs and nonrandomized controlled trials. Systematic reviews were considered to be included studies only if they provided information that was used in the evidence synthesis. As such, systematic reviews that were used exclusively for identifying primary studies were excluded. Nonsystematic reviews were included for course of illness only. Excluded designs included case series, case reports, and studies of treatment without a control or comparison group.
Sample size	RCT studies: 10 or more participants Non-RCTs, cohort, and other studies used primarily to review course of illness: 50 or more participants.
Language of publication	Given the volume of literature on this topic, we limited our search to publications in the English language.

BED = binge-eating disorder; RCT = randomized controlled trial

Study Selection

Seven trained members of the research team reviewed article abstracts. Two members of the research team independently reviewed all titles and abstracts produced by the searches to determine study eligibility against predefined inclusion and exclusion criteria. Studies marked for possible inclusion by either reviewer underwent a full-text review. Each full-text article was again independently reviewed by two members of the team to determine if it met inclusion criteria. If both reviewers agreed that a study did not meet the eligibility criteria, it was excluded; each reviewer recorded the primary reason for exclusion. If the reviewers disagreed, they resolved conflicts by discussion and consensus or by consulting a third member of the review team. A form listing the criteria used to exclude studies based on full-text review form is reproduced in Appendix B.

The project coordinator tracked results of the abstract and full-text reviews in an EndNote database (EndNote® X4). Appendix C contains a complete list of studies excluded during the full-text review, denoted by their primary reason for exclusion.

We screened unpublished studies identified through the gray literature search (primarily clinical trials databases) and reviewed SIPs using the same title/abstract and full-text review processes.

Data Abstraction

We developed a template for evidence tables for data synthesis using the PICOTS framework. We abstracted characteristics of study populations, interventions, comparators, time frames, settings, study designs, methods, and results into evidence tables using Microsoft Excel®. Six trained members of the team participated in the data abstraction. One of the reviewers initially abstracted the relevant data from each included article; a second more senior member of the team reviewed each data abstraction against the original article for completeness and accuracy.

Risk-of-Bias Assessment

For each included systematic review and study, we assessed the potential for selection bias, performance bias, attrition bias, detection bias, and outcome reporting bias (Appendix D). The risk-of-bias assessment was conducted using three tools. The first is appropriate for trials and consists of questions and response categories from the Cochrane risk- of-bias tool[124] for RCTs and summary judgments corresponding with EPC guidance.[125] Examples of questions included in this tool are: "Was randomization adequate? Was allocation concealment adequate? Were outcome assessors masked"? The second is appropriate for evaluating risk of bias in non-RCTs and observational studies, used in this review to assess studies of course of illness. This form was modified from two existing tools, one developed by one of the study authors[126] and a pilot version of one recently developed by the Cochrane Collaboration.[127] (Both tools are available to the public online at the Web sites identified in the references.) One critical question included in this tool is: "Did the authors use an appropriate analysis method that adjusted for all the critically important confounding domains (e.g., through matching, stratification, interaction terms, multivariate analysis, or other statistical adjustment such as instrumental variables)?" The third is AMSTAR,[128] appropriate for the assessment of systematic reviews. Two independent reviewers rated the risk of bias for each study. Disagreements between the two reviewers were resolved by discussion and consensus or by consulting a third member of the team.

Results of this assessment are summarized by a rating of low, medium, or high risk of bias. In general, an RCT with a low risk of bias has a strong design (adequate randomization and allocation concealment and controls for concurrent treatments), measures outcomes appropriately including blinding of the patient and provider (if possible) and outcome assessor, reports low attrition or adequately addresses potential bias from attrition through analytic methods, and reports methods and outcomes clearly and precisely. RCTs with a medium risk of bias are those that do not meet all criteria required for low risk of bias but do not have flaws that are likely to cause major bias. RCTs with a high risk of bias include those with at least one major issue that has the potential to cause significant bias and thus might invalidate the results. Examples of flaws leading to a high risk-of-bias rating include different application of inclusion/exclusion criteria between arms, substantial differences in arms at baseline, high overall attrition or differential attrition across arms that is not adequately addressed through analytic methods, or lack of control for concurrent treatment. An RCT may be evaluated as medium risk of bias, in contrast to low risk of bias, if the study does not have an obvious source of high potential bias but information on multiple bias criteria, while unlikely to be biased because of the reported conduct in relation to other aspects of the trial, are unclear because of gaps in reporting.

The risk of bias of cohort and case-control studies, which we used as evidence for reviewing course of illness, was evaluated in comparison with the characteristics of a high-quality study of

the same design. Key concerns in these studies include many of the same considerations as RCTs. However, because these studies do not include randomization, a key consideration in the risk-of-bias assessment is control for critical potential confounding, either through design or statistical analyses.

A high risk-of-bias rating was assigned to studies in which the critical information needed to make that assessment was not reported or was unclear or the conduct or analysis was severely flawed. To maintain a focus on interpretable evidence, we opted generally not to include studies with a high risk of bias in the synthesis of treatment benefits in the results chapters of this review. However, we did consider high risk-of-bias studies as evidence of treatment benefit in sensitivity analyses using meta-analysis and as evidence for treatment harms and course of illness. We briefly describe in text why we rated studies as high risk of bias. We list each study rated as high risk of bias through reconciled reviewer responses to each question in the risk-of-bias instrument and the main reasons we gave it that rating in Appendix D.

Data Synthesis

Across all included trials, we had sufficiently similar evidence from studies of antidepressant medications as a class, lisdexamfetamine separately and combined with atomoxetine as medications originally formulated for attention deficit hyperactivity disorder (ADHD), and group CBT interventions for some outcomes to conduct syntheses through pooled meta-analysis. We did all other analyses qualitatively, based on our reasoned judgment of similarities in measurement of interventions and outcomes, and homogeneity of patient populations.

We conducted all meta-analyses using Comprehensive Meta-Analysis, version 3.2. We estimated the overall effect sizes for antidepressant treatment compared with placebo for each outcome and for CBT interventions compared with waitlist. Random effects models were applied to estimate overall effects across trials. Effect sizes were risk ratios for the dichotomous outcome (abstinence) and mean differences for the continuous outcomes (binge episodes per week, binge days per week, body mass index, weight, Yale-Brown Obsessive Compulsive Scale (YBOCS-BE) and depression scores). We compared second-generation antidepressants as a class with placebo and compared various CBT group formats as a class with waitlist. We assessed statistical heterogeneity in effects between studies by calculating the chi-squared statistic and Cochran's q. We used the I^2 statistic (the proportion of variation in study estimates attributable to heterogeneity) to estimate the magnitude of heterogeneity. We conducted sensitivity analyses, measuring the effect of high risk-of-bias studies on pooled results.

We recalculated remission (abstinence) rates for each trial using the number of all randomized patients as the denominator to reflect a true "intention-to-treat" analysis. With this approach, we attempted to correct variations in results of modified intention-to-treat analyses encountered in individual trials.

Strength of the Body of Evidence

In the key points section, we present the strength of evidence for each comparison and overarching outcome (e.g., binge eating, weight) as specified for each KQ. We graded the strength of evidence based on the EPC Methods Guide for conducting comparative effectiveness reviews, as detailed in the paper by Berkman and colleagues.[129,130] The intent of the strength of evidence guidance is to promote transparency and to give the reader an understanding of the investigator's confidence in the conclusion. The EPC approach incorporates five key domains: study limitations, directness, consistency, precision of the evidence, and reporting bias.

- Study limitations are determined according to the "degree to which the included studies for a given outcome have a high likelihood of adequate protection against bias." It is scored as low, medium, and high.
- Directness is determined based on "whether the evidence links the interventions directly to a health outcome of specific importance to the review." Directness also accounts for the directness of the evidence (i.e., whether the data were obtained from head-to-head comparisons). Both aspects of directness are considered in scoring evidence as direct or indirect. In this review, virtually all of the included measures are direct. When a body of evidence includes both indirect and direct measures, the presence of one or more direct measures will result in a "direct" grade.
- Consistency is the "degree to which included studies find the same direction or magnitude of effect." Each body of evidence is scored as consistent, inconsistent, or unknown. Consistency cannot be assessed when a body of evidence has only a single study and in those instances it is scored as unknown.
- Precision is determined according to "the degree of certainty surrounding an effect estimate" for each outcome separately, taking into consideration sample size and number of events. "Precise" indicates a clinically useful conclusion, and "imprecise" indicates that no conclusion can be drawn as to whether either treatment is superior or whether the treatments are equivalent.
- Lastly, reporting bias is selectively publishing or reporting research findings based on the favorability of direction or magnitude of effect. It is determined based on an evaluation of publication bias (nonreporting of full studies), selective outcome reporting bias (incomplete reporting of outcomes), and selective analysis reporting (selectively reporting more favorable analyses. It is scored as suspected or undetected.

The overall grades for strength of evidence, based on the scores for the above domains, are described in Table 6. Grades reflect the strength of the body of evidence to answer the KQs on the comparative effectiveness, efficacy, and harms of the interventions in this review for each key treatment outcome. Strength-of-evidence grades were also developed for key outcomes for course of illness.

Table 6. Definitions of the grades of overall strength of evidence

Grade	Definition
High	We are very confident that the estimate of effect lies close to the true effect for this outcome. The body of evidence has few or no deficiencies. We believe that the findings are stable (i.e., another study would not change the conclusions).
Moderate	We are moderately confident that the estimate of effect lies close to the true effect for this outcome. The body of evidence has some deficiencies. We believe that the findings are likely to be stable, but some doubt remains.
Low	We have limited confidence that the estimate of effect lies close to the true effect for this outcome. The body of evidence has major or numerous deficiencies (or both). We believe that additional evidence is needed before concluding either that the findings are stable or that the estimate of effect is close to the true effect.
Insufficient	We have no evidence, we are unable to estimate an effect, or we have no confidence in the estimate of effect for this outcome. No evidence is available or the body of evidence has unacceptable deficiencies, precluding reaching a conclusion.

Source: Berkman et al. (2014),[129] Berkman et al. (2013).[130]

Grades for RCT bodies of evidence are provisionally considered as high strength of evidence and then may be downgraded based on concerns in one or more of the key domains. In contrast, bodies of evidence consisting of observational studies are provisionally graded as low strength of

evidence. Optional domains can be considered in the assessment if they are considered relevant and can raise the strength of evidence grade. The optional domains include increasing dose-response, large magnitude of effect and an effect that would be larger if confounding variables had not been controlled in the analysis. Low study limitations can also increase the strength of evidence in observational study bodies of evidence because these evaluations begin with a lower provisional strength of evidence grade because of heightened concerns about the risk of bias in the individual studies.

Two reviewers assessed each domain independently and also assigned an overall grade for comparisons for each key outcome listed in the framework; they resolved any conflicts through consensus discussion. If they did not reach consensus, the team brought in a third party to settle the conflict. Typically, evidence from just one study was considered insufficient to permit confidence in the estimation of an effect. Exceptions were single study bodies of evidence consisting of a relatively larger, low risk-of bias trial, particularly if it showed a large magnitude of effect or large dose response.

Applicability

We assessed the applicability both of individual studies and of the body of evidence. For individual studies, we examined factors that may limit applicability based on the PICOTS structure. Examples of characteristics examined include:

- Population
    - Narrow eligibility criteria or exclusion of patients with comorbidities
    - Large differences between demographics of the study population and community patients
- Intervention
    - Intensity and delivery of interventions that may not be feasible for routine use
    - Highly selected intervention team or level of training/proficiency not widely available
- Comparators
    - Comparison group does not represent an available alternative treatment

Such factors may be associated with heterogeneity of treatment effect and may lessen our ability to generalize the effectiveness of an intervention to use in everyday practice. We abstracted key characteristics of applicability into evidence tables.

During data synthesis, we assessed the applicability of the body of evidence using the abstracted characteristics. KQs 3, 8, and 13 include an analysis of intervention effectiveness in population subgroups for each disorder.

Peer Review and Public Commentary

Experts in BED and LOC eating, specifically clinicians and researchers specializing in pharmacotherapy treatment, psychotherapy and behavioral treatment, pediatrics, and evidence-based interventions, were invited to provide external peer review of the draft comparative effectiveness review. AHRQ and an Associate Editor also provided comments. The EPC Associate Editors are leaders in their respective fields and are actively involved as directors or leaders at their EPCs. Their role is to assess adherence to established methodology and guidelines for EPC-based research. The draft report was posted on the AHRQ Web site for 4 weeks to elicit public comment. We responded to all reviewer comments and noted any resulting

revisions to the text in the “Disposition of Comments Report.” This disposition report is made publically available 3 months after the final review is posted on the AHRQ Web site.

Results: Overview and Efficacy and Effectiveness of Interventions To Manage Patients With Binge-Eating Disorder

Overview of Presentation of Results

This is the first of three chapters that present results. This chapter first presents the results of our literature searches. We then discuss the findings of our analyses for each Key Question (KQ) in this and two subsequent chapters. The review includes 15 KQs (the same 5 KQs repeated 3 times, corresponding to the 3 conditions that are the focus of the review). The order of the quintet of questions is (1) treatment effectiveness, (2) treatment harms, (3) differences in treatment effectiveness among subgroups, (4) course of illness, and (5) differences in course of illness among subgroups.

This chapter discusses the results for KQs concerning treatment for binge-eating disorder (BED) (KQs 1 to 3). Chapter 4 discusses the results concerning treatment for loss-of-control (LOC) eating in bariatric surgery patients (KQs 6 to 8) and treatment for LOC eating in children (KQs 11 to 13). Chapter 5 discusses the evidence concerning the course of illness for each of the three conditions; BED (KQs 4 and 5), LOC eating in bariatric surgery patients (KQs 9 and 10), and LOC eating in children (KQs 14 and 15). Appendix D contains tables documenting how we arrived at risk-of-bias assessments for individual studies. Appendix E has evidence tables for this and the succeeding results chapters.

We describe each included study at the beginning of the first treatment effectiveness or course of illness results section in which it is discussed. Because virtually all studies are included for treatment effectiveness or course of illness, we do not repeat the description of studies in answering KQs concerning harms or differences among subgroups. Exceptions are the high risk-of-bias studies included for harms only. We then present key points along with grades for strength of evidence (SOE) for major comparisons and outcomes; that material is followed by text and tables providing a more detailed synthesis of the included studies. When no studies reported on categories of outcomes, we note that fact in key points and do not repeat it in detailed synthesis.

We present all the relevant results from meta-analyses that we conducted in synthesizing our evidence. We were able to conduct meta-analysis for some comparisons of BED pharmacotherapy with placebo, and some comparisons of behavioral interventions with waitlist control. The meta-analyses precede those for qualitative comparisons of BED pharmacotherapy and behavioral interventions. We were not able to conduct quantitative syntheses for any treatment comparisons among bariatric surgery patients or children with LOC eating, mainly because our evidence base had too few studies or the studies were too heterogeneous in interventions and outcomes. For all such bodies of evidence, we conducted qualitative synthesis.

For each type of comparison, we present the study characteristics, summary evidence, and SOE in tabular form with accompanying text that addresses treatment efficacy across four general outcomes: binge-eating outcomes; eating-related psychopathology outcomes; weight and weight-related outcomes; and general psychological outcomes and other outcomes. Detailed SOE tables appear in Appendix F. We record the final SOE grades for the most critical findings in these chapters.

We encountered considerable variability across these studies in two main components: measures that investigators used to assess outcomes (for example, binge-eating episodes, binge-

eating days, binge-eating abstinence); and the methods they used to determine whether differences were statistically significant (e.g., regression methods that yielded estimates of the rate of change in outcomes; analysis of variance [ANOVA] methods that yielded estimates of the change in outcomes from baseline to endpoint). Our summary of evidence on treatment effectiveness focuses on differences in outcomes between the treatment and comparator arms at the end of treatment and, in some cases, after later followup. For this report, we define followup as either short-term (<12 months after the end of treatment) or long-term (≥12 months after the end of treatment). We limited evidence of course of illness to studies measuring long-term followup.

We included in evidence of treatment effectiveness only studies that we had rated as low or medium risk of bias, with two exceptions. We included studies with high risk of bias for sensitivity analysis testing of meta-analysis results, and we used such studies for evidence of treatment harms. For evidence of BED course of illness, we included observational studies that we rated as high risk of bias because of the small number of studies available to answer these KQs. In discussing evidence of treatment effectiveness, studies can be assumed to have been rated medium risk of bias, unless otherwise noted.

Literature Search Results

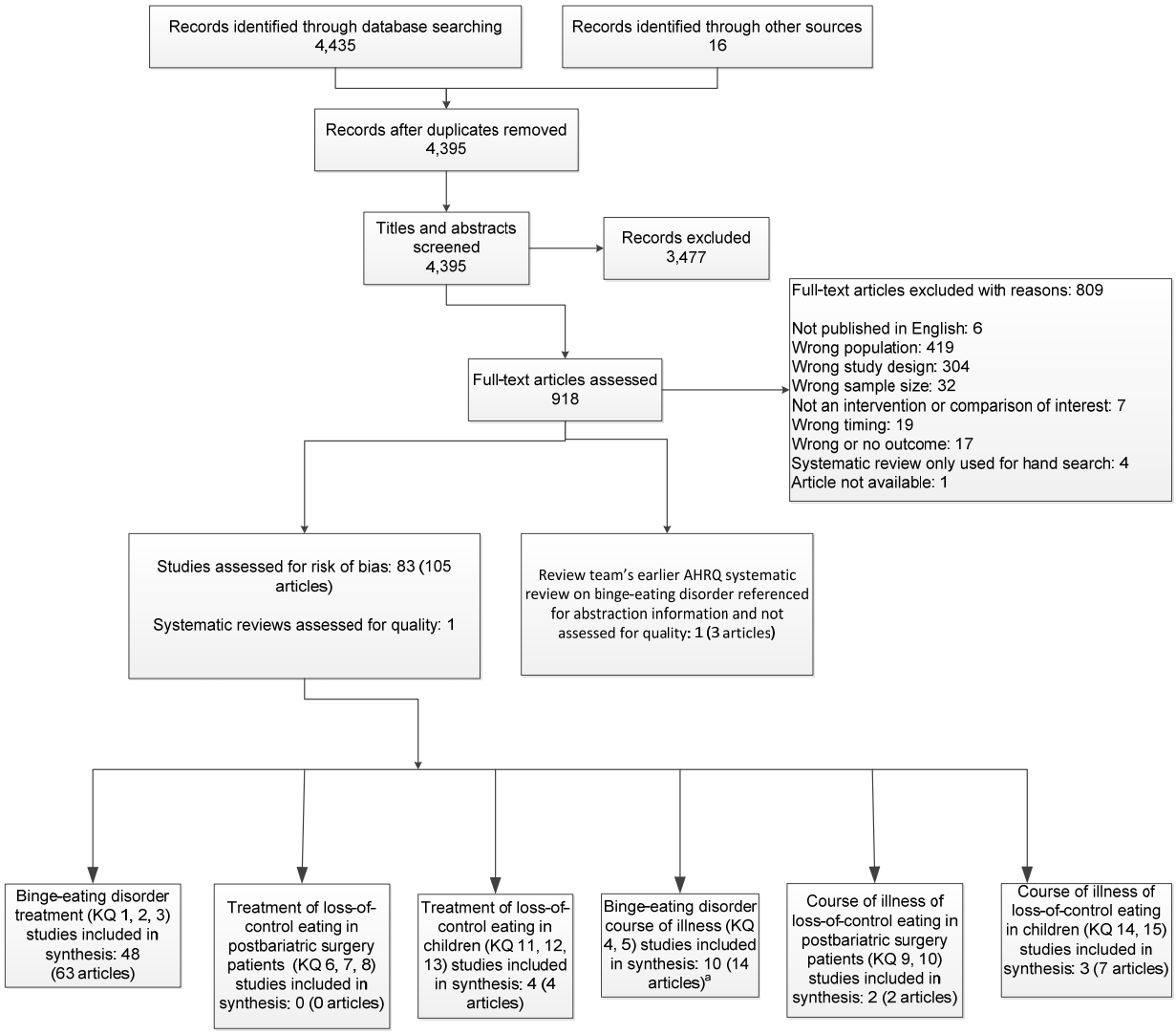
Figure 3 (the PRISMA diagram) depicts our literature search results. Initial literature searches completed on June 9, 2014, updated searches completed on January 19, 2015, and records identified through hand searches yielded 4,395 unduplicated citations. Appendix A provides a list of all search terms used and the results of each literature search.

After applying our eligibility and exclusion criteria to titles and abstracts of all identified citations, 918 citations for full-text review remained. We reapplied our inclusion criteria and excluded 809 of these articles from further review before doing our risk-of-bias assessment. Appendix C provides a list of excluded studies and reasons for exclusion at the full-text stage.

Eighty-three studies (reported in 105 articles) and one systematic review met our inclusion criteria. We also used several of the abstractions from our 2006 systematic review (reported in three articles) on eating disorders to develop the BED treatment and course of illness results sections in this report;[103,120,123] however, we did not do a quality assessment for our 2006 systematic review.

We used 52 studies (67 articles) in our main analysis of treatment benefits (both BED and LOC eating; see the three left-hand boxes in the PRISMA diagram). We did not use 19 additional studies in our main analyses of treatment benefits because of their high risk of bias. In keeping with standard approaches; however, we did include one of these studies in sensitivity analysis of our meta-analysis findings.[91] This was the only high risk-of-bias study that reported on a treatment comparison that we evaluated through meta-analysis. We also used seven of these studies in our assessment of treatment harms.[86,91,93,131-134] We identified 15 studies (23 articles) meeting inclusion criteria for course of illness KQs (three right-hand boxes in the PRISMA diagram). We used all 15 studies in that evidence synthesis, regardless of our risk-of-bias rating for the study.

Figure 3. PRISMA diagram for binge-eating disorder treatment and course of illness



KQ = Key Question; AHRQ = Agency for Healthcare Research and Quality; PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses

[a]Three studies (3 articles) also included for binge-eating disorder treatment (KQ 1, 2, 3) synthesis.

Of the 20 fair- or good-quality studies on treatment for BED included in our previous 2006 systematic review cited above, 19 studies met the inclusion criteria for this review. One study had used sibutramine as a treatment method;[135] for this review, we excluded treatment studies with this medication because it is no longer available in the United States.

Four studies[84,86,91,136] that we had originally rated as good or fair quality for the earlier review were newly rated as high risk of bias; we omitted them, therefore, from our main analyses. The earlier review also included three studies on BED course of illness that we have used in this review.[137-139]

Binge-Eating Disorder: Overview

In relation to treatment effectiveness for BED (KQ 1), we address three broad categories of treatment, presented in this order: pharmacological; psychological and behavioral; and combination treatments. In light of uncertainty in the field regarding the definition of BED remission and recovery, we use the term "abstinence" to mean zero binge-eating episodes in the most recent assessment period (usually the past month). Thus, in our report, we substitute the term "abstinence" for "remission" when authors used the term "remission" to mean zero binge-eating episodes in the most recent assessment period; in addition, we substitute the term "abstinence" when authors simply reported the outcome as "cessation of binge eating." In doing so, we preserved the term "remission" to reflect a more sustained, global state of change marked by the absence not only of binge eating but of other features/criteria that can linger after the cessation of binge eating. For example, remission would include the absence of distress regarding binge eating, feelings of disgust after overeating, or eating alone because of embarrassment. Although not defined in DSM-5, this sustained global state would reasonably persist beyond the one month window typically reported in studies.

In the category of pharmacological treatments, the 18 included trials involved antidepressants, anticonvulsants, an antiobesity drug, drugs originally formulated to treatment attention deficit hyperactivity disorder (ADHD), and a variety of other agents, including one dietary supplement. Among the antidepressants were a tricyclic antidepressant as well as five different selective serotonin reuptake inhibitors (SSRIs), a norepinephrine-dopamine reuptake inhibitor (NDRI), and a selective serotonin-norepinephrine reuptake inhibitor (SNRI). For parsimony, we hereafter refer to this group of antidepressants, excluding the tricyclic antidepressant, as "second-generation antidepressants" collectively, acknowledging that the label and the available evidence is not inclusive of all possible second-generation antidepressants. The anticonvulsants were topiramate (a carbonic anhydrase inhibitor) and lamotrigine (a phenyltriazine). The ADHD medications included atomoxetine and lisdexamfetamine.

In the category of psychological and behavioral treatments, the 23 included trials involved cognitive behavioral therapy (CBT), dialectical behavioral therapy (DBT), interpersonal psychotherapy (IPT), behavioral weight loss (BWL), and inpatient treatment (i.e., multilevel integrated treatment delivered in the inpatient setting by a team of care providers). The CBT trials included variations based on the degree of therapist involvement; interventions could be led fully or partially by the therapist or involve various self-help strategies (structured, guided, or pure).

Seven trials provided data on combination treatments, including pairings of CBT, BWL, hypocaloric diet, and diet counseling with either an antidepressant or an antiobesity medication; two of the seven trials paired compound behavioral treatments (i.e., CBT plus BWL, CBT plus diet counseling) with an antidepressant. All trials that included a combination behavioral plus pharmacological treatment arm also included a comparable combination placebo-controlled treatment arm (e.g., CBT plus antidepressant compared with CBT plus placebo).

Across these trials, the use of various approaches to measurement resulted in considerable variability in the reporting of outcomes. These reflected measures of differences at endpoint (e.g., end of treatment or longer-term followup), change from baseline to endpoint, rate of change over the course of treatment, and in some cases all three. Given the variability in outcome reporting and treatment comparisons, we were able to conduct meta-analyses only to measure the efficacy of second-generation antidepressant treatments, ADHD medications and therapist-led

CBT for some outcomes. We conducted sensitivity analyses to evaluate the effect of the addition of one high risk-of-bias antidepressant study[91] on our results.

KQ 1: Effectiveness of Interventions for Binge-Eating Disorder

Pharmacological Interventions: Second-Generation Antidepressants Compared With Placebo

Description of Studies

The included evidence about the efficacy of antidepressants for treatment of BED consisted of the eight randomized controlled trials (RCTs) (all placebo-controlled) described in Table 7. We rated four of the eight trials low risk of bias.[90,96,140,141] Of these eight RCTs, six involved an SSRI,[88-90,92,98,140] and one each involved an NDRI[141] or an SNRI.[96] Sample sizes ranged from 34 to 85. All eight trials focused on adults 18 years of age or older, up to 65 years of age (mean age range: 39 to 44 years); all included overweight or obese participants (mean body mass index [BMI] range: 35.5 to 40.6). Overall, a total of 470 individuals were randomized to treatment; of these, 54 were randomized to a combination antidepressant plus behavioral treatment (see below: "Pharmacological Interventions: Combination Treatments Compared With Placebo and With Other Treatments"). Of the 416 subjects randomized to only an antidepressant or placebo, most were female (range: 78 percent to 100 percent) and few self-identified as being from a minority background (nonwhite range: 0 percent to 27 percent).

In the six SSRI trials, two studied fluoxetine,[88,140] and one each studied citalopram,[90] escitalopram,[98] fluvoxamine,[92] and sertraline.[89] The six SSRI trials differed in duration of treatment (6 to 16 weeks); none followed participants after treatment ended.

The two fluoxetine trials differed in dose and duration. One regimen was 60 mg/day (the dose indicated by the U.S. Food and Drug Administration [FDA] for treating bulimia nervosa) for 16 weeks.[140] The other regimen was 80 mg/day (the maximum dose recommended in the treatment of severe obsessive compulsive disorder) for 6 weeks.[88]

The two remaining trials included the NDRI bupropion, 300 mg/day for 8 weeks,[141] and the SNRI duloxetine, 120 mg/day for 12 weeks.[96]

All eight trials reported binge eating, weight, and general psychological outcomes, and all but three[88,89,92] reported outcomes specific to eating-related psychopathology.

Table 7. Characteristics of included trials of second-generation antidepressants compared with placebo for binge-eating disorder

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Arnold et al., 2002[88] USA Outpatient RCT Medium	DSM-IV (SCID) G1: 30 G2: 30 6 weeks 18–60 years; weight >85% IBW Mean age: 41.4 yr. Female: 93% Nonwhite: 12% Mean weight:107 kg (completers) Mean BMI: 38.2 Lifetime MDD: 65% Current MDD: 25%	**G1: Fluoxetine:** 20 mg/day titrated up to 60 mg/day over 6 days, then up to 80 md/day after 2 weeks **G2: Placebo:** Same dosing as active tx Co-intervention: none	Binge-eating episodes • Episodes/week • Abstinence Psychological • CGI-Severity • HDRS Weight • Weight • BMI
Grilo et al., 2005[140] USA Primary Care RCT Low	DSM-IV (SCID, EDE) G1: 27 G2: 27 G3: 26 G4: 28 16 weeks 18–60 years, 100%–200% of ideal body weight Mean age: 44 Female: 78% Nonwhite:11% Mean BMI: 36.3 Lifetime MDD: 50% Lifetime anxiety disorders: 37%	**G1: Fluoxetine:** 60 mg/day **G2: Placebo:** Same dosing as G1 **G3: CBT+Fluoxetine:** CBT: 16 weeks of individual, 60-minute sessions using method of Fairburn et al.[142] **Fluoxetine:** Same as GI **G4: CBT+Placebo:** CBT same as G3 **Placebo:** Same dosing as G3 Co-intervention: Minimal clinical management (<15 minutes weekly during first 4 weeks, biweekly thereafter)	Binge-eating Episodes • Binge episodes/month (EDE-Q) • Binge episodes/month (daily self-monitoring) Eating-related • EDE-Q global, 4 scores • TFEQ 3 scores • BSQ Psychological • BDI Weight • BMI
Guerdjikova et al., 2008[98] USA Outpatient RCT Low	DSM-IV (SCID) G1: 21 G2: 23 12 weeks 18–60 years, BMI ≥30 Mean age: 39 Female: 96% Nonwhite: 27% Mean weight: 111 kg Mean BMI: 40.2 Lifetime MDD: 77%	**G1: Escitalopram:** 10 mg/day titrated up to 30 mg/day over 2 weeks, as tolerated **G2: Placebo:** Same dosing as active tx Co-intervention: none	Binge-eating Episodes • Binge episodes/week • Binge days/week • Abstinence Eating-related • YBOCS-BE total, 2 subscales Psychological • CGI severity, improvement • HDRS Weight • Weight • BMI

Table 7. Characteristics of included trials of second-generation antidepressants compared with placebo for binge-eating disorder (continued)

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Guerdjikova et al., 2012[96] USA Outpatient RCT Low	DSM-IV-TR (SCID) G1: 20 G2: 20 12 weeks 18–65 years, major depressive disorder, binge ate ≥2 days/week for at least 1 week immediately prior to randomization, ≥25 on the IDS-C scale at screening and baseline Mean age: 40.1 Female: 88% Nonwhite: 17% Mean Weight: 114.7 kg Mean BMI: 40.6 Recurrent MDD: 25% Lifetime anxiety disorder: 12% Lifetime SUD: 5%	**G1: Duloxetine:** Flexible dose starting 30 mg/day and increased to max 120 mg/day by week 6. Dosing once or twice per day **G2: Placebo** Co-intervention: none	Binge-eating Episodes • Binge-eating days/week • Binge episodes/week • Abstinence Eating-rated • CGI-S-BE • CGI-I-BE • YBOCS-BE • TFEQ, 3 subscales Psychological • CGI-S-DD • CGI-I-DD • IDS-C • HAM-A Weight • Weight • BMI
Hudson et al., 1998[92] USA Outpatient RCT Medium	DSM-IV (proposed in 1991) G1: 42 G2: 43 9 weeks 18–60 years, weight >85% of the midpoint of the ideal for height, ≥3 binge episodes per week for ≥6 months Mean age: 42. Female: 91% Nonwhite: 4% Mean BMI: 35.5	**G1: Fluvoxamine:** 50 mg/day for ≥3 days, titrated up to 300 mg/day through week 9 **G2: Placebo:** Same dosing as in active tx Co-intervention: none Note: Treatment began 1 week after placebo run-in	Binge-eating Episodes • Frequency of binge episodes/week • Abstinence Psychological • CGI – Severity • CGI – Improvement • HDRS Weight • BMI

Table 7. Characteristics of included trials of second-generation antidepressants compared with placebo for binge-eating disorder (continued)

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
McElroy et al., 200[89] USA Outpatient RCT Medium	DSM-IV G1: 18 G2: 16 6 weeks Estimated binge size ≥1,500 kcal, 18–60 years, weight >85% of the midpoint of the ideal for height, ≥3 binge episodes per week for ≥6 months Mean age: 42 Female: 94% Nonwhite: NR Mean BMI: 36.1 Lifetime MDD: 53%	**G1: Sertraline:** 50 mg/day for ≥3 days, dose adjusted to between 50 mg/day and 200 mg/day **G2: Placebo:** Same dosing as active tx Co-intervention: none Note: Treatment began 1 week after placebo run-in	Binge-eating Episodes • Binge episodes/week • Abstinence Psychological • CGI – Severity • CGI – Improvement • HDRS Weight • BMI
McElroy et al., 2003[90] USA Outpatient RCT Low	DSM-IV (SCID) G1: 19 G2: 19 6 weeks 18–60 years, ≥3 binge-eating episodes weekly for past 6 months, >85% IBW Mean age: 40.6 Female: 95% Nonwhite: 13% Mean weight: 105.7 kg. Mean BMI: 37.8 Lifetime depression: 68% Current depression: 32%	**G1: Citalopram:** 20 mg/day titrated up to 60 mg/day over 2 weeks and maintained as tolerated. **G2: Placebo:** Same dosing as active tx Co-interventions: none	Binge-eating Episodes • Binge episodes/week • Binge days/week • Abstinence Eating-related • YBOCS-BE total, 2 subscales Psychological • HDRS Weight • BMI • Weight

Table 7. Characteristics of included trials of second-generation antidepressants compared with placebo for binge-eating disorder (continued)

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
White and Grilo, 2013[141] USA Outpatient RCT Low	DSM-IV (SCID, EDE) G1: 31 G2: 30 8 weeks Female, BMI 25–30, 18–65 years Mean age: 44.1 Nonwhite: 16% Mean BMI: 35.8 Lifetime Axis 1 comorbidity: 74% Lifetime mood disorder: 52% Lifetime anxiety disorder: 38% Lifetime SUD: 25%	**G1: Bupropion:** 150 mg tablets, once daily for the first 3 days, then twice daily for study days 4–56 **G2: Placebo:** Same schedule as active tx Co-intervention: none	Binge-eating Episodes • OBE (EDE monthly) • OBE (SR per week) • SBE (EDE monthly) • SBE (SR per week) • Abstinence Eating-related • EDE global, 4 scores • FCI Psychological • BDI Weight • BMI • Weight

BDI = Beck Depression Inventory; BE = binge-eating; BMI = body mass index; CGI-I = Clinical Global Impressions-Improvement scale; CGI-S = Clinical Global Impressions-Severity of Illness scale; DSM = Diagnostic and Statistical Manual for Mental Disorders; EDE = Eating Disorder Examination; EDE-Q = Eating Disorder Examination Questionnaire; FCI = Food Craving Inventory; G = group; HAM-A = Hamilton Anxiety scale; HDRS = Hamilton Depression Rating Scale; IBW = ideal body weight; IDS-C = Inventory of Depressive Symptomatology; IV = fourth edition; kcal = kilocalories; kg = kilogram; MDD = Major Depressive Disorder; RCT = randomized controlled trial; mg = milligrams; N = number; NR = not reported; OBE = objective binge-eating episode; SBE = subjective binge-eating episode; SUD = substance use disorder; TFEQ = Three-Factor Eating Questionnaire; TR = Text Revision; tx = treatment; US = United States; YBOCS = Yale-Brown Obsessive Compulsive Scale.

Key Points – Meta-Analysis Results

- Evidence for treatment with second-generation antidepressants was based on eight RCTs; outcomes were all measured at the end of treatment.
- Second-generation antidepressants were associated with better binge-eating outcomes, based on several measures:
    - Achieving abstinence: 67 percent greater likelihood in the treatment than in the placebo group, based on synthesis of eight RCTs (N=416) (risk ratio [RR], 1.67; 95% confidence interval [CI], 1.24 to 2.26; p=0.001) (high SOE for benefit).
    - Binge-eating episodes per week: The treatment group achieved a mean difference of 0.67 fewer binge-eating episodes per week than placebo, at the end of treatment, based on synthesis of seven RCTs (N=331) (mean difference -0.67; 95% CI, -1.26 to -0.09; p=0.024) (high SOE for benefit).
    - Binge-eating days per week: The treatment group achieved a mean difference of 0.90 fewer binge-eating days per week than placebo, based on synthesis of three low risk-of-bias RCTs (N=122) (mean difference -0.90; 95% CI, -1.48 to -0.32; p=0.002) (moderate SOE for benefit).
- Second-generation antidepressants were associated with greater reductions in eating-related psychopathology.

    - Obsessions and compulsions: The treatment group achieved a superior outcome, based on the Yale-Brown Obsessive Compulsive Scale for Binge Eating (YBOCS-BE, total, obsessions, and compulsions) through synthesis of three low risk-of-bias RCTs (N=122). YBOCS-BE total (mean difference -3.84; 95% CI, -6.56 to -1.12; p=0.006); YBOCS-BE obsessions (mean difference -1.53; 95% CI, -2.69 to -0.37; p=0.010); YBOCS-BE compulsions: (mean difference -2.31; 95% CI, -3.85 to -0.76; p=0.003) (moderate SOE for benefit).
- Second-generation antidepressants were not associated with greater weight reductions, based on two measures:
    - BMI: No difference in reduction in treatment and placebo groups, based on synthesis of six RCTs (N=297) (mean difference, -1.05; 95% CI, -2.64 to 0.55; p=0.198) (low SOE for no difference).
    - Weight: No difference in reduction in treatment and placebo groups, based on four RCTs (N=182) (mean difference, -3.91; 95% CI, -10.14 to 2.32; p= 0.219) (low SOE for no difference).
- Second-generation antidepressants were associated with greater reductions in symptoms of depression than placebo, based on three RCTs (N=142) (mean difference, -1.98; 95% CI, -3.67 to -0.28; p=0.022) (low SOE for benefit).

Table 8 documents the number of trials and numbers of subjects available as evidence for the meta-analyses of treatment benefits of antidepressants, as a class, for BED. The SOE for any *specific* antidepressant was insufficient because, with the exception of fluoxetine, each drug was evaluated only in one small-sample, single trial (N range 34 to 85).

Table 8. Strength of evidence for outcomes of meta-analysis of trials of second-generation antidepressant interventions compared with placebo for binge-eating disorder

Treatment Comparison	Binge Eating	Eating-Related Psychopathology	Weight-Related Outcomes	Psychological Outcomes	Other Outcomes
Antidepressants (drug) vs. placebo, end of treatment, combined meta-analysis results	**High** 8 RCTs (N=416) Drug better, Abstinence **High** 7 RCTs (N=331) Drug better, reduction binge-eating episodes/week **Moderate** 3 RCTs (N=122) Drug better, reduction binge-eating days/week	**Moderate** 3 RCTs (N=122) Drug better, reduction binge-eating-related obsessions and compulsions	**Low** 6 RCTs (N=297) No difference, BMI **Low** 6 RCTs (N=182) No difference, Weight	**Low** 3 RCTs (N=142) Drug better depression symptoms	Not available

BMI= body mass index; N = number of subjects; RCT = randomized controlled trial; vs. = versus

Detailed Synthesis

The results for the eight pharmaceutical trials are presented in relation to the four major outcomes: binge eating and abstinence; eating-related psychopathology; weight; and general psychological and other outcomes. For each outcome, we present first the meta-analysis results followed by details of the individual studies. Because all these trials had only placebo controls, we do not repeat that "comparison" point in the text below.

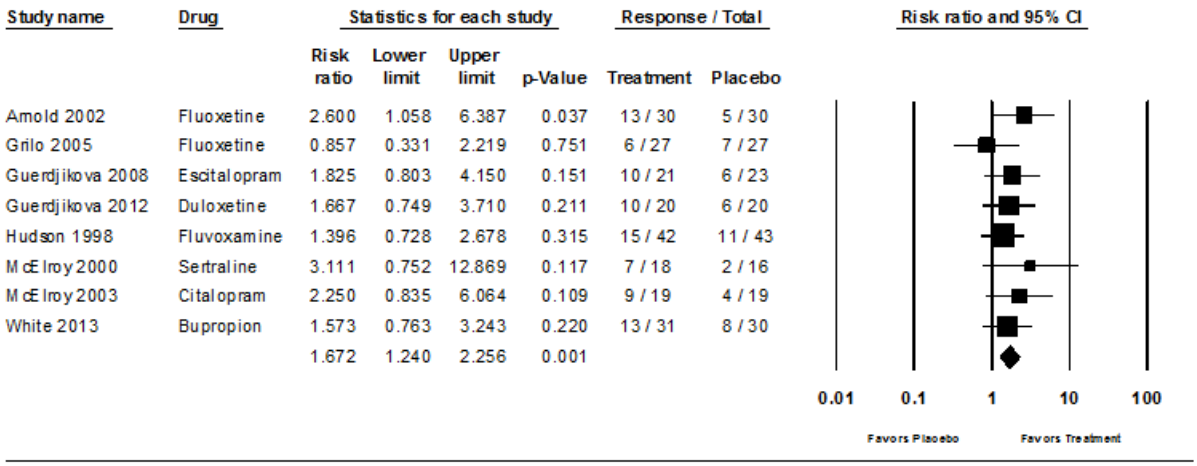
Binge-Eating Outcomes

Second-Generation Antidepressants: Meta-Analysis Results

We conducted meta-analyses (using random effects models) to determine the efficacy of second-generation antidepressant medication in treating BED patients. Eight trials provided data sufficient for the analysis of binge-eating abstinence; of these eight, seven provided data on binge-eating episodes per week and three on binge-eating days per week. We conducted sensitivity analyses to evaluate the effect on the summary estimate of one high risk-of-bias fluvoxamine trial[91] that provided data on abstinence and binge-eating days per week.

As shown in Figure 4, second-generation antidepressants were associated with a 67 percent greater likelihood of having achieved abstinence (RR, 1.67; 95% CI, 1.24 to 2.26; p=0.001; I^2=0%). This finding was robust to the inclusion of data from the high risk-of-bias trial (RR, 1.64; 95% CI, 1.24 to 2.18; p=0.000; $I^{2=}$0 percent). On average, 41 percent of participants treated with second-generation antidepressants and 23 percent of participants treated with placebo achieved abstinence at the end of treatment.

Figure 4. Abstinence: Second-generation antidepressants compared with placebo



In addition, the second-generation antidepressants were more effective in reducing binge-eating episode frequency, whether measured as binge-eating episodes per week (7 trials, mean difference, -0.67; 95% CI, -1.26 to -0.09; p=0.02; $I^{2=}$0 percent; Figure 5) or binge-eating days per week (3 trials, mean difference -0.90; 95% CI, -1.48 to -0.32; p=0.00; I^2=0 percent; Figure 6). The sensitivity analysis supported the finding of an antidepressant benefit on binge-eating days per week (mean difference, -0.87; 95% CI, -01.44 to -0.31; p=0.003; I^2=0 percent]. Over the course of treatment, the weighted mean change in binge-eating episodes per week was -3.6 among those treated with second-generation antidepressants and -2.7 receiving placebo; at the end of treatment, the weighted mean number of binge-eating episodes per week was 1.5 and 2.1 in the two groups, respectively. Similarly, over the course of treatment, the weighted mean change in binge-eating days per week was -3.0 among those treated with second-generation antidepressants and -2.0 among those treated with placebo; at the end of treatment, the weighted mean number of binge-eating days per week was 1.0 and 1.9 in the two groups, respectively.

Figure 5. Binge-eating episodes per week: Second-generation antidepressants compared with placebo

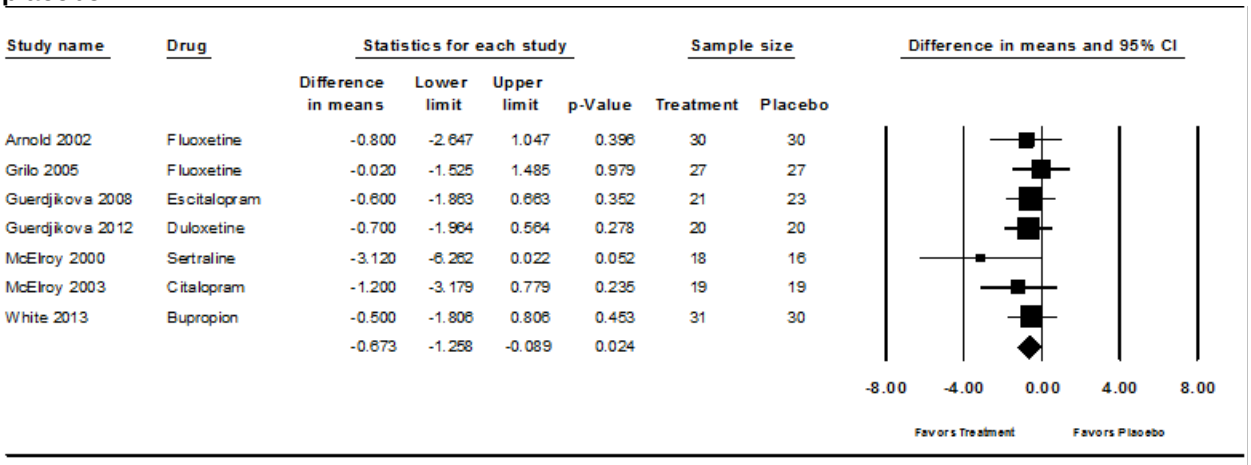
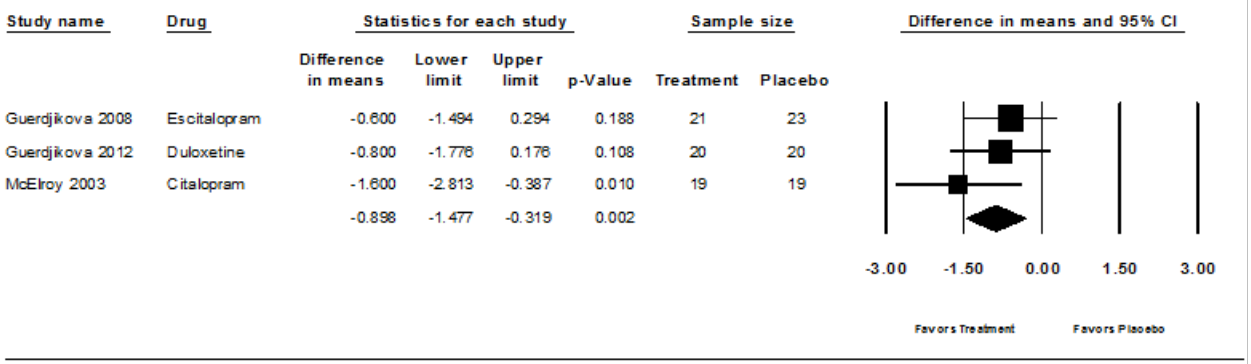


Figure 6. Binge-eating days per week: Second-generation antidepressants compared with placebo



Second-Generation Antidepressants: Single Trial Results

This section describes the results of the eight placebo-controlled trials used for the meta-analyses described above.

Citalopram, 60 mg/day for 6 weeks, was associated with a significant change of approximately -1.2 binge-eating days per week, although treatment did not achieve greater abstinence.[90] Escitalopram, 30 mg/day for 12 weeks, was associated with a significant change of approximately -0.3 binge-eating episodes per week, although treatment was not associated with abstinence.[98] Fluoxetine, 80 mg/day for 6 weeks, was associated with a faster rate of reduction in the number of binge-eating episodes per week;[88] however, neither this regimen nor fluoxetine, 60 mg/day for 16 weeks,[140] was better than placebo in reducing binge-eating episode frequency or achieving abstinence at the end of treatment. Fluvoxamine, 300 mg/day for 9 weeks, was associated with a faster rate of reduction in the number of binge-eating episodes per week; however, treatment did not achieve greater abstinence.[92] Sertraline, 200 mg/day for 6 weeks, was associated with a faster rate of reduction in the number of binge-eating episodes per week, but at the end of treatment the abstinence rate did not differ among the groups.[89]

Other second-generation antidepressant trials included duloxetine and bupropion. Duloxetine (120 mg/day for 12 weeks) did not differ significantly from placebo in binge-eating episode frequency change from baseline to end of treatment.[96] Similarly, bupropion (300 mg/day for 8 weeks) was not more effective in reducing binge-eating episode frequency than placebo.[141]

Eating-Related Psychopathology Outcomes

Second-Generation Antidepressants: Meta-Analysis Results

Three placebo-controlled trials assessed treatment-related changes in binge-eating-related obsessions and compulsions using the YBOCS-BE.[90,96,98] The estimated difference in change in obsessions and compulsions between second-generation antidepressants and placebo varied in magnitude but was consistent in direction across the three trials. Overall, second-generation antidepressants were associated with significant reductions in YBOCS-BE total (mean difference -3.84; 95% CI, -6.56 to -1.12; p=0.006; I^2=2.5 percent; Figure 7); YBOCS-BE obsessions (mean difference -1.53; 95% CI, -2.69 to -0.37; p=0.010; I^2=1.2 percent; Figure 8); and YBOCS-BE compulsions (mean difference -2.30; 95% CI, -3.85 to -0.76; p=0.00; I^2=2.1 percent; Figure 9).

Figure 7. Total binge-eating-related obsessions and compulsions: Second-generation antidepressants compared with placebo

Study name	Drug	Statistics for each study				Sample size	
		Difference in means	Lower limit	Upper limit	p-Value	Treatment	Placebo
Guerdjikova 2008	Escitalopram	-3.500	-6.808	-0.192	0.038	21	23
Guerdjikova 2012	Duloxetine	-1.600	-5.178	1.978	0.381	20	20
McElroy 2003	Citalopram	-6.500	-10.135	-2.865	0.000	19	19
		-3.840	-6.555	-1.125	0.006		

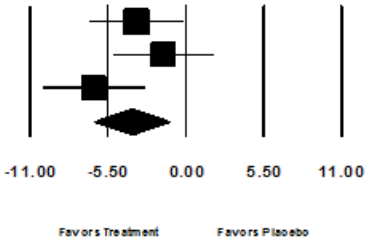


Figure 8. Obsessions: Second-generation antidepressants compared with placebo

Study name	Drug	Statistics for each study				Sample size	
		Difference in means	Lower limit	Upper limit	p-Value	Treatment	Placebo
Guerdjikova 2008	Escitalopram	-1.600	-3.275	0.075	0.061	21	23
Guerdjikova 2012	Duloxetine	-0.400	-2.238	1.438	0.670	20	20
McElroy 2003	Citalopram	-2.500	-4.253	-0.747	0.005	19	19
		-1.528	-2.690	-0.366	0.010		

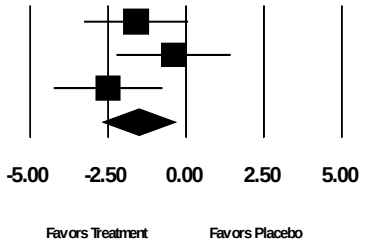
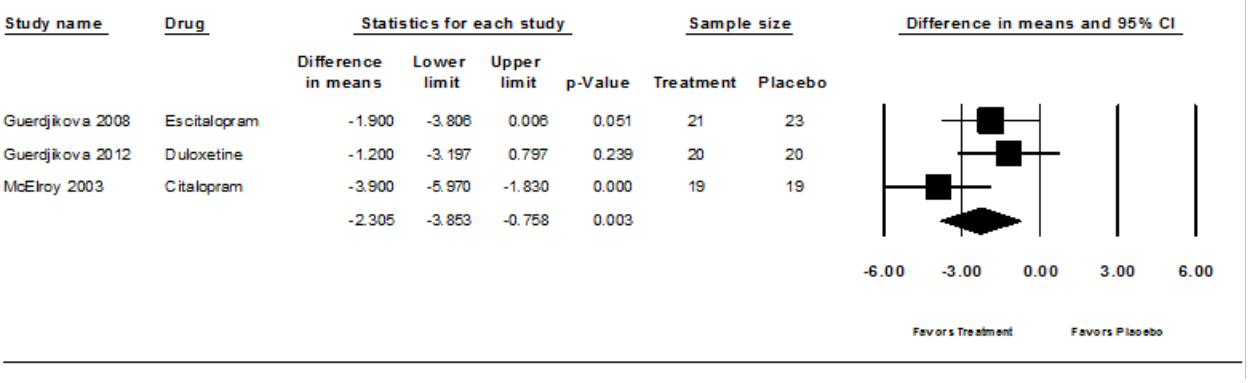


Figure 9. Compulsions: Second-generation antidepressants compared with placebo



Second-Generation Antidepressants: Single Trial Results

Citalopram was associated with a significant change in the mean total YBOCS-BE score (-5.73) because of changes in subscale scores for obsessions (-2.48) and compulsions (-2.88).[90] In contrast to citalopram, for escitalopram the change in the mean total YBOCS-BE score was smaller (-2.9) and not statistically significant following 12 weeks of treatment.[98] Neither fluoxetine, 60 mg/day for 16 weeks,[140] nor fluoxetine, 80 mg/day for 6 weeks,[88] had a significant effect on eating-related psychopathology, as measured by changes in the four Eating Disorder Examination Questionnaire (EDE-Q) subscales of cognitive restraint and eating, shape, and weight concerns,[140] or by changes in the Three-Factor Eating Questionnaire (TFEQ) subscales of hunger or disinhibition.[140] The effects of fluvoxamine or sertraline on eating-related psychopathology were not reported. Duloxetine was not better than placebo in reducing binge-eating-related obsessions and compulsions or TFEQ measures of hunger, cognitive restraint, or disinhibition.[96] Similarly, bupropion did not significantly reduce food cravings, dietary restraint, or eating, shape, and weight concerns.[141]

Weight Outcomes

Second-Generaton Antidepressants: Meta-Analysis Results

Four trials provided data on weight and six trials provided data on BMI; all were placebo-controlled. We also conducted a sensitivity analysis to evaluate the effect of one high risk-of-bias fluvoxamine trial[91] that reported weight data.

Compared with placebo, treatment with a second-generation antidepressant was not associated with a significant change in BMI (mean difference, -1.05; 95% CI, -2.64 to 0.55; p=0.20; I^2=0 percent) (Figure 10). The finding of no significant difference was consistent across the six RCTs. Similarly, treatment with a second-generation antidepressant was not associated with a greater reduction in weight (mean difference in kgs, -3.91; 95% CI, -10.14 to 2.32; p=0.219; I^2=0 percent; Figure 11). These findings were robust to the inclusion of data from the high risk-of-bias trial (mean difference, -3.86; 95% CI, -10.00 to 2.28; p=0.218; I^2, 0.00) (Figure 11). The mean change in weight varied considerably across trials; the largest mean weight *loss* occurred in participants treated with duloxetine (2.8 kg).[96] Notably, in three of the four weight trials, the mean weight *increased* among participants receiving placebo, ranging from 0.6 kg[98] to 6.8 kg.[88] Thus, by the end of 6 to 12 weeks of treatment, participants treated with a second-generation antidepressant experienced a change in weight that differed from those treated with placebo by 8.6 pounds on average. Although the point estimate for weight reduction favored the

treatment group receiving a second-generation antidepressant in each of the trials, estimates were not precise; three of four 95% CIs included no benefit. In sum, treatment with second-generation antidepressants was not associated with a statistically significant reduction in weight or BMI.

Figure 10. BMI: Second-generation antidepressants compared with placebo

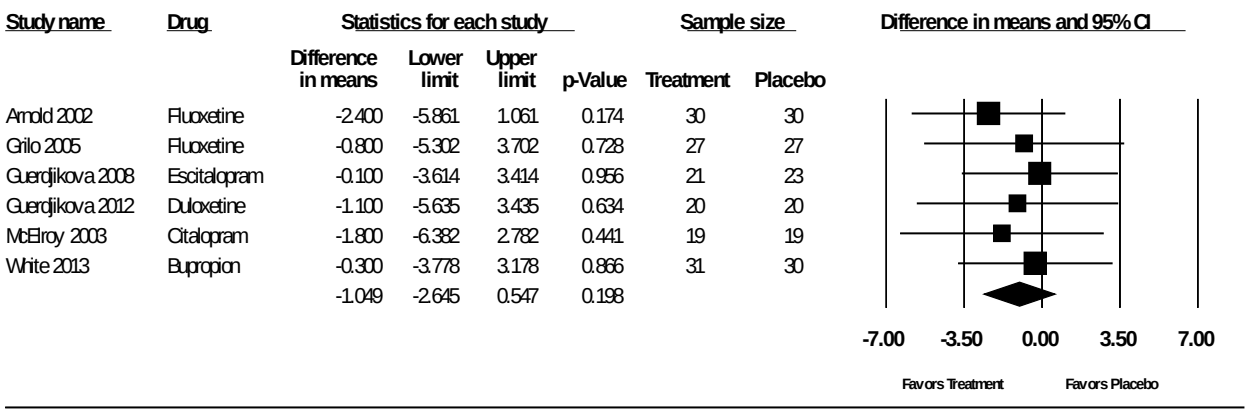
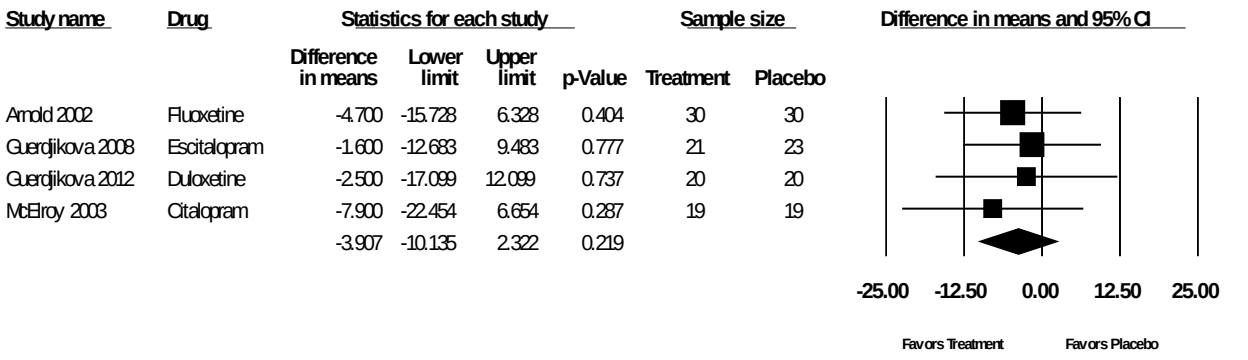


Figure 11. Weight: Second-generation antidepressants compared with placebo



Second-Generation Antidepressants: Single Trial Results

Citalopram,[90] escitalopram,[98] and fluoxetine (80 mg/day)[88] significantly reduced weight and BMI. Similarly, fluvoxamine[92] and sertraline[89] were associated with a faster rate of decline in BMI. In contrast, weight was not significantly reduced following treatment with fluoxetine, 60 mg/day.[140] Duloxetine was associated with a faster rate of reduction in weight but did not lead to a significantly greater overall mean reduction in weight or BMI at the end of treatment.[96] Similarly, bupropion was associated with a faster rate of reduction in BMI; however, end-of-treatment differences in BMI reduction were not reported.[141]

General Psychological Outcomes

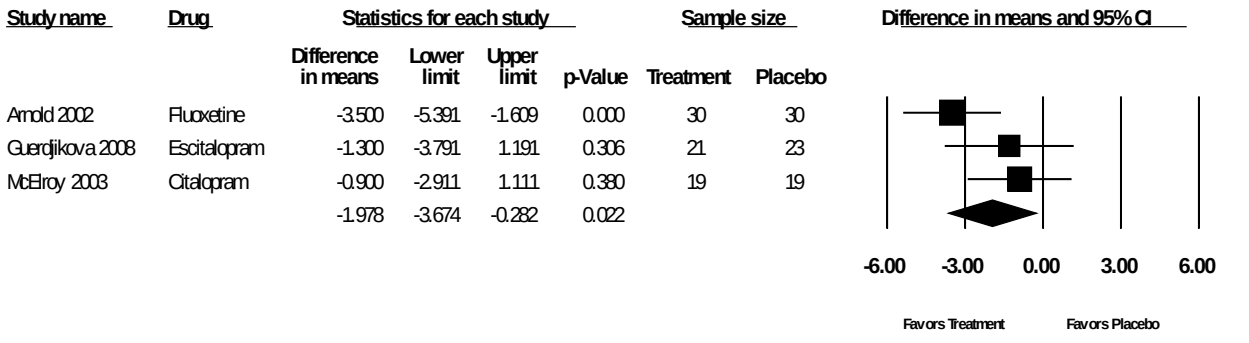
Second-Generation Antidepressants: Meta-Analysis Results

As shown in Figure 12, second-generation antidepressant treatment was associated with a greater change in symptoms of depression, based on three RCTs (mean difference, -1.98; 95%

CI, -3.67 to -0.28; p=0.022; I^2=0 percent). This meta-analysis finding was robust to the inclusion of the high risk-of-bias trial (mean difference, -2.09; 95% CI, -3.65 to -0.53; p=0.009; I^2=0 percent).

All three trials measured depression symptoms using the Hamilton Depression Rating Scale (HAM-D or HDRS); the score on the 17-item version score can range from 0 to 52. At baseline, mean scores ranged from 2.6 to 5.7, indicating that most participants in these trials had low levels of depression before starting treatment. Thus, treatment conferred a statistically significant but numerically small benefit in reducing symptoms of depression in mildly depressed patients with BED.

Figure 12. Depression: Second-generation antidepressants compared with placebo



Second-Generation Antidepressants: Single Trial Results

Citalopram,[90] escitalopram,[98] high-dose fluoxetine,[88] fluvoxamine,[92] and sertraline[89] were associated with significant reductions in illness severity measured by the Clinical Global Impressions (CGI) scale. Similarly, global symptom improvement was significantly greater following treatment with fluvoxamine[92] and sertraline.[89] Duloxetine[96] (but not bupropion[141]) was associated with significantly greater reductions in depression symptoms; however, duloxetine was not better in reducing anxiety symptoms or global or binge-eating-specific symptom severity.[96]

Other Outcomes

One trial reported no differences at end of treatment between escitalopram and placebo in blood concentrations of hormones related to weight and appetite regulation (i.e., leptin, glucose, insulin, ghrelin) or in blood lipid concentration (e.g., cholesterol).[98] No other outcomes of interest were reported (e.g., quality of life, self-esteem, anxiety).

Table 9 presents the details of the eight trials that provided evidence for the efficacy of antidepressant medications in BED.

Table 9. Outcomes of trials of second-generation antidepressants compared with placebo for binge-eating disorder

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Arnold et al., 2002[88] G1: Fluoxetine, 80 mg/day (30/23) G2: Placebo (30/13) 6 weeks ITT sample Mixed-model RMANOVA	Binge-eating episodes/week, mean (SD) End of treatment: G1: 6.0 (2.5) G2: 6.1 (4.8) End of treatment: G1: 1.8 (2.9) G2: 2.7 (3.8) Diff in rate of change over time (time trend analysis) (p=0.033) Nonstatistically sig diff in change over time: Binge-eating episodes/week in change from baseline to 6 weeks (endpoint analysis) Abstinence	NR	Weight, kg, mean (SD): Pre-tx: G1: 110.4 (24.1) G2: 103.5 (19.0) End of treatment: G1: 112.5 (25.0) G2: 110.3 (18.2) Diff in rate of change over time (p=0.001) Diff in change from baseline to 6 weeks (p<0.0001) BMI, kg/m², mean(SD): Pre-tx: G1: 39.6 (7.0) G2: 36.7 (6.8) End of treatment: G1: 40.0 (7.2) G2: 39.5 (6.3) Diff in rate of change over time (p<0.0001) Diff in change from baseline to 6 weeks (p<0.0001)	CGI-S, mean (SD): Pre-tx: G1: 4.2 (0.4), G2: 4.3 (0.6) End of treatment: G1: 2.2 (1.4), G2: 3.3 (1.4) Diff in rate of change over time (time trend analysis) (p=0.032) Diff in change from baseline to 6 weeks (endpoint analysis) (p=0.012) HDRS, mean (SD): Pre-tx: G1: 4.8 (4.3), G2: 4.2 (2.9) End of treatment: G1: 2.6 (3.0), G2: 5.5 (4.1) Diff in change from baseline to 6 weeks (endpoint analysis) (p=0.003) Nonstatistically sig diff in change over time: HDRS rate of change over time

Table 9. Outcomes of trials of second-generation antidepressants compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo et al., 2005[140] G1: Fluoxetine, 60 mg/day (27/21) G2: Placebo (27/23) (Note: 2 other CBT arms presented in results section on combination treatments) 16 weeks ITT sample ANCOVA Logistic regression	Nonstatistically sig diff in change over time: Binge-eating episodes/week (diary) Binge-eating episodes/month Abstinence	Nonstatistically sig diff in change over time: EDE-Q Global and 4 subscales TFEQ-hunger TFEQ-disinhibition BSQ-body dissatisfaction	Nonstatistically sig diff in change over time: BMI	Nonstatistically sig diff in change over time: BDI

Table 9. Outcomes of trials of second-generation antidepressants compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Guerdjikova et al., 2008[98] G1: Escitalopram, 30 mg/day (21/17) G2: Placebo (23/19) 12 weeks ITT sample Mixed-model RMANOVA	Binge-eating episodes/week, mean (SD) Pre-tx: G1: 4.9 (2.6) G2: 5.1 (2.3) End of treatment: G1: 0.9 (1.4) G2: 1.7 (1.5) Estimate between group diff in change from baseline to final visit (95% CI)=-0.31 (-0.52, 0.03), t=2.17 (p=0.036) Binge-eating episodes days/week, mean (SD) Pre-tx: G1: 4.0 (1.7) G2: 4.1 (1.5) End of treatment: G1: 0.9 (1.4) G2: 1.6 (1.4) Estimate between group diff in change from baseline to final visit (95% CI)=-0.31 (-0.52, 0.01), t=2.10 (p=0.042) Nonstatistically sig diff in change over time: Estimate between group diff in change in binge eating; episodes/week over 12 weeks; Estimate between group diff in change in binge eating days/week over 12 weeks; Abstinence	Nonstatistically sig diff in change over time: YBOCS-BE total YBOCS-BE obsessions YBOCS-BE compulsions	Weight (kg), mean (SD) Pre-tx: G1: 113.0 (SD 20.0) G2: 109.2 (SD 17.2) End of treatment: G1: 112.0 (SD 20.0) G2: 109.8 (SD 17.8) Estimate between group diff in 12-week change (95% CI): 2.1 (0.8, -3.4), X^2=8.41 (p=0.002) Estimate between group diff in change from BL to final visit (95% CI): 1.7 (0.1, -3.2), t=3.14 (p=0.037) BMI Pre-tx: G1: 40.1 (SD 6.8) G2: 40.3 (SD 4.8) End of treatment: G1: 40.4 (SD 7.0) G2:40.5 (SD 5.0) Estimate between group diff in 12-week change (95% CI): 0.7 (0.3, -1.2), chi-square: 8 (p=0.003) Estimate between group difference in change from BL to final visit (95% CI): 0.6 (0.0, -1.1), t=2.03 (p=0.048)	CGI-severity, mean (SD) Pre-tx: G1: 4.8 (SD 0.7) G2: 4.7 (SD 0.7) End of treatment: G1: 2.3 (SD 1.3) G2: 3.2 (SD 1.4) Estimate between group diff in 12-week change (95% CI): 0.9 (0.1, -1.8), X^2=4.56 (p=0.029) Estimate between-group diff in change from BL to final visit (95% CI): 1.0 (0.1, -1.9), t=2.56 (p=0.026) Nonstatistically sig diff in change over time: HDRS Insulin Glucose Leptin Ghrelin LDL cholesterol Total cholesterol

Table 9. Outcomes of trials of second-generation antidepressants compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Guerdjikova et al., 2012[96] G1: Duloxetine, 120 mg/day (20/13) G2: Placebo (20/14) 12 weeks ITT sample Repeated measures random regression	Binge-eating episodes days/week, mean (SD) Pre-tx: G1: 4.0 (1.8) G2: 3.5 (1.5) End of treatment: G1: 1.0 (1.7) G2: 1.3 (1.2) Diff in change over time: (p=0.04) Binge-eating episodes/week, mean (SD) Pre-tx: G1: 4.5 (2.0) G2: 4.0 (2.4) End of treatment: G1: 1.1 (1.0) G2: 1.3 (1.2) Diff in change over time: (p=0.02) Nonstatistically sig diff: Abstinence	Nonstatistically sig diff in change over time: YBOCS-BE total and 2 subscales TFEQ 3 subscales	Weight, kg, mean (SD) Pre-tx: G1: 111.1 (24.1) G2: 118.3 (23.1) End of treatment: G1: 108.3 (23.8) G2: 118.0 (23.2) Diff in change over time: (p=0.04) Nonstatistically sig diff in change over time: BMI	CGI Severity, mean (SD) Pre-tx: G1: 5.0 (0.8) G2: 4.6 (0.7) End of treatment: G1: 2.3 (1.5) G2: 2.7 (1.3) Diff in change over time: (p=0.02) CGI Severity for Depressive Disorders, mean (SD) Pre-tx: G1: 4.3 (0.7) G2: 4.2 (0.7) End of treatment: G1: 2.3 (1.3) G2: 2.9 (1.0) Diff in change over time: (p=0.01) Nonstatistically sig diff in change over time: Inventory of Depressive Symptoms; HAM-A

Table 9. Outcomes of trials of second-generation antidepressants compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Hudson et al., 1998[92] G1: Fluvoxamine, 300 mg/day (42/29) G2: Placebo (43/38) 9 weeks ITT sample Mixed-model RMANOVA	Binge-eating episodes/week (diary; data in graph form only) Diff in rate of change over time, t=2.77, G1 >G2 (p=0.006) Nonstatistically sig diff in change over time: Abstinence	NR	BMI week (data in graph form only) Diff in rate of change over time, t=2.02, G1 >G2 (p=0.04)	CGI-Improvement (data in graph form only) Diff in rate of change over time, t=2.25, G1 >G2 (p=0.02) CGI-Severity (data in graph form only) Diff in rate of change over time, t=3.08, G1 >G2 (p=0.002) Nonstatistically sig diff in change over time: HAM-D

Table 9. Outcomes of trials of second-generation antidepressants compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
McElroy et al., 2003[90] G1: Citalopram, 60 mg/day (19/16) G2: Placebo (19/15) 6 weeks ITT sample Mixed-model RMANOVA	Binge-eating episodes days/week, mean (SD) Pre-tx: G1: 4.0 (1.7) G2: 4.0 (1.5) End of treatment: G1: 1.2 (2.0) G2: 2.8 (2.2) Diff in change from baseline to week 6 (standardized at 4.0 binge-eating days/week): -1.2 (p=0.016) Nonstatistically sig diff in change over time: Binge-eating episodes/week Abstinence	YBOCS-BE, mean (SD) Pre-tx: G1: 19.4 (4.2) G2: 18.5 (3.1) End of treatment: G1: 7.6 (7.2) G2: 13.2 (5.9) Diff in change from baseline to 6 weeks: -5.73 (SE 2.33) (p=0.007) YBOCS-BE Obsessions, mean (SD) Pre-tx: G1: 9.3 (2.2) G2: 9.3 (1.8) End of treatment: G1: 4.3 (3.6) G2: 6.8 (2.6) Diff in change from baseline to 6 weeks: -2.48 (SE 1.22) (p=0.041) YBOCS-BE Compulsions, mean (SD) Pre-tx: G1: 10.1 (2.2) G2: 9.2 (1.7) End of treatment: G1: 3.4 (3.9) G2: 6.4 (3.6) Diff in change from baseline to 6 weeks: -2.88 (SE 1.27) (p=0.023)	Weight, mean (SD) Pre-tx: G1: 116.8 (21.0) G2: 94.6 (23.2) End of treatment: G1: 114.1 (22.4) G2: 99.8 24.7) Diff in change from baseline to 6 weeks: -2.49 (SE 0.66) (p<0.001) BMI, mean (SD) Pre-tx: G1: 41.4 (6.9) G2: 34.2 (7.4) End of treatment: G1: 40.9 (7.0) G2: 35.7 (7.5) Diff in change from baseline to 6 weeks: -0.818 (SE 0.254) (p=0.001)	Nonstatistically sig diff in change over time: HDRS CGI-S

Table 9. Outcomes of trials of second-generation antidepressants compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
McElroy et al., 2000[89] G1: Sertraline, 200 mg/day (18/13) G2: Placebo (16/13) 6 weeks ITT sample Repeated measures random regression	Binge-eating episodes/week (diary), mean (SD) Pre-tx: G1: 7.6 (4.8) G2: 7.2 (5.8) End of treatment: G1: 1.13 (1.56) G2: 3.85 (3.81) Diff in rate of change over time, X^2=7.30, G1 >G2 (p=0.008) Nonstatistically sig diff in change over time: Abstinence	NR	BMI Diff in rate of change over time, X^2=9.89, G1 >G2 (p=0.002)	CGI Improvement Diff in rate of change over time, X^2=16.30, G1 >G2 (p<0.001) CGI Severity Diff in rate of change over time, X^2=30.30, G1 >G2 (p<0.001) Nonstatistically sig diff in change over time: HDRS
White and Grilo, 2013[141] G1: Bupropion, 300 mg/day (31/27) G2: Placebo (30/27) 8 weeks m-ITT Mixed effects regression	Nonstatistically sig diff in change over time: Binge-eating episodes past 28 days Abstinence	Nonstatistically sig diff in change over time: EDE Global and 4 subscales FCI	% BMI loss G1: 1.8% G2: 0.6% Diff: (p< 0.001)	Nonstatistically sig diff in change over time: BDI

ANCOVA = analysis of covariance; BDI = Beck Depression Inventory; BE = binge-eating; BL = baseline; BMI = body mass index; BSQ = Body Shape Questionnaire; CBT = cognitive behavior therapy; CI = confidence interval; CGI = Clinical Global Impressions Scale; CGI-I = Clinical Global Impressions-Improvement scale; CGI-S = Clinical Global Impressions-Severity of Illness scale; diff = difference; EDE = Eating Disorder Examination; EDE-Q = Eating Disorder Examination Questionnaire; FCI = Food Craving Inventory; G = group; HAM-A = Hamilton Anxiety scale; HAM-D = Hamilton Depression Rating Scale; HDRS = Hamilton Depression Rating Scale; ITT = intent to treat; kg = kilogram; LDL = Low-density lipoprotein; m-ITT = modified intent to treat; mg = milligrams; N = number; NR = not reported; RMANOVA = repeated measured analysis of variance; SD = standard deviation; sig = significant; TFEQ = Three-Factor Eating Questionnaire; tx = treatment; YBOCS = Yale-Brown Obsessive Compulsive Scale

Pharmacological Interventions: Second-Generation Antidepressant Comparisons With Other Active Interventions

Description of Studies

One trial involved a head-to-head trial comparison of two second-generation antidepressants (Table 10). That trial, which took place in a single outpatient primary care site in Italy, compared 8 weeks of treatment with either fluoxetine or sertraline in 42 obese women, mean age 39.6 years, with DSM-IV BED.[94]

Table 10. Characteristics of trials of second-generation antidepressants compared with antidepressants for binge-eating disorder

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (diagnostic method) N Randomized Treatment Duration (Length of End of Treatment Followup) Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Leombruni, 2008[94] Italy Outpatient RCT Medium	DSM-IV TR G1: 20 G2: 22 6 months Female, BMI ≥30 Mean age: 39.6 Mean BMI: 39.3	**G1: Fluoxetine:** 10 mg/day titrated up every 3 days to flexible dose range, 40 to 80 mg/day [mean (SD)=64.5 (9.9)] **G2: Sertraline:** 25 mg/day titrated up every 3 days to flexible dose range, 100 to 200 mg/day [mean (SD)=165.9 (32.3)] Co-interventions: none	Binge-eating Episodes • Binges/week • Abstinence Eating-related • BES • EDI-2, 11 subscales Psychological • CGI • BDI Weight • Weight • BMI

BDI = Beck Depression Inventory; BES = Binge Eating Scale; BMI = body mass index; CGI = Clinical Global Impressions scale; DSM-IV-TR = Diagnostic and Statistical Manual for Mental Disorders, fourth edition, text revision; EDI = Eating Disorder Inventory; G = group; RCT = randomized controlled trial; mg = milligrams; SD = standard deviation

Key Points

- The SOE is insufficient to determine the comparative effectiveness of sertraline and fluoxetine for any outcome because evidence was limited to one small trial.

Detailed Synthesis

Fluoxetine treatment, using a flexible dose of 40 to 80 mg/day for 8 weeks, was compared with sertraline treatment, using a flexible dose of 100 to 200 mg/day for 8 weeks.[94] Assessments were conducted at baseline and at the end of treatment and at 4 and 16 weeks after treatment ended. Both antidepressants were associated with improvements in all outcomes including binge-eating episode frequency, body dissatisfaction, weight, symptoms of depression, and others. None of the outcomes, however, differed significantly between the two medications.

Pharmacological Interventions: Anticonvulsant Comparisons With Placebo

Description of Studies

The evidence about anticonvulsant treatment of BED consisted of three RCTs (Table 11); two involved topiramate[99,143] and one lamotrigine.[144] All three were placebo-controlled. All three focused on adults ranging from 18 to 65 years of age (mean range 40.8 to 44.5). Most participants were obese (mean BMI range: 38.5 to 44.3), female (76 percent to 87 percent), and white (78 percent and 80 percent; not reported in one trial). Overall, a total of 519 individuals were randomized to treatment.

Table 11. Characteristics of trials of anticonvulsants compared with placebo for binge-eating disorder

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (diagnostic method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Guerdjikova, 2009[144] USA Outpatient RCT Medium	DSM-IV (SCID) G1: 26 G2: 25 16 weeks Female, 18–50 years Mean age: 44.5 Mean weight: 112.8 kg Mean BMI: 40.1 % Female: 76.5 % Nonwhite: 80.0 Current depressive disorders: 37.2%	**G1: Lamotrigine:** 25 mg/day for 2 weeks, titrated up to 50 mg/day for 2 weeks then to 100 mg/day for 2 weeks, as tolerated; increased to 300 mg/day if inadequate response by week 6 and 400 mg/day if inadequate response by week 8; mean (SD) flexible dose=236 +/-150 mg/day). **G2: Placebo** Co-interventions: none	Binge-eating Episodes • Binge-eating episodes/week • Binge-eating days/week • Abstinence Eating-related • EDE • YBOCS-BE • TFEQ Psychological • BIS • CGI • BDI • MADRS Weight • Weight • BMI Other • SDS

Table 11. Characteristics of trials of anticonvulsants compared with placebo for binge-eating disorder (continued)

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (diagnostic method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
McElroy, 2003[99] USA Outpatient RCT Medium	DSM-IV TR (SCID) G1: 30 G2: 31 14 weeks (2 weeks) 18–60 years, BMI ≥30, YBOCS-BE ≥15 Mean age: 40.8 Mean weight: 121.9 kg Mean BMI: NR* % Female: 87 % Nonwhite: NR Current mood disorder: 15% *missing for G2	**G1: Topiramate:** 25 mg/day titrated up to max 600 mg/day by week 10, median dose=212 mg/day **G2: Placebo:** Median dose=362 mg/day Co-interventions: none	Binge-eating Episodes • Binge-eating episodes/week • Binge-eating days/week • Abstinence Eating-related • YBOCS-BE • TFEQ Psychological • CGI Weight • Weight • BMI • WHR Other • BP • Appetite hormones • Blood lipids
McElroy, 2007[143] USA Outpatient RCT Medium	DSM-IV (SCID-I/P, EDE) G1: 195 G2: 199 16 weeks 18–65 years, BMI: 30–50, ≥3 binge-eating episodes and ≥2 binge-eating days in the screening week Mean age: 44.5* Mean weight: 106.5 kg* Mean BMI: 38.5* % Female: 84.2* % Nonwhite: 21.5* *based on safety population (n=404)	**G1: Topiramate:** 25 mg/day titrated to 100 mg/day by week 4 then up to 400 mg/day by week 8, median dose=300 mg/day **G2: Placebo:** Median dose=400 mg/day Co-interventions: none	Binge-eating Episodes • Binge-eating episodes/week • Binge-eating days/week • Abstinence Eating-related • BIS • TFEQ • YBOCS-BE Psychological • CGI • HDRS • MADRS Weight • Weight • BMI • WHR Other • SDS

BP = blood pressure; BDI = Beck Depression Inventory; BE = binge-eating; BIS = Barratt Impulsivity Scale; BMI = body mass index; CGI = Clinical Global Impression scale; DSM = Diagnostic and Statistical Manual for Mental Disorders; EDE = Eating Disorder Examination; HDRS = Hamilton Depression Rating Scale (a.k.a. HAM-D); I/P = with Psychotic Screen; IV = fourth edition; MADRS = Montgomery-Asberg Depression Rating Scale; mg = milligrams; N = number; NR = not reported; RCT = randomized controlled trial; SCID = Structured Clinical Interview for DSM-IV; SD = standard deviation; SDS = Sheehan Disability Scale; TFEQ = Three-Factor Eating Questionnaire; TR = Text Revision; USA = United States of America; WHR = waist-to-hip ratio; YBOCS = Yale-Brown Obsessive Compulsive Scale

Key Points

- In two trials with a combined sample size (N=468), topiramate was associated with (Table 12):

    - a greater percentage of participants abstinent and with greater reductions in binge eating episodes, binge-eating-related obsessions and compulsions, weight, and global symptoms (moderate SOE for benefit); and
    - greater reductions in susceptibility to hunger, disinhibition of control over eating, impulsivity, and disability in family and social domains (low SOE for benefit).
- Efficacy of topiramate on other outcomes, such as blood pressure and appetite hormones, which were evaluated in one small trial, could not be determined (SOE insufficient).
- Efficacy of lamotrigine, evaluated in one small trial, could not be determined for all outcomes (SOE insufficient).

Table 12. Strength of evidence for outcomes of anticonvulsant interventions compared with placebo for binge-eating disorder

Treatment Comparison	Binge Eating	Eating-Related Psychopathology	Weight	Psychological Outcomes	Other Outcomes
Topiramate vs. placebo	**Moderate** 2 RCTs (N=468) Topiramate better for reducing binge-eating episode frequency and achieving abstinence	**Moderate** 2 RCTs (N=468) Topiramate better for reducing obsessions and compulsions **Low** 1 RCT (N=407) Topiramate better for reducing cognitive restraint, hunger, disinhibition	**Moderate** 2 RCTs (N=468) Topiramate better for reducing weight and BMI	**Moderate** 2 RCTs (N=468) Topiramate better for reducing global symptoms	**Low** 1 RCT (N=407) Topiramate better for reducing social and family disability, impulsivity

N = number; RCT = randomized controlled trial; vs. = versus

Detailed Synthesis

The three anticonvulsant trials were fairly similar in duration of treatment; two implemented active treatment (60 mg/day) for 16 weeks[143,144] and one for 14 weeks.[99] None reported any followup assessments beyond the end of treatment. All three trials used the same analytic method (mixed-model repeated measures analysis of variance [RMANOVA]); the investigators reported outcomes as both change from baseline to endpoint and as rate of change over the course of treatment. For the two topiramate trials, dose was 60 mg/day.[99,143] All three trials assessed binge-eating episode frequency and abstinence, weight and BMI, and binge-eating-related obsessions and compulsions. Additional outcomes, such as symptoms of depression, global illness severity, disinhibition, and restraint were inconsistently reported by these research teams.

Binge-Eating Outcomes

We conducted a meta-analysis to determine the efficacy of anticonvulsants, as a class, for binge-eating abstinence in patients with BED. Based on the three studies, abstinence was not different following treatment with anticonvulsants compared to placebo (mean difference, 1.42 (95% CI, 0.70 to 2.86, p=0.335). However, the degree of inconsistency across the three trials was notable, with two trials of topiramate favoring drug and one small trial of lamotrigine finding no difference (larger abstinence rates at end of treatment in the placebo arm); for that reason, we rely on the separate qualitative analysis of these medications to describe our findings here.

Topiramate was associated with a faster rate of reduction in binge-eating episode frequency and a greater overall reduction in binge-eating episode frequency from baseline to end of treatment.[99,143] Both trials found a significant difference in binge-eating response to treatment; the percentage of participants achieving abstinence was greater with topiramate (Table 13) for

topiramate versus placebo: 58 percent versus 29 percent[143] and 64 percent versus 30 percent[99]). In contrast, neither the rate of reduction in binge-eating episode frequency nor the percentage of participants achieving abstinence at the end of treatment differed significantly between lamotrigine and placebo groups.[144]

Weight Outcomes

Topiramate was associated with a faster rate of reduction in weight and in BMI and greater overall reductions in weight and BMI from baseline to end of treatment.[99,143] The mean weight loss was approximately threefold greater with topiramate (for topiramate versus placebo: -4.5 kg versus -0.2 kg[143] and -5.9 kg versus -1.2 kg[99]).

Neither the rate of reduction in weight or BMI nor the overall reduction in weight or BMI from baseline to end of treatment differed significantly between lamotrigine and placebo groups.[144]

Eating-Related Psychopathology

Compared with placebo, topiramate was associated with a faster rate of reduction in binge-eating-related obsessions and compulsions, as indexed by the YBOCS-BE, and a greater overall reduction in mean levels of obsessions and compulsions.[99,143] As reported in one trial, the mean reductions in obsessions (-6.7) and compulsions (-7.6) were nearly twofold greater for topiramate than with placebo (-3.8 and -4.2, respectively).[99] In contrast, neither the rate of reduction in obsession or compulsions nor the overall reduction in obsessions or compulsions from baseline to end of treatment differed significantly between medication and placebo groups.[144]

Two trials reported changes in disinhibition, hunger, and restraint using the TFEQ. Compared with placebo, topiramate[143] (but not lamotrigine[144]) was associated with approximately a twofold increase in cognitive restraint and twofold reduction in disinhibition and hunger. Moreover, lamotrigine treatment did not result in greater improvements in eating-related psychopathology.

General Psychopathology

In two of the placebo-controlled trials,[99,143] topiramate treatment was associated with significantly faster rate of reduction in global symptom severity, as measured by the CGI scale; as a result, as reported in one trial,[99] overall symptom improvement at end of treatment was greater with topiramate. Topiramate treatment was also associated with significant reductions in nonplanning and motor impulsivity as well as disability, particularly in social and family life domains.[143] Neither topiramate[99,143] nor lamotrigine[144] was effective in reducing symptoms of depression.

Other Outcomes

Lamotrigine[144] (but not topiramate[99]) was associated with significantly greater reductions in insulin, glucose, and triglyceride levels. Notably, in the lamotrigine trial, in a 16-week period, mean glucose level increased 8.2 mg/dL in participants receiving placebo.[144] Neither treatment was more effective than placebo in reducing cholesterol, and lamotrigine was not more effective in reducing leptin or ghrelin levels.

Table 13. Outcomes of trials of anticonvulsants compared with placebo for binge-eating disorder

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Guerdjikova, 2009[144] G1: Lamotrigine G2: Placebo 51(31) 16 weeks ITT Mixed-model RMANOVA	Nonstatistically sig diff in change over time: Binge-eating episodes/week Binge-eating days/week	Nonstatistically sig diff in change over time: EDE-Q global and 4 subscales EOQ TFEQ total and 3 subscales YBOCS-BE total and 2 subscales	Nonstatistically sig diff in change over time: Weight BMI	Insulin, µU/mL, mean (SD) Mean diff from baseline to end of treatment in completers: G1: -3.7; G2: 1.5 (p=0.010) Glucose, mg/dL, mean (SD) Diff in completers at endpoint: Mean diff from baseline to end of treatment in completers: G1: -4.8; G2: 8.2 (p=0.027) Triglycerides, mg/dL, mean (SD) Mean diff from baseline to end of treatment in completers: G1: -33.0; G2: 1.1 (p=0.015) Nonstatistically sig diff in change over time: CGI-severity; MADRS; BIS total and 3 subscales; SDS; Total cholesterol; HDL cholesterol; LDL cholesterol; leptin; ghrelin

Table 13. Outcomes of trials of anticonvulsants compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
McElroy, 2003[99] G1: Topiramate G2: Placebo 61(35) 14 weeks ITT Mixed-model RMANOVA	Binge-eating episodes/week: % reduction: G1: 94%, G2: 46% (p<0.02) Mean (SE) diff in rate of change over time, -0.276 (0.077) (p=0.0004) Binge-eating days/week: % reduction G1: 93%, G2: 46% (p<0.02) Mean (SE) diff in rate of change over time, -0.279 (0.070) (p<0.0001) Abstinence: G1: 64%, G2: 30% (p<0.02)[a]	YBOCS-BE-Total Mean (SE) diff in rate of change over time, -2.55 (0.89) G1 >G2 (p=0.004) YBOCS-BE-Obsessions Mean (SE) diff in rate of change over time, -1.00 (0.46) G1 >G2 (p=0.04) YBOCS-BE-Compulsions Mean (SE) diff in rate of change over time, -1.55 (0.46) G1 >G2 (p=0.0008)	BMI Mean (SE) diff in rate of change over time, -0.54 (0.182) G1 >G2 (p=0.003) Weight: Mean (SE) diff in rate of change over time, -3.2 (1.15) G1 >G2 (p=0.005) Weight loss (completers only), mean (SD) G1: 5.9 kg G2: 1.2 kg (p=NR)	CGI severity Mean (SE) diff in rate of change over time, -0.413 (0.168) G1 >G2 (p=0.02) CGI improvement, end of treatment (data=NR): G1 >G2 (p=0.01) DBP: G1: -2.71 mmHg G2: 0.47 mmHg Diff in change over time (p=0.04) Nonstatistically sig diff between groups in change over time: HDRS; Insulin; Glucose; LDL cholesterol; Total cholesterol; Triglycerides
McElroy, 2007[143] G1: Topiramate G2: Placebo 407(283) 16 weeks ITT Mixed-model RMANOVA	Change in binge-eating days/week, mean (SD) G1: -3.5 (1.9) G2: -2.5 (2.1) Diff in change over time (p<0.001) Change in binge-eating episodes/week, mean (SD) G1: -5.0 (4.3) G2: -3.4 (3.8) Diff in change over time (p<0.001)	YBOCS-BE-Total G1: -14.3 (8.9) G2: -7.9 (8.9) Diff in change over time (p<0.001) Mean (SE) diff in rate of change over time, -3.154 (0.352) (p<0.001) YBOCS-BE-Obsessions G1: -6.7 (4.6) G2: -3.8 (4.8) Diff in change over time (p<0.001)	Weight, kg, mean (SD) G1: -4.5 (5.1) G2: -0.2 (3.2) Diff in change over time (p<0.001) Mean (SE) diff in rate of change over time, -1.995 (0.165) (p<0.001) BMI, mean (SD) G1: -1.6 (1.8) G2: -0.1 (1.2)	CGI severity G1: -2.2 (1.6); G2: -1.1 (1.4) Diff in change over time (p<0.001) Mean (SE) diff in rate of change over time, -1.995 (0.165) (p<0.001) BIS Overall Score G1: -3.9 (9.0) G2: -1.4 (7.9) Diff in change over time (p<0.001) Mean (SE) diff in rate of change over time, -0.980 (0.322) (p=0.003)

Table 13. Outcomes of trials of anticonvulsants compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
McElroy, 2007[143] (continued)	Abstinence G1: 58% G2: 29% (p<0.001)[a]	Mean (SE) diff in rate of change over time, -1.527 (0.178) (p<0.001) YBOCS-BE-Compulsions G1: -7.6 (4.8) G2: -4.2 (4.8) Diff in change over time (p<0.001) Mean (SE) diff in rate of change over time, -1.621 (0.191) (p<0.001) TFEQ-Cognitive restraint G1: 3.5 (4.5) G2: 1.6 (4.5) Diff in change over time (p<0.001) Mean (SE) diff in rate of change over time, 0.837 (0.171) (p<0.001) TFEQ-Disinhibition G1: -5.0 (4.7) G2: -2.0 (3.5) Diff in change over time (p<0.001) Mean (SE) diff in rate of change over time, -1.310 (0.161) (p<0.001)	Diff in change over time (p < 0.001) Mean (SE) diff in rate of change over time, −0.712 (0.059) (p<0.001)	BIS Motor Impulsiveness G1: -1.8 (3.8); G2: -0.9 (3.7) Diff in change over time (p=0.004) Mean (SE) diff in rate of change over time, -0.340 (0.142) (p=0.006) BIS Nonplanning Impulsiveness G1: -1.6 (4.5); G2: 0.01 (3.7) Diff in change over time (p<0.001) Mean (SE) diff in rate of change over time, -0.608 (0.149) (p<0.001) SDS Overall score G1: -6.8 (7.6); G2: -4.9 (7.6) Diff in change over time (p=0.001) Mean (SE) diff in rate of change over time, -1.072 (0.266) (p<0.001) SDS Social life disability G1: -2.6 (3.2); G2: -1.7 (3.1) Diff in change over time (p<0.001) Mean (SE) diff in rate of change over time, -0.459 (0.105) (p<0.001)

Table 13. Outcomes of trials of anticonvulsants compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
McElroy, 2007[143] (continued)		TFEQ-Hunger G1: -4.5 (4.6) G2: -1.9 (4.1) Diff in change over time (p<0.001) Mean (SE) diff in rate of change over time, -1.156 (0.167) (p<0.001)		SDS Family life disability G1: -2.7 (3.0) G2: -1.8 (2.9) Diff in change over time (p<0.001) Mean (SE) diff in rate of change over time, -0.459 (0.104) (p<0.001) Nonstatistically sig diff change over time: BIS Attentional Impulsiveness HAM-A MADRS SDS school/work disability

BIS = Barratt Impulsivity Scale; BMI = body mass index; CGI = Clinical Global Impression scale; DBP = diastolic blood pressure; diff = difference; dL = deciliter; EDE-Q = Eating Disorder Examination Questionnaire; EOQ = Emotional Overeating Questionnaire; G = group; HAM-A = Hamilton Anxiety scale; HDL = high density lipoprotein; HDRS = Hamilton Depression Rating Scale (a.k.a. HAM-D); ITT = intent-to-treat; kg = kilograms; LDL = low density lipoprotein; MADRS = Montgomery-Asberg Depression Rating Scale; mg = milligrams; mL = milliliter; µU/mL = microunits; N = number; NR = not reported; RMANOVA = repeated measured analysis of variance; SD = standard deviation; tx = treatment; SDS = Sheehan Disability Scale; SE = standard error; sig = significant; TFEQ = Three-Factor Eating Questionnaire; YBOCS-BE = Yale-Brown Obsessions and Compulsion Scale

[a] p-value for test across response categories ('none'; 'moderate'; 'marked'; 'remission' defined as cessation of binge-eating episodes, thus renamed 'abstinence' per this review).

Pharmacological Interventions: Attention Deficit Hyperactivity Disorder Medications Compared With Placebo

Description of Studies

The included evidence consisted of four placebo-controlled RCTs about pharmacological interventions that had originally been formulated for attention deficit hyperactivity disorder (ADHD) and are now being tested for treating patients with BED (Table 14). One earlier small trial (N=40) investigated the norepinephrine reuptake inhibitor atomoxetine,[97] which has been associated with weight loss; the other three studied the stimulant lisdexamfetamine.[87,145-147]

Table 14. Characteristics of trials of medications originally formulated for attention deficit hyperactivity disorder compared with placebo for binge-eating disorder

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (diagnostic method) N Randomized Treatment Duration (Length of End of Treatment Followup) Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
McElroy, 2007[97] USA Outpatient RCT Medium	DSM-IV TR (SCID) G1: 20 G2: 20 10 weeks (1 week) >3 binge-eating episodes and >2 binge-eating days in the week before receiving study medications, weight >85% of the midpoint of ideal body weight for height Age: mean: 41 (range: 18–65) Female: 82% Mean BMI: 39.4 Lifetime depression: 48% Current depression: 15%	**G1: Atomoxetine:** 40 mg for 1 week, titrated up to 120 mg/day as tolerated for a total of 10 weeks of treatment **G2: Placebo** Co-interventions: none	Binge-eating Episodes • Binge-eating episodes/week • Binge-eating days/week Eating-related • TFEQ total, 3 subscales • YBOCS-BE total, 2 subscales Psychological • HDRS • CGI-S Weight • Weight • BMI
McElroy et al., 2014[87] USA Outpatient RCT Medium	DSM-IV-TR (SCID) G1: 66 G2: 65 G3: 65 G4: 64 (63 for analysis) 11 weeks BMI: 25–45; moderate to severe BED: ≥3 binge-eating days during the 2 weeks before the baseline visit Age: mean: 39 (Range: 18-55) Female: 82% Nonwhite: 22% Mean BMI: 34.9; Overweight: 22%, Obese: 59%, Severely obese: 19%	**G1: Lisdexamfetamine dimesylate** 30 mg/day **G2: Lisdexamfetamine dimesylate** 50 mg/day **G3: Lisdexamfetamine dimesylate** 70 mg/day **G4: Placebo** **G1-G3: 3-week forced-dose titration** followed by 8-week dose maintenance	Binge-eating Episodes (measured over a week) • Binge-eating days • Binge-eating episodes • Abstinence • Marked response: 75% to <100% reduction • Moderate response: 50% to <75% reduction • Negative/minimal response: <50% reduction Eating-related • TFEQ, 3 subscales • BES total • YBOCS-BE total Psychological • BIS-11 total • SF12-Aggregate mental health • MADRS • HAM-A Other • SF12-Aggregate physical health Weight • Weight

Table 14. Characteristics of trials of trials of medications originally formulated for attention deficit hyperactivity disorder compared with placebo for binge-eating disorder (continued)

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (diagnostic method) N Randomized Treatment Duration (Length of End of Treatment Followup) Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Shire, 2015[145,146] USA, Germany, Sweden, and Spain Outpatient RCT Medium	DSM-IV (diagnostic method unknown) G1: 192 G2: 191 12 weeks BED of at least moderate severity (at least 3 binge eating days per week for the 14 days prior to baseline) Age: Mean: 38 (Range: 19-55) Female: 87% Non-white: 22% Mean BMI: 33 Range: 19-45); Obese: 67%	**G1: Lisdexamfetamine dimesylate** 30 mg/day, at week 3 increased to 50 or 70 mg/day on weekly basis as tolerated and clinically indicated to achieve optimal dose **G2: Placebo**	Binge-eating Episodes • Binge days per week • 4-week abstinence Eating-related • YBOCS-BE Total • CGI-I score • Eating inventory score • BES total • YBOCS-BE total Weight • Pounds
Shire, 2015[146,147] USA and Germany RCT Medium	DSM-IV (diagnostic method unknown) G1: 195 G2: 195 12 weeks BED of at least moderate severity (at least 3 binge eating days per week for the 14 days prior to baseline) Age: Mean: 38 (Range: 19-55) Female: 85% Non-white: 27% Mean BMI: 34 Range: 20-45); Obese: 69%	**G1: Lisdexamfetamine dimesylate** 30 mg/day, at week 3 increased to 50 or 70 mg/day on weekly basis as tolerated and clinically indicated to achieve optimal dose **G2: Placebo**	Binge-eating Episodes • Binge days per week • 4-week abstinence Eating-related • YBOCS-BE Total • CGI-I score • Eating inventory score • BES total • YBOCS-BE total Weight • Pounds

BED = binge eating disorder; BES = Binge Eating Scale; BIS = Barratt Impulsiveness Scale; BMI = body mass index; CGI-S = Clinical Global Impressions-Severity Scale; DSM = Diagnostic and Statistical Manual for Mental Disorders; G = group; HDRS = Hamilton Depression Rating Scale (a.k.a. HAM-D); IV = fourth edition; MADRS = Montgomery-Asberg Depression Rating Scale; mg = milligram;; N = number; RCT = randomized controlled trial; SCID = Structured Clinical Interview for DSM-IV; SF 12 = Medical Outcomes Study Short Form, 12 items; TFEQ = Three-Factor Eating Questionnaire; TR = Text Revision; USA = United States of America; YBOCS-BE = Yale-Brown Obsessions and Compulsions Scale.

Recently, lisdexamfetamine became the first medication approved by FDA for treating patients with BED.[148] The three trials reporting on lisdexamfetamine were all conducted by McElroy and colleagues. The Phase 2 trial (N=260) is published in the peer-reviewed literature.[87] In contrast, we obtained evidence concerning the two Phase 3 studies (N= 383 and N =390) from the gray literature; information contained in the FDA approval package for Vyvanse (Shire brand name for lisdexamfetamine)[146] and trial postings in clinicaltrials.gov: NCT01718483 and NCT01718509. The Phase 3 trials combined outcomes for the two higher of three dosage levels evaluated separately in the Phase 2 trial (50 mg/day and 70 mg/day) and did not report on the

lowest dosage level (30 mg/day). We focus our report on the two higher dosage levels which were combined into one treatment arm in the two Phase 3 trials. This is the dosage range approved by the FDA for treatment of patients with BED.[146]

Key Points

- The evidence for treatment with medications originally formulated for treatment of ADHD was based on four RCTs, all measured at the end of treatment. One small trial examined atomoxetine (N=40) and three trials examined lisdexamfetamine (N=966) (Table 15). Lisdexamfetamine (dosage levels: 50 mg/day and 70 mg/day) is the first medication to obtain FDA approval for treating BED.
- Lisdexamfetamine was associated with better binge-eating outcomes, based on several measures:
    - Achieving abstinence: 161 percent increased likelihood in the treatment group, based on a synthesis of 3 RCTs (N=966) (RR, 2.61; 95% CI, 2.04 to 3.33; p=0.000; $I^{2=}$0%). Across the three trials, 40 percent of participants in the medication groups achieved abstinence compared to 15 percent in the placebo groups (high SOE for benefit).
    - Binge-eating days per week: The treatment group achieved a greater reduction than placebo (High SOE for benefit)
- Lisdexamfetamine was associated with a greater reduction in eating-related psychopathology as measured through the YBOCS-BE (high SOE for benefit).
- Lisdexamfetamine was associated with a greater reduction in weight (high SOE for benefit).
- Lisdexamfetamine was not associated with differences in depression or other psychological outcomes, primarily due to a lack of reporting of these outcomes (insufficient SOE).
- Atomoxetine evidence was limited to one small RCT (N=40) (insufficient SOE for all outcomes)

Table 15. Strength of evidence for outcomes of lisdexamfetamine compared with placebo

Treatment Comparison	Binge Eating	Eating-Related Psychopathology	Weight-Related Outcomes	Psychological Outcomes	Other Outcomes
Lisdexamfetamine (50mg/day or 70 mg/day) vs. placebo, end of treatment	**High** MA, 3 RCTs (N=966) Drug better Abstinence **High** 3 RCTs (N=966) Drug better, Reduction in binge-eating episodes per week	**High** 3 RCTs (N=966) Drug better YBOCS-BE total score improvement	**High** 3 RCTs (N=966) Drug better Weight reduction	**Insufficient** 1 RCT (N=193) Depression outcomes measured in only the Phase 2 trial. Treatment was not superior to placebo, measured through the MADRS	Not available

ADHD = attention deficit hyperactivity disorder; HAM-D = Hamilton Depression Rating Scale; MA = meta-analysis; MADRS = Montgomery-Asberg Depression Rating Scale; N = number of subjects; RCT = randomized controlled trial; TFEQ = Three-Factor Eating Questionnaire; YBOCS-BE = Yale-Brown Obsessive Compulsive Scale

Detailed Synthesis

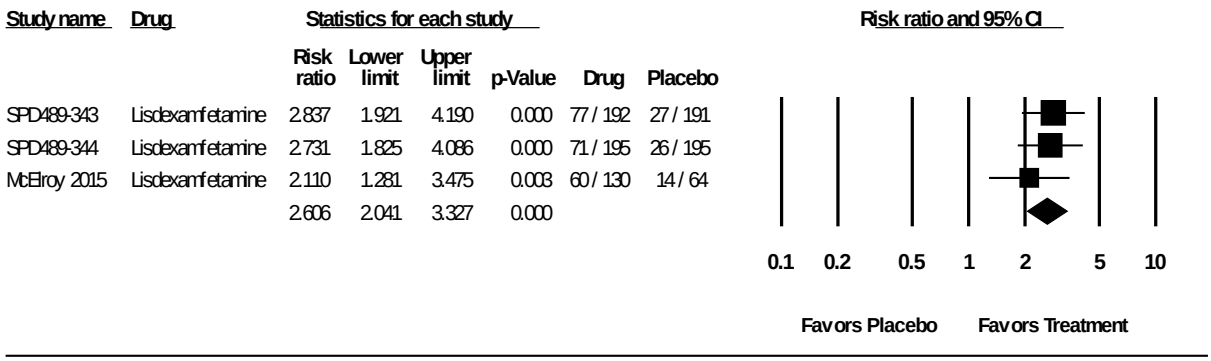
The four trials were of similar length: atomoxetine, 10 weeks,[97] Phase 2 lisdexamfetamine, 11 weeks[87], and Phase 3 lisdexamfetamine, 12 weeks[145-147] (Table 16). The atomoxetine trial medication was administered as a flexible dose. The Phase 2 lisdexamfetamine trial medication was administered in fixed doses in three study arms (30 mg/day, 50 mg/day, or 70 mg/day). The Phase 3 lisdexamfetamine trial medications were similarly administered as a clinically determined optimal dose (50 mg/day or 70 mg/day). We limit our results to the two higher medication dosage levels that are consistent across the three trials (50 mg/day, or 70 mg/day). Outcomes were measured at the end of treatment.

Binge-Eating Outcomes

For both medications, treatment outcomes were better than placebo for various measures of binge eating. Atomoxetine was associated with a significantly greater reduction in binge-eating episodes per week and binge-eating days per week.[97] At the end of treatment, 70 percent of those in the atomoxetine arm and 32 percent of those receiving placebo were abstinent (no binge-eating episodes).

For the lisdexamfetamine trials, we conducted a meta-analysis to determine the efficacy of lisdexamfetamine in relation to abstinence (cessation from binge-eating for four weeks). As shown in Figure 13, lisdexamfetamine was associated with a 161 percent increased likelihood of achieved abstinence (RR, 2.61; 95% CI, 2.04 to 3.33; p=0.000; I^2=0%). Across the three trials, 40 percent in the medication groups achieved abstinence, compared to 15 percent in the placebo groups. Also, the reduction in binge-eating days per week was superior in each of the three trials.

Figure 13. Abstinence: Lisdexamfetamine compared with placebo



Eating-Related Psychopathology Outcomes

Compared with placebo, atomoxetine[97] and lisdexamfetamine in all three trials[87,145-147] were associated with greater reductions in binge-eating-related thoughts and compulsiveness as measured by the YBOCS-BE total score. In contrast, atomoxetine was not different from placebo for any TFEQ subscales (cognitive restraint, disinhibition of eating, and perceived hunger), whereas lisdexamfetamine, across the three trials, was superior for two TFEQ subscales (disinhibition of eating and perceived hunger).

Table 16. Outcomes of trials of medications originally formulated for attention deficit hyperactivity disorder compared with placebo for binge-eating disorder

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
McElroy et al., 2007[97] G1: Atomoxetine (20/14) G2: Placebo (20/11) 10 weeks ITT Mixed-model RMANOVA	Binge-eating episodes/week Mean diff (95% CI) rate of change over time: -0.41 (-0.61, -0.09) G1 >G2 (p=0.018) Mean diff (95% CI) change from baseline to 10 weeks: -0.16 (-0.29, -0.01) G1 >G2 (p=0.034) Binge-eating days/week Mean diff (95% CI) rate of change over time: -0.45 (-0.63, -0.18) G1 >G2 (p=0.003) Mean diff (95% CI) change from baseline to 10 weeks: -0.17 (-0.30, -0.03) G1 >G2 (p=0.023) % Abstinent G1: 70%; G2: 32% (p=0.025)	YBOCS-BE Total Mean diff (95% CI) rate of change over time: -4.77 (-9.25, -0.28) G1 >G2 (p=0.037) Mean diff (95% CI) change from baseline to 10 weeks: -5.30 (-9.01, -1.59) G1 >G2 (p=0.006) YBOCS-BE Obsessions Mean diff (95% CI) rate of change over time: -3.04 (-5.41, 0.66) G1 >G2 (p=0.012) Mean diff (95% CI) change from baseline to 10 weeks: -3.50 (-5.73, -1.27) G1 > G2 (p=0.003) Nonstatistically sig diff in change over time: TFEQ Total and 3 subscales YBOCS-BE Compulsions	Weight Mean diff (95% CI) rate of change over time: -3.09 (-5.46, -0.72) G1 >G2 (p=0.010) Mean diff (95% CI) change from baseline to 10 weeks: -2.69 (-4.88, 0.49) G1 >G2 (p=0.018) BMI Mean diff (95% CI) rate of change over time: -1.03 (-1.86, -0.20) G1 >G2 (p=0.016) Mean diff (95% CI) change from baseline to 10 weeks: -0.89 (-1.66, -0.12) (p=0.025)	CGI Severity Mean diff (95% CI) rate of change over time: -1.12 (-2.01, -0.22) G1 >G2 (p=0.015) Mean diff (95% CI) change from baseline to 10 weeks: -1.20 (-1.90, -0.50) G1 >G2 (p=0.013) Nonstatistically sig diff in change over time: HAM-D

Table 16. Outcomes of trials of medications originally formulated for attention deficit hyperactivity disorder compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
McElroy et al., 2014[87] G1: Lisdexamfetamine dimesylate, 30 mg/day (66/51) G2: Lisdexamfetamine dimesylate 50 mg/day (65/52) G3: Lisdexamfetamine dimesylate 70 mg/day (65/52) G4: Placebo (64/47) 11 weeks ITT	Binge-eating days/week Change over time, log-transformed, mean (SE) G1: -1.24 (0.067) G2: -1.49 (0.066) G3: -1.57 (0.067) G4: -1.23 (0.069) Difference from placebo G1: (p=0.88) G2: (p=0.008) G3: (p<0.001) Binge-eating episodes, change over time, log-transformed, mean (SE) G1: -1.37 (0.070) G2: -1.62 (0.069) G3: -1.71 (0.070) G4: -1.36 (0.072) Difference from placebo G1: (p=0.89) G2 (p=0.009) G3 (p<0.001) Abstinent for 4 weeks G1: 34.9% G2: 42.2% G3: 50.0% G4: 21.3% Difference from placebo G1: (p=0.09) G2: (p=0.01) G3: (p<0.001)	YBOCS-BE, change over time, mean (SE) G1: -15.0 (0.84) G2: -15.3 (0.83) G3: -17.0 (0.83) G4: -12.0 (0.87) Difference from placebo G1: (p=0.01) G2: (p=0.008) G3: (p<0.001) TFEQ-Cognitive restraint, change over time, mean (SE) G1: 4.4 (0.62) G2: 3.8 (0.61) G3: 4.3 (0.62) G4: 2.5 (0.65) Difference from placebo G1: (p=0.04) G2: (p=0.14) G3: (p=0.046) TFEQ-Disinhibition of eating, change over time, mean (SE) G1: -5.6 (0.56) G2: -6.3 (0.55) G3: -7.2 (0.56) G4: -3.8 (0.58) Difference from placebo G1: (p=0.03) G2:(p=0.002) G3: (p<0.001) TFEQ-Perceived hunger, change over time, mean (SE) G1: -5.3 (0.56) G2: -6.0 (0.55) G3: -7.8 (0.56) G4: -3.3 (0.58) Difference from placebo G1: (p=0.02) G2: (p<0.001) G3: (p<0.001)	Weight, change, mean (SD) G1: -3.1 (3.64) G2: -4.9 (4.43) G3: -4.9 (3.93) G4: -0.1 (3.09) Difference from placebo G1: (p<0.001) G2: (p<0.001) G3: (p<0.001)	CGI-I score improved at end of treatment, % of participants G1: 84.6% G2: 90.6% G3: 93.7% G4: 64.5% Difference from placebo G1: (p=0.009) G2: (p<0.001) G3: (p<0.001) BIS, change over time, mean (SE) G1: -5.8 (1.05) G2: -5.2 (1.05) G3: -6.9 (1.05) G4: -3.1 (1.09) Difference from placebo G1: (p=0.08) G2: (p=0.17) G3: (p=0.02) MADRS, change over time, mean (SE) G1: -1.9 (0.34) G2: -1.3 (0.33) G3: -1.6 (0.33) G4: -1.7 (0.35) Difference from placebo G1, G2, G3 v G4: all (p=ns) HAM-A, change over time, mean (SE) G1: -0.9 (0.29) G2: -1.1 (0.29) G3: -0.6 (0.29) G4: -1.5 (0.30) Difference from placebo

Table 16. Outcomes of trials of medications originally formulated for attention deficit hyperactivity disorder compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
McElroy et al., 2014[87] (continued)		BES total, change over time, mean (SE) G1: -16.1 (1.25) G2: -17.6 (1.24) G3: -20.6 (1.24) G4: -12.2 (1.28) Difference from placebo G1: (p=0.03) G2: (p=0.002) G3: (p<0.001)		G1, G2, G3 v G4: all (p=ns) SF-12 Physical Health, change over time, mean (SE) G1: 2.6 (0.75) G2: 2.4 (0.74) G3: 3.9 (0.75) G4: 1.3 (0.78) Difference from placebo G1, G2, G3 vs. G4: all (p=ns) SF-12 Mental Health, change over time, mean (SE) G1: 5.0 (1.00) G2: 5.5 (0.99) G3: 4.9 (1.00) G4: 4.9 (1.03) Difference from placebo G1, G2, G3 vs. G4: all (p=ns)

Table 16. Outcomes of trials of medications originally formulated for attention deficit hyperactivity disorder compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Shire, 2015[145,146] G1: Lisdexamfetamine dimesylate 50-70 mg/day (192/158) G2: Placebo (191/157) 12 weeks ITT	Change in number of binge days per week measured as LS Mean (SEM) G1: -3.87 (0.124) SD: 0.12 G2: -2.51 (0.125) SD: 0.13 LS Mean diff (95% CI): -1.35 (-1.70 to -1.01) (p< 0.001) 4-week abstinence G1: 40% G2: 14.1% Diff: 25.9% (p < 0.001)	Change in Y-BOCS-BE total: G1: -15.68 G2: -8.28 Diff: -7.4 (-8.9 to -5.9) (p < 0.001) % CGI-I score improved: G1: 82.1%, G2: 47.3% diff: 34.8 (25.8 to 43.9) (p < 0.001) Cognitive Restraint: G1: 3.27 (0.329) G2: 1.63 (0.331) Diff: 1.65 (0.72 to 2.57) (p < 0.001) Disinhibition of eating G1: -6.31 (0.285) G2: -2.12 (0.286) Diff: -4.19 (-4.98 to -3.39) (p <0.001) Perceived hunger G1: -6.60 (0.285) G2: -1.90 (0.286) Diff: -4.70 (-5.49 to -3.91) (p<0.001) BES G1: -18.87 (0.755) G2: -8.55 (0.763) Diff: -10.32 (-12.43 to -8.21) (p<0.001)	Change in body weight G1: -6.25% G2: +0.11% Mean diff: -6.35 (-7.17 to -5.54) (p < 0.001)	NR

Table 16. Outcomes of trials of medications originally formulated for attention deficit hyperactivity disorder compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Shire, 2015[146,147] G1: Lisdexamfetamine dimesylate 50-70 mg/day (195/145) G2: Placebo (191/142) 12 weeks ITT	Binges Outcomes Change in number of binge days per week measured as LS mean (SEM) G1: -3.92 (0.135) SD: 0.14 G2: -2.26 (0.137) SD: 0.14 LS Mean diff (95% CI): -1.66 (-2.04 to -1.28) (p< 0.001) 4-week abstinence G1: 36.2% (29.1-43.3) G2: 13.1% (8.1-18.0) Diff: 25.9% (p < 0.001)	Change in YBOCS-BE Total: G1: -15.36 G2: -7.42 Diff: -7.9 (-9.5 to -6.4) (p < 0.001) % CGI-I score improved: G1: 86.2% (81.1 to 91.3), G2: 42.9% (35.5 to 50.2) diff: 43.3 (34.4 to 52.3) (p < 0.001) Cognitive Restraint: G1: 3.71 (0.347) G2: 2.44 (0.352) Diff: 1.27 (0.29 to 2.24) (p =0.11) Disinhibition of eating G1: -5.61 (0.300) G2: -2.01 (0.305) Diff: -3.60 (-4.44 to -2.76) (p <0.001) Perceived hunger G1: -6.14 (0.313) G2: -1.93 (0.318) Diff: -4.21 (-5.09 to -3.33) (p<0.001) BES G1: -17.52 (0.771) G2: -8.24 (0.781) Diff: -9.28 (-11.44 to -7.12) (p<0.001)	Change in body weight G1: -5.57% (0.350) G2: -0.15% (0.353) Mean diff: -5.41 (-6.39 to -4.44) (p < 0.001)	NR

BES = Binge Eating Scale; BIS = Barratt Impulsiveness Scale; BMI = body mass index; CGI = Clinical Global Impression scale; CGI-I = Clinical Global Impressions-Improvement scale; CI = confidence interval; diff = difference; G = group; HAM-A = Hamilton Anxiety Scale HAM-D = Hamilton Depression Rating Scale; ITT = intention to treat; MADRS = Montgomery-Asberg Depression Rating Scale; mg = milligrams; N = number; ns = nonsignificant; RMANOVA = repeated measured analysis of variance; SD = standard deviation; SE= standard error; SF-12 = Medical Outcomes Study Short Form, 12 items; sig = significant; TFEQ = Three-Factor Eating Questionnaire; tx = treatment; YBOCS-BE = Yale-Brown Obsessions and Compulsive Scale

Other Outcomes

Only the Phase 2 lisdexamfetamine trial measured the Medical Outcomes Study 12 item Short Form (SF-12) Aggregate Physical Health and Aggregate Mental Health Component Summary scores. SF-12 Physical Health was superior at the end of treatment only in the lisdexamfetamine 70 mg/day group. No treatment group was superior to placebo in its score for SF-12 Mental Health.

Weight-Related Outcomes

Both medications, in each of the four trials, found significantly greater reductions in patient weight in all treatment study arms compared with placebo arms.[87,97,145-147]

General Psychological Outcomes

Neither of the medications was associated with significantly greater reductions in depression symptoms compared with placebo. In contrast, both atomoxetine and the Phase 2 lisdexamfetamine trial were associated with a greater reduction in global symptom severity (on the Clinical Global Impressions scale).[87,97] Neither of the Phase 3 lisdexamfetamine trials measured whether any psychological outcomes were significantly different in the two arms at the end of treatment.

Pharmacological Interventions: Other Medications Compared With Placebo

Description of Studies

The included evidence about other pharmacological interventions used for treating patients with BED consisted of three placebo-controlled RCTs (Table 17). No trial had an active comparator. One trial each investigated the following: the sulfonic acid acamprosate, which is a mixed $GABA_A$ receptor agonist/NMDA receptor antagonist;[149] the μ-opioid antagonist ALKS-33 (also known as samidorphan);[150] and the dietary supplement chromium picolinate.[151] Chromium picolinate was studied at two dose levels: moderate (600 μg/day) and high (1,000 μg/day).

Table 17. Characteristics of trials of other medications compared with placebo for binge-eating disorder

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (diagnostic method) N Randomized Treatment Duration (Length of End of Treatment Followup) Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Brownley, 2013[151] USA Outpatient RCT Medium	DSM-IV (SCID) G1: 8 G2: 9 G3: 7 6 months BMI 25–45, age 18–60 years Mean age: 36.6 Mean BMI: 34.2 % Female: 83 % Nonwhite: 12	**G1: High dose chromium:** 1,000 µg/day as CrPic **G2: Moderate dose chromium:** 600 µg/day as CrPic **G3: Placebo**	Binge-eating Episodes • Binge-eating episodes past 28 days Eating-related • EDE-Q global, 4 subscales Psychological • QIDS-SR Weight • Weight Other • Glucose
McElroy, 2011[149] USA Outpatient RCT Medium	DSM-IV TR (SCID) G1: 20 G2: 20 10 weeks 18–65 years, weighed ≥85% of the midpoint of IBW for height, ≥3 binge-eating episodes, and ≥2 binge-eating days in the screening week Mean age: 46 Female: 85% Nonwhite: 12.5% Mean weight: 112.1 kg Mean BMI: 39.5 Lifetime depression: 22.5%	**G1: Acamprosate:** 666 mg 3 times/day for 2 weeks, titrated up to minimum 999 mg/day and max 2,997 mg/day **G2: Placebo** Co-interventions=none	Binge-eating Episodes • Binge-eating episodes/week • Binge-eating days/week Eating-related • YBOCS-BE total, 2 subscales • FCI • TFEQ total, 3 subscales Psychological • MADRS • SF-12 Mental Health Weight • Weight • BMI

Table 17. Characteristics of trials of other medications compared with placebo for binge-eating disorder (continued)

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (diagnostic method) N Randomized Treatment Duration (Length of End of Treatment Followup) Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
McElroy, 2013[150] USA Outpatient RCT Medium	DSM-IV-TR (SCID) G1: 32 G2: 37 6 weeks (2 weeks) ≥18 years, BMI ≥30, ≥3 Binge-eating days/week in 2 -week screening period Mean age 45.2* Mean BMI: 39* Mean weight: 106.9 kg* % Female: 90* % Nonwhite: 19* *Based on ITT sample N=62	**G1: ALKS-33:** 10mg/day, if poorly tolerated, decreased to 5 mg/day **G2: Placebo** Co-interventions: none	Binge-eating Episodes • Binge-eating days/week • Binge-eating episodes/week • Abstinence Eating-related • YBOCS-BE total • TFEQ total, 3 subscales • FCI Psychological • BDI • CGI-S Weight • Weight • BMI • Waist circumference

BDI = Beck Depression Inventory; BMI = body mass index; CrPic = chromium picolinate; CGI-S = Clinical Global Impressions-Severity of Illness scale; DSM = Diagnostic and Statistical Manual for Mental Disorders; EDE-Q = Eating Disorder Examination Questionnaire; FCI = Food Craving Inventory; G = group; IBW = ideal body weight; IV = fourth edition; mg = milligrams; µU = microunits; RCT = randomized controlled trial; MADRS = Montgomery-Asberg Depression Rating Scale; N = number; NR = not reported; QIDS-SR = Quick Inventory of Depressive Symptomatology self-report; RCT = randomized controlled trial; SCID = Structured Clinical Interview for DSM-IV; SF-12 = Medical Outcomes Study Short Form, 12 items; TFEQ = Three-Factor Eating Questionnaire; TR = Text Revision; USA = United States of America; YBOCS-BE = Yale-Brown Obsessive Compulsive Scale

Acamprosate reduces cravings for alcohol and symptoms of anxiety associated with alcohol withdrawal; it is approved for treating patients with alcohol dependence. ALKS-33 has shown some promise in treating patients with alcoholism, but is better recognized for its antidepressant potential when combined with buprenorphine to produce ALKS-5461. Chromium picolinate has insulin-sensitizing and serotonergic properties; thus, it affects blood glucose (especially in insulin-resistant individuals) and appetite and mood regulation.

Key Point

- The efficacy of other specific pharmacologic treatments (acamprosate, ALKS-33, and chromium picolinate) were each studied in a single, small trial (SOE insufficient).

Detailed Synthesis

Binge-Eating Outcomes

Acamprosate was associated with a greater reduction in binge-eating episode frequency, but was no different from placebo in abstinence (Table 18).[149] Neither ALKS-33[150] nor chromium picolinate[151] was associated with a greater reduction in binge-eating episode frequency or a greater percentage abstinent compared with placebo.

Table 18. Outcomes of trials of other medications compared with placebo for binge-eating disorder

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Brownley, 2013[151] G1: 1,000 µg/day CrPic (8/7) G2: 600 µg/day CrPic (9/8) G3: Placebo (7/6) Mixed-model RMANOVA	Nonstatistically sig diff between groups rate of change over time: Binge-eating episodes past 28 days	EDE-Q Eating Concerns, monthly rate of change, mean (SD) G1: -0.29 (0.08) G2: -0.11 (0.08) G3: -0.02 (0.08) Mean diff in rate of change over time: G1 >G3, t=-2.23 (p=0.04) EDE-Q Shape Concerns, monthly rate of change, mean (SD) G1: -0.24 (0.08) G2: -0.16 (0.07) G3: -0.01 (0.08) Mean diff in rate of change over time: G1 >G3, t=-2.08 (p=0.04) EDE-Q Weight Concerns, monthly rate of change, mean (SD) G1: -0.20 (0.07) G2: -0.18 (0.06) G3: 0.06 (0.07) Mean diff in rate of change over time: G1 >G3, t=-2.23 (p=0.04) G2 >G3, t=-2.48 (p=0.02) Nonstatistically sig diff between groups in rate of change over time: EDE-Q Global EDE-Q Eating Concerns, G2 vs. G3 EDE-Q Shape Concerns, G2 vs. G3 EDE-Q Restraint	Weight, kg, monthly rate of change, mean (SD) G1: -0.23 (0.21)[a] G2: -0.13 (0.18) G3: 0.55 (0.25) Mean diff in rate of change over time: G1 >G3, t=-2.72 (p<0.02) G2 >G3, t=-2.59 (p<0.02)	Glucose, mg/dL, monthly rate of change, mean (SD) G1: -1.08 (0.80) G2: -0.67 (0.74) G3: 2.53 (0.80) Mean diff in rate of change over time: G1 >G3, t=-3.19 (p<0.01) G2 >G3, t=-2.39 (p<0.01) Nonstatistically significant diff between groups in rate of change over time: QIDS-SR$_{16}$

Table 18. Outcomes of trials of other medications compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
McElroy, 2011[149] Acamprosate (20/15) Placebo (20/9) 10 weeks ITT Mixed-model RMANOVA	Binge-eating days/week, mean (SD) Pre-tx: G1: 4.2 (1.7) G2: 3.8 (1.2) End of treatment: G1: 1.8 (2.2) G2: 2.6 (2.1) Mean (95% CI) diff between groups in change from baseline to end of treatment, -1.14 (-2.22, -0.05) (p=0.04) Nonstatistically significant diff between groups in change over time: Binge-eating episodes/week	YBOCS-BE-Total, mean (SD) Pre-tx: G1:19.6 (2.9) G2: 19.9 (4.7) End of treatment: G1: 10.6 (7.1) G2: 15.4 (6.3) Mean (95% CI) diff between groups in change from baseline to end of treatment, -4.5 (-8.23, -0.77) (p=0.02) YBOCS-BE-Obsessions, mean (SD) Pre-tx: G1: 9.9 (1.9) G2: 10.0 (2.7) End of treatment: G1: 5.3 (3.6) G2: 7.9 (3.0) Mean (95% CI) diff between groups in change from baseline to end of treatment, -2.53 (-4.63, -0.43) (p=0.02) FCI, mean (SD) Pre-tx: G1: 82.2 (16.7) G2: 79.4 (18.0) End of treatment: G1: 59.5 (15.6) G2: 69.7 (22.7) Mean (95% CI) diff between groups in change from baseline to end of treatment, -12.93 (2.75, 23.12) (p=0.01) Nonstatistically sig diff between groups in change over time: YBOCS-BE compulsions TFEQ total and 3 subscales	Nonstatistically sig diff between groups in change over time: Weight BMI	SF-12 Mental health score, mean (SD) Pre-tx: G1: 48.7 (9.8) G2: 49.3 (9.2) End of treatment: G1: 53.1 (9.1) G2: 46.9 (11.0) Mean (95% CI) diff between groups in change from baseline to end of treatment, 7.42 (2.91, 11.93) (p<0.001) Nonstatistically significant diff between groups in change over time: MADRS SF-12 Physical health score

Table 18. Outcomes of trials of other medications compared with placebo for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
McElroy, 2013[150] ALKS-33 (32/16) Placebo (37/33) 6 weeks ITT Mixed-model RMANOVA	Nonstatistically sig diff between groups in change over time: Binge-eating episodes/week Binge-eating days/week Abstinence	Nonstatistically sig diff between groups in change over time: YBOCS-BE and 3 subscales TFEQ and 3 subscales FCI	Nonstatistically sig diff between groups in change over time: Weight BMI WC	Nonstatistically sig diff between groups in change over time: BDI CGI severity
McElroy, 2007[97] Atomoxetine (20/14) Placebo (20/11) 10 weeks ITT Mixed-model RMANOVA	Binge-eating episodes/week Mean diff (95% CI) in rate of change over time: -0.41 (-0.61, -0.09) G1 >G2 (p=0.018) Mean diff (95% CI) in change from baseline to 10 weeks: -0.16 (-0.29, -0.01) G1 >G2 (p=0.034) Binge-eating days/week Mean diff (95% CI) in rate of change over time: -0.45 (-0.63, -0.18) G1 >G2 (p=0.003) Mean diff (95% CI) in change from baseline to 10 weeks: -0.17 (-0.30, -0.03) G1 >G2 (p=0.023) % Abstinent G1: 70% G2: 32% (p=0.025)	YBOCS-BE Total Mean diff (95% CI) in rate of change over time: -4.77 (-9.25, -0.28) G1 >G2 (p=0.037) Mean diff (95% CI) in change from baseline to 10 weeks: -5.30 (-9.01, -1.59) G1 >G2 (p=0.006) YBOCS-BE Obsessions Mean diff (95% CI) in rate of change over time: -3.04 (-5.41, -0.66) G1 >G2 (p=0.012) Mean diff (95% CI) in change from baseline to 10 weeks: -3.50 (-5.73, -1.27) G1 >G2 (p=0.003) Nonstatistically significant difference in change over time: TFEQ Total and 3 subscales YBOCS-BE compulsions	Weight Mean diff (95% CI) in rate of change over time: -3.09 (-5.46, -0.72) G1 >G2 (p=0.010) Mean diff (95% CI) in change from baseline to 10 weeks: -2.69 (-4.88, 0.49) G1 >G2 (p=0.018) BMI Mean diff (95% CI) in rate of change over time: -1.03 (-1.86, -0.20) G1 >G2 (p=0.016) Mean diff (95% CI) in change from baseline to 10 weeks: -0.89 (-1.66, -0.12) (p=0.025) Nonstatistically sig diff in rate of change over time: Weight	CGI Severity Mean diff (95% CI) in rate of change over time: -1.12 (-2.01, -0.22) G1 >G2 (p=0.015) Mean diff (95% CI) in change from baseline to 10 weeks: -1.20 (-1.90, -0.50) G1 >G2 (p=0.013) Nonstatistically sig diff in change over time: HAM-D

BDI= Beck Depression Inventory; BMI = body mass index; CGI = Clinical Global Impression scale; CI = confidence interval; diff = difference; dL = deciliter; HAM-D = Hamilton Depression Rating Scale; ITT= intent-to-treat; kg = kilograms;

MADRS = Montgomery-Asberg Depression Rating Scale; mg = milligrams; N = number; QID-SR16 = Quick Inventory of Depressive Symptomatology (self-report; 16 items); RMANOVA = repeated measured analysis of variance; SD = standard deviation; SF-12 = Medical Outcomes Study Short Form, 12 items; sig = significant; TFEQ = Three-Factor Eating Questionnaire; tx = treatment; WC = waist circumference; YBOCS-BE = Yale-Brown Obsessive Compulsive Scale

[a] Sensitivity analysis performed after excluding one subject from G1 who was noncompliant with study medication and deemed to b a statistical outlier for binge-eating episode frequency and weight.

Eating-Related Psychopathology Outcomes

Acamprosate was associated with greater reductions in binge-eating-related obsessions and greater improvements in general mental health and global illness symptoms.[149] High-dose chromium picolinate (1,000 µg/day) was associated with a faster rate of reduction in eating, shape, and weight concerns; moderate-dose chromium picolinate (600 µg/day) was associated with a faster rate of reduction in weight concerns than placebo.[151]

Weight-Related Outcomes

None of the three interventions was associated with a greater reduction in weight or BMI than placebo.

General Psychological Outcomes

All three trials assessed treatment-related changes in symptoms of depression. None of the three interventions was associated with significantly greater reductions in depression symptoms. However, acamprosate was associated with greater improvements in general mental health, as measured by the SF-12.[149]

Other Outcomes

Two of the trials evaluated changes in blood levels of weight- and appetite-regulating hormones. Both high- and moderate-dose chromium picolinate produced a greater rate of reduction in blood glucose concentration.[151] Acamprosate was no more effective than placebo in reducing blood concentrations of glucose, insulin, or cholesterol.[149]

Pharmacological Interventions: Comparisons With Behavioral Interventions

No trials compared a single pharmacological treatment with a single behavioral treatment. See "Combination Therapy Interventions" below for results from trials involving combined pharmacological and behavioral treatments.

Behavioral Interventions: Cognitive Behavioral Therapy Versus No or Limited Intervention

Description of Interventions and No or Limited Intervention

CBT is a form of psychotherapy that focuses on identifying relations among thoughts, feelings, and behaviors, and aims to change negative thoughts about oneself and the world and, by doing so, reduce negative emotions and undesirable behavior patterns. CBT can be delivered in various formats; common approaches include therapist-led, partially therapist-led, and three self-help strategies.

The therapist-led CBT format generally has a therapist present for the duration of each session to provide psychoeducation, teach new skills, and provide support to participants. In the partially therapist-led CBT format, participants typically first watch a psychoeducational videotape, similar to what would be presented in person by a therapist, and then are joined by the therapist for the second half of each session. Both therapist-led formats can involve either individual sessions (one-on-one) or group sessions (with group sizes varying but usually with fewer than 10 in a group).

Self-help CBT interventions typically involve providing participants with a treatment manual that usually walks the individual through each "session" that a therapist would present. The most widely used CBT self-help manual is Fairburn's *Overcoming Binge Eating*;[152] other manuals are available, however. Self-help can be further divided into three main categories: structured, guided, and pure. Whereas structured self-help is delivered in a group format, both guided and pure self-help approaches involve individual sessions with a facilitator (guided) or independent interaction with a manualized treatment (pure self-help). In structured self-help, participants meet in groups and watch a psychoeducational videotape tailored for each session for half of a session; for the second half, a group member facilitates discussion. In guided self-help, participants typically have brief meetings with a facilitator to supplement the self-help approach; the facilitator may be available in person or via the Internet. Finally, in the pure self-help format, participants have access only to the self-help manual for the duration of their treatment.

In this section of the KQ1 results, we summarize trials that compare CBT with no intervention or limited interventions: waitlist control, an "active control" condition, or usual care. Waitlist is the most common comparator. Participants assigned to waitlist control are assessed at baseline (along with participants assigned to CBT) and at various followup points, but they do not receive any active intervention. Participants assigned to an active control group complete self-monitoring records and meet regularly with a therapist who reinforces the necessity of the monitoring but does not intervene otherwise; any motivational, behavioral, or cognitive advice is proscribed.

In the usual care approach, participants are instructed to follow the advice and treatment recommendations of their primary care physicians; this can include one or more of a broad range of interventions (which may not be BED-specific) but not any defined intervention. That is, usual care approximates the routine care that patients might receive if researchers were not involved in the trial. Usual care differs from both (a) "treatment as usual" (in which participants receive a particular treatment) and (b) "standard of care" (in which participants receive evidence-based care for a specific diagnosis). Thus, patients receive one or more of a broad range of interventions that their primary care physicians might prescribe, but they do not receive any specific intervention for BED.

Description of Studies

Nine trials compared CBT with limited or no intervention.[70,71,73,76,79,153-156] Within these nine trials, five comparisons involved therapist-led CBT[70,71,153-155] and two compared partially therapist-led CBT with waitlist.[70,71] Additionally, four trials compared various self-help approaches including two structured self-help,[70,71] two guided self-help,[76,79] and one pure self-help.[76] All nine trials recruited participants who met DSM-IV criteria for BED; one trial also recruited participants who met the frequency criterion for DSM-5, but the investigators did not report data separately for this group.[156] These nine trials comprised a total of 14 comparisons: 12 with waitlist control, one with an active control, and one involving usual care. In some cases, a

trial discussed in this section also compared CBT with some other behavioral intervention (such as behavioral weight loss therapy), but these analyses are reported later.

All nine trials included adults from 18 to 65 years of age. Mean BMI for participants in each study was in either the overweight[79] or the obese range.[70,71,73,76,153-156] Four trials required participants to have a BMI in the overweight or obese range.[70,73,155,156] For two trials, a small but unspecified number of participants were in the normal weight range at baseline.[76,79] A total of 751 individuals were randomized to treatment; about 10 percent of the participants were male. Of the trials reporting on race, more than 95 percent were white, with two exceptions: The Grilo trials recruited 23 percent and 54 percent of participants from a racial or ethnic minority.[73,156]

Finally, all trials reported binge eating, eating-related psychopathology, weight, and general psychological outcomes. One trial did not report weight outcomes separately by treatment arm.[154] In addition, one trial evaluated the effect of therapist-led CBT versus waitlist on interpersonal problems.[153]

Cognitive Behavioral Therapy Versus Waitlist

Of the 12 comparisons (in 7 separate trials; Table 19) involving CBT and waitlist controls, 5 involved therapist-led CBT,[70,71,153-155] 2 involved partially therapist-led CBT,[70,71] 2 used structured self-help CBT,[70,71] 2 used guided self-help CBT including one Internet-based guide[79] and one in vivo guide,[76] and one used pure self-help CBT.[76] Of the 7 waitlist control trials, 2 delivered CBT in an individual format[76,79] and 5 delivered CBT in a group format.[70,71,153-155]

Table 19. Characteristics of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Carrard et al., 2011[79] Switzerland Internet-based RCT Medium	DSM-IV or 5 (EDO) G1: 37 G2: 37 6 months Females only 18–60 years of age Fluent in French Average Internet skills Mean age: 36 Mean BMI: 28.8 DSM-IV: 58%	**G1: CBTgsh (Internet-guided)-Individual:** Eleven sequential CBT modules + weekly email contact with a coach; conducted in French; to be completed within 6 months **G2: Waitlist control:** 6 months Co-interventions: none	Binge-eating Episodes • EDE-Q, binge-eating episodes past 28 days • Abstinence Eating-related • EDI-2 • EDE-Q, 4 subscales • TFEQ, 3 subscales Weight • BMI Psychological • BDI • SCL-90R: GSI subscale • RSE Quality of life • IWQOL-Lite

Table 19. Characteristics of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder (continued)

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Carter and Fairburn, 1998[76a] United Kingdom Outpatient RCT Medium	DSM-IV (EDE) G1: 24 G2: 24 G3: 24 12 weeks Female, 18–65 years of age Mean age: 39.7 Nonwhite: 3% Mean BMI: 31.6 (range: 18.9 to 46.2)	**G1: CBTpsh-Individual:** Provided with manual[152] and told to follow its self-help program independently for 12 weeks G2: CBTgsh-Individual: Provided with manual[152] + support from nonspecialist therapists in six to eight 25-minute sessions for 12 weeks G3: Waitlist control: 12 weeks Co-interventions: none	Binge-eating Episodes • EDE, Binge-eating episode frequency past 28 days • Abstinence Eating-related • EDE, global, 4 scores Psychological • BSI, 1 scale • RSE Weight • BMI
Dingemans et al., 2007[154] The Netherlands Outpatient RCT Medium	DSM-IV (SCID/IP, EDE) G1: 30 G2: 22 20 weeks Mean age: 37.8 Female: 94% Mean BMI: 38.9 Current mood disorder: 16% Current anxiety: 17%	**G1: CBT-TL-Group:** Fifteen 2-hour manualized sessions conducted in Dutch[80] **G2: Waitlist control:** 20 weeks, after offered CBT Co-interventions: none	Binge-eating Episodes • EDE, SBE in past 28 days • EDE, OOEs in past 28 days • EDE, abstinence from OBE Eating-related • EDE, global, 4 scores Psychological • BDI • SCL-90, Global severity • Utrecht Coping List, 7 scores Weight • BMI
Eldredge et al., 1997[155] United States Outpatient RCT Medium	DSM-IV (NR) G1: 36 G2: 10 12 weeks BMI ≥27 Mean age: 45.2 Mean BMI: 38.4 Female: 96%	**G1: CBT-TL-Group:** Twelve 90-minute manualized weekly sessions[157] **G2: Waitlist control:** 12 weeks Co-interventions: none	Binge-eating Episodes • Binge-eating days/week (Diary) Eating-related • TFEQ, 3 subscales • BES Weight • BMI Psychological • BDI • IIP • RSE • SCL-90

Table 19. Characteristics of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder (continued)

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Peterson et al., 1998[71] United States Outpatient RCT Medium	DSM-IV (Structured clinical interview) G1: 16 G2: 19 G3: 15 G4: 11 8 weeks Females 18–65 years of age Mean age: 42.4 Nonwhite; 4% Mean BMI: 34.7	**G1: CBT-TL-Group:** Fourteen 60-minute manualized[158] sessions over 8 weeks; biweekly first 6 weeks, weekly last 2 weeks; first half of session TL manualized psychoeducational, second half TL discussion **G2: CBT-PTL-Group:** Fourteen 60-minute manualized[158] sessions over 8 weeks; biweekly first 6 weeks, weekly last 2 weeks; first half of session manualized psychoeducational through videotape of same psychologist as in TL; second half TL discussion **G3: CBTssh-Group:** Fourteen 60-minute manualized[158] sessions over 8 weeks; biweekly first 6 weeks, weekly last 2 weeks; first half of session manualized psychoeducational through videotape of same psychologist as in TL, second half one group member assigned to facilitate group discussion **G4: Waitlist control:** 8 weeks Co-interventions: none	Binge-eating Episodes • EB IV, OBE per week • Total episodes – OBE and SBE per week • Hours binge eating per week Eating-related • BES • TFEQ, 3 scales • BSQ Psychological • HDRS • RSE Weight • BMI

Table 19. Characteristics of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder (continued)

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Peterson et al., 2009[70] United States Outpatient RCT Medium	DSM-IV (EDE) G1: 60 G2: 63 G3: 67 G4: 69 20 weeks BMI ≥25 Mean age: 47.1 Female: 88% Nonwhite: 4% Mean BMI: 39 Antidepressant medication: 79%	**G1: CBT-TL-Group:** Fourteen 60-minute manualized[158] sessions over 8 weeks; biweekly first 6 weeks, weekly last 2 weeks; first half of session TL manualized psychoeducational, second half TL discussion **G2: CBT-PTL-Group:** Fourteen 60-minute manualized[158] sessions over 8 weeks; biweekly first 6 weeks, weekly last 2 weeks; first half of session manualized psychoeducational through videotape of same psychologist as in TL; second half TL discussion **G3: CBTssh-Group:** Fourteen 60-minute manualized[158] sessions over 8 weeks; biweekly first 6 weeks, weekly last 2 weeks; first half of session manualized psychoeducational through videotape of same psychologist as in TL, second half one group member assigned to facilitate group discussion **G4: Waitlist control:** 20 weeks, then offered CBT-TL-Group Co-interventions: none	Binge-eating Episodes • EDE, frequency of OBE episodes • OBE in past 28 days • Abstinence from OBEs past 28 days Eating-related • EDE, global, 4 scores • TFEQ, 3 scores Psychological • IDS-SR, Depression Weight • BMI

Table 19. Characteristics of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder (continued)

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Tasca et al., 2006[153a] Tasca et al., 2012[159b] Canada Outpatient RCT Medium	DSM-IV (SCID/IP, EDE) G1: 48 (this arm is not discussed in this section of the results) G2: 47 G3: 40 16 weeks ≥18 years of age Mean Age: 42.8 Mean BMI: 41.1 Female: 91% Nonwhite: 2% Current mood disorder: 64.7% Taking antidepressants: 62.1%	**G1: PIPT-TL-Group**: Sixteen 90-minute manualized[160] weekly sessions **G2: CBT-TL-Group:** Sixteen 90-minute manualized[161] weekly sessions **G3: Waitlist control:** 16 weeks Co-interventions: none	Binge-eating Episodes • Days of binge-eating: EDE Eating Related • TFEQ, 2 scales Weight • BMI, self-report Psychological • CES-D total • IIP total • RSE total

BDI = Beck Depression Inventory; BES = Binge Eating Scale; BMI = body mass index; BSI = Brief Symptom Inventory; BSQ = body shape questionnaire; CBT = cognitive behavioral therapy; CBTgsh = cognitive behavioral therapy, guided self-help; CBT-PTL = cognitive behavioral therapy, partially therapist-led; CBTpsh = cognitive behavioral therapy, pure self-help; CBTssh = cognitive behavioral therapy, structured self-help; CBT-TL = cognitive behavioral therapy, therapist-led; CES-D = Center for Epidemiologic Studies Depression Scale; DSM = Diagnostic and Statistical Manual, Fourth Edition; EB IV = Eating Behaviors, Fourth Edition; EDE = Eating Disorder Examination Inventory; EDE-Q = Eating Disorder Examination Questionnaire; EDI-2 = Eating Disorder Inventory, Second Edition; EDO = Eating Disorders in Obesity; HDRS = Hamilton Depression Rating Scale; G = group; IDS-SR = Inventory of Depressive Symptoms – Self-Report; IIP = Inventory of Interpersonal Problems; IWQOL = Impact of Weight on Quality of Life; NR = not reported; OBE = objective binge-eating episodes; OOE = objective overeating episode; RCT = randomized controlled trial; RSE = Rosenberg Self Esteem; SBE = subjective binge-eating episodes; SCID/IP = Structured Clinical Interview for DSM-IV Axis I Disorders – Patient Version; SCL-90 = Symptom Checklist 90; TFEQ = Three-Factor Eating Questionnaire

[a] These trials included other treatment arms discussed in later sections of this chapter.

[b] This report examined outcome comparisons only between G1 and G2.

Key Points

Table 20 documents the findings and provides the SOE grades for evidence from these seven CBT trials with waitlist as the control group. The four categories of outcomes are binge-eating outcomes, eating-related psychopathology, weight outcomes, and psychological outcomes. All outcomes were measured at the end of treatment.

- Generally, across treatment formats, CBT was more effective in improving binge-eating outcomes measured at the end of treatment.
    - Therapist-led CBT demonstrated higher likelihood of achieving abstinence than waitlist, based on meta-analysis of four RCTs (N=295) (RR, 4.95; 95% CI, 3.064 to 8.001; p=0.000; I^2=0 percent) (high SOE for benefit).
    - Therapist-led CBT was also associated with a greater reduction in binge episodes per week than waitlist, based on meta-analysis of three RCTs (N=208) (mean difference -2.32; 95% CI, -4.56 to -0.09; p=0.00; I^2=0%) (high SOE for benefit).

    - Partially therapist-led CBT was superior to waitlist in percentage of participants abstinent (low SOE for benefit) and reduction in binge-eating episode frequency (low SOE for benefit).
    - Structured self-help CBT was superior to waitlist in reducing binge-eating episode frequency (low SOE for benefit). Abstinence results were mixed (SOE insufficient).
    - Guided self-help CBT was superior to waitlist in reducing binge-eating episode frequency (low SOE for benefit) and in percentage of participants abstinent (low SOE for benefit).
- Generally, both therapist-led CBT and guided self-help CBT were more effective than comparison interventions in improving eating-related psychopathology measured at the end of treatment.
    - Therapist-led CBT was superior to waitlist in reducing eating-related psychopathology as measured by two scales, EDE and TFEQ (high SOE for benefit).
    - Guided self-help CBT was superior to waitlist in reducing eating-related psychopathology as measured by the EDE global score (low SOE for benefit).
- Across treatment formats, CBT was not superior to waitlist in weight outcomes at the end of treatment.
    - BMI reduction was not greater among therapist-led CBT participants (moderate SOE for no difference).
    - BMI reduction was not greater among partially therapist-led CBT participants (low SOE for no difference).
    - BMI reduction was not greater among structured self-help CBT participants (low SOE for no difference).
- Across treatment formats, CBT was not superior to waitlist in psychological outcomes at the end of treatment.
    - Reduction in depression was not greater among therapist-led CBT participants (moderate SOE for no difference).
    - Reduction in depression was not greater among partially therapist-led CBT participants (low SOE of no difference).
    - Reduction in depression was not greater among structured self-help CBT participants (low SOE of no difference).

Table 20. Strength of evidence for outcomes of cognitive behavioral therapy compared with waitlist control for binge-eating disorder, measured at end of treatment

Treatment Comparison	Binge Eating	Eating-Related Psychopathology	Weight-Related Outcomes	Psychological Outcomes
Therapist-led, group CBT vs. waitlist	**High** MA, 4 RCTs (N=295) CBT better, Abstinence **High** MA, 3 RCTs (N=208) CBT better, Binge-eating episode frequency	**High** 5 RCTs (N=344) CBT better EDE & TFEQ scales	**Moderate** 5 of 5 trials (N=344) No difference in BMI	**Moderate** 5 RCTs (N=344) No difference in depression
Partially therapist-led CBT vs. waitlist	**Low** 2 RCTs (N=162) CBT better Binge-eating episode frequency **Low** 2 RCTs (N=162) CBT better Abstinence	**Insufficient** 2 RCTs (N=162) Mixed results	**Low** 2 RCTs (N=162) No difference in BMI	**Low** 2 RCTs (N=162) No difference in depression
Structured self-help CBT vs. waitlist	**Low** 2 RCTs (N=162) CBT better Binge-eating episode frequency **Insufficient** 2 RCTs (N=162) Mixed results Abstinence	**Insufficient** 2 RCTs (N=162) Mixed results	**Low** 2 RCTs (N=162) No difference in BMI	**Low** 2 RCTs (N=162) No difference in depression
Guided self-help CBT vs. waitlist	**Low** 2 RCTs (N=122) CBT better Binge-eating episode frequency **Low** 2 RCTs (N=122) CBT better Abstinence	**Low** 2 RCTs (N=122) CBT better (EDE global score)	**Insufficient** 2 RCTs (N=122) Mixed results	**Insufficient** 2 RCTs (N=122) Mixed results

BMI = body mass index; CBT = cognitive behavioral therapy; EDE = Eating Disorder Examination; MA = meta-analysis; N = sample size; RCT = randomized controlled trial; vs. = versus

Cognitive Behavioral Therapy Versus Active Control or Usual Care

One trial[73] compared CBT with an active control (clinical sessions for individual patients, emphasizing self-monitoring). Another trial compared CBT with usual care (unspecified care they are receiving from their primary care providers)[156] (Table 21). In these trials, guided self-help CBT was compared with active control and pure self-help CBT was compared with usual care.

Table 21. Characteristics of trials of cognitive behavioral therapy compared with active control for binge-eating disorder

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Grilo et al., 2005[73] United States Outpatient RCT Medium	DSM-IV (SCID/IP, EDE) G1: 37 G2: 38 G3: 15 12 weeks 18–60 years of age BMI ≥27 Mean age: 46.3 Mean BMI: 35.5 Female: 79% Any lifetime Axis I psychiatric disorder: 69%	**G1: CBTgsh-Individual:** Provided with manual[152] + six 15–20-minute biweekly sessions with clinician over 12 weeks **G2: BWLgsh-Individual:** Provided with manual[152,162] + six 15–20-minute biweekly sessions with clinician over 12 weeks **G3: Active Control-Individual:** Six 15–20-minute biweekly sessions with clinician over 12 weeks; focused on completion of self-monitoring record Co-interventions: none	Binge-eating Episodes • Binge-eating episodes/month (Diary, EDE-Q) • Abstinence (Diary, EDE-Q) Eating-related • EDE-Q, 4 subscales • TFEQ-Hunger • TFEQ-Restraint • TFEQ-Disinhibition Weight • BMI Psychological • BDI • RSE
Grilo et al., 2013[156] United States Outpatient RCT Low	DSM-IV or DSM-V G1: 24 G2: 24 16 weeks BMI ≥30 & ≤50 Mean age: 45.8 Female: 79.2% Nonwhite: 54.2% Mean BMI: 37.6	**G1: CBTpsh + Usual care-Individual:** Provided with manual[152] and usual care (as determined by PCP). All patients had existing relationship with PCP **G2: Usual care:** Instructed to follow advice and treatment PCP recommended and to refrain from seeking commercial self-help programs. All patients had existing relationship with PCP Co-interventions: none	Binge-eating Episodes • No OBEs during previous 28 days • Frequency of OBEs in previous 28 days evaluated using EDE-Q • Frequency of OBEs in previous 28 days evaluated using EDE Eating-related • EDE-Q Global • EDE-Global Psychological • BDI Weight • BMI

BDI = Beck Depression Inventory; BMI = body mass index; BWLgsh = behavioral weight loss, guided self-help; CBTgsh = cognitive behavioral therapy, guided self-help; CBTpsh = cognitive behavioral therapy, pure self-help; DSM = Diagnostic and Statistical Manual; EDE = Eating Disorder Examination Inventory; EDE-Q = Eating Disorder Examination Questionnaire; G = group; IV = fourth edition; OBE = objective binge-eating episode; PCP = primary care provider; N = number; RCT = randomized controlled trial; RSE = Rosenberg Self Esteem; SCID/IP = Structured Clinical Interview for DSM-IV Axis I Disorders – Patient Version; TFEQ = Three-Factor Eating Questionnaire; V = fifth edition

Key Points: Active Control or Usual Care Comparisons

- The efficacy of guided self-help CBT (versus active control) and pure self-help CBT (versus usual care) could not be determined because both were studied in small single trials (SOE insufficient).

Detailed Synthesis

Nine trials compared CBT in various forms with waitlist, active control, or usual care. CBT formats differed across trials; some trials compared more than one CBT format. Five measured therapist-led CBT, two partial therapist-led CBT, and six measured CBT in various self-help formats. Seven trials compared treatment outcomes with waitlist, one with active control, and one with usual care. They differed in length of treatment (8 to 24 weeks); all trials reported outcomes at end of treatment only. All nine trials reported on binge-eating outcomes, eating-related psychopathology, weight, and general psychopathology outcomes.

First, we report outcomes for trials employing a waitlist comparison (Table 22), followed by findings in trials using either an active control or usual care (Table 23).

Table 22. Outcomes of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Carrard et al., 2011[79] G1: CBTgsh (Internet-based) (37/30) G2: Waitlist (10/8) ITT analysis Linear mixed model with random intercept	EDE-Q-Binge-eating episodes/month, mean (SD) Pre-tx: G1: 17.4 (15.6) G2: 14.8 (9.6) End of treatment: G1: 5.5 (7.4) G2: 9.1 (8.8) Diff at end of treatment: (p=0.031) Abstinence, % (N) Pre-tx: 0% End of treatment: G1: 35.1% G2: 8.1% Diff at end of treatment: (p = 0.005)	EDI-Drive for thinness, mean (SD) Pre-tx: G1: 11.5 (4.9) G2: 11.6 (5.2) End of treatment: G1: 8.9 (5.9) G2: 11.0 (4.9) Diff at end of treatment: (p=0.020) EDI-Bulimia, mean (SD) Pre-tx: G1: 6.3 (3.4) G2: 6.5 (4.1) End of treatment: G1: 2.8 (2.6) G2: 5.9 (4.4) Diff at end of treatment: (p<0.001) EDI-Body dissatisfaction, mean (SD) Pre-tx: G1: 22.3 (5.2) G2: 19.0 (6.7) End of treatment: G1: 19.0 (7.0) G2: 18.9 (6.8) Diff at end of treatment: (p = 0.001)	BMI, mean (SD) Pre-tx: G1: 29.8 (5.9) G2: 27.7 (5.5) End of treatment: G1: 29.2 (6.0) G2: 27.9 (5.4) Diff at end of treatment: (p=0.002)	RSES, mean (SD) Pre-tx: G1: 17.5 (5.2) G2: 18.1 (5.9) End of treatment: G1: 21.3 (4.2) G2: 19.1 (4.9) Diff at end of treatment: (p=0.015) IWQOL-Lite, mean (SD) Pre-tx: G1: 66.9 (15.3) G2: 71.6 (16.3) End of treatment: G1: 71.7 (16.7) G2: 71.8 (18.0) Diff at end of treatment: (p=0.041) 6 months: G1: 78.2 (14.8) G2: 76.0 (20.2) Difference at end of treatment: (p=NS): BDI SCL-90R GSI

Table 22. Outcomes of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Carrard et al., 2011[79] (continued)		EDI-Interoceptive awareness, mean (SD) Pre-tx: G1: 7.0 (5.3) G2: 7.4 (5.5) End of treatment: G1: 4.5 (4.5) G2: 7.3 (6.2) Diff at end of treatment: (p=0.024) EDE-Q-Shape concern, mean (SD) Pre-tx: G1: 4.7 (0.9) G2: 4.3 (1.1) End of treatment: G1: 3.7 (1.3) G2: 4.1 (1.3) Diff at end of treatment: (p=0.001) EDE-Q-Global, mean (SD) Pre-tx: G1: 3.6 (0.8) G2: 3.3 (1.0) End of treatment: G1: 2.5 (1.1) G2: 3.3 (1.9) Diff at end of treatment: (p<0.001) TFEQ-Hunger, mean (SD) Pre-tx: G1: 8.7 (3.7) G2: 8.9 (3.2) End of treatment: G1: 6.7 (2.9) G2: 9.3 (2.8) Diff at end of treatment: (p=0.001) 6 months: G1: 5.1 (3.4) G2: 6.7 (3.5)		

Table 22. Outcomes of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Carrard et al., 2011[79] (continued)		Nonstatistically sig diff at end of treatment: EDI-Ineffectiveness, EDI-Perfectionism, EDI-Interpersonal Distrust, EDI-Maturity Fears, EDI-Impulse Regulation, EDI-Social Insecurity, EDE-Q-Restraint, TFEQ-Restraint		
Carter and Fairburn, 1998[76] G1: CBTpsh (24/NR) G2: CBTgsh (24/NR) G3: Waitlist (24/NR) ITT sample Repeated measures ANOVA (G1, G2, G3; pre-tx vs. end of treatment) Repeated measures ANOVA (G1 vs. G2; pre-tx vs. end of treatment vs. 3 months vs. 6 months)	EDE-Binge-eating episodes/month, mean (SD) Pre-tx: G1: 19.7 (12.9) G2: 17.8 (10.6) G3: 21.6 (12.5) End of treatment: G1: 9.3 (11.7) G2: 4.3 (7.8) G3: 13.5 (10.3) Diff in change over time: (G1 vs. G3; p<0.05) (G2 vs. G3; p=0.001) Abstinence, % Pre-tx: 0% End of treatment: G1: 43% G2: 50% G3: 8% Diff at end of treatment: (G1 vs. G3; p=0.008) (G2 vs. G3; p=0.001)	EDE-Global, mean (SD) Pre-tx: G1: 3.7 (0.8) G2: 3.6 (1.0) G3: 3.6 (0.8) End of treatment: G1: 2.7 (1.3) G2: 2.1 (1.2) G3: 3.5 (0.8) Diff in change over time: (G1 vs. G3: p=0.03) (G2 vs. G3: p=0.001) EDE-Restraint, mean (SD) Pre-tx: G1: 2.4 (1.5) G2: 2.5 (1.4) G3: 2.4 (1.4) End of treatment: G1: 2.1 (1.4) G2: 1.2 (1.3) G3: 2.6 (1.4) Diff in change over time: (G1 vs. G2; p=NS) (G2 vs. G3: p=0.002)	Nonstatistically sig diff in change over time: BMI	GSI, mean (SD) Pre-tx: G1: 1.3 (0.8) G2: 0.9 (0.6) G3: 1.2 (0.8) End of treatment: G1: 0.8 (0.6) G2: 0.7 (0.6) G3: 1.2 (0.7) Diff in change over time: (G1 vs. G3: p=0.04) (G2 vs. G3: p=0.003)

Table 22. Outcomes of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Dingemans et al., 2007[154] G1: CBT-TL (30/28) G2: Waitlist (22/22) ITT sample Multilevel analysis	Abstinence, % Pre-tx: 0% End of treatment: G1: 63% G2: 18% Diff at end of treatment: (p<0.001) Nonstatistically sig diff in change over time: EDE-Binge-eating episodes/month	EDE-Weight concern, mean (SD) Pre-tx: G1: 3.4 (1.4) G2: 3.1 (1.3) End of treatment: G1: 1.9 (1.4) G2: 3.2 (1.2) Diff in change over time: (p<0.001) EDE-Shape concern, mean (SD) Pre-tx: G1: 2.5 (1.0) G2: 2.8 (1.0) End of treatment: G1: 1.6 (1.0) G2: 2.6 (1.2) Diff in change over time: (p<0.01) EDE-Eating concern, mean (SD) Pre-tx: G1: 2.0 (1.2) G2: 1.8 (1.2) End of treatment: G1: 0.9 (1.1) G2: 1.6 (1.1) Diff in change over time: (p<0.001) EDE-Restraint mean (SD) Pre-tx: G1: 1.7 (1.1) G2: 1.7 (1.2) End of treatment: G1: 0.9 (1.0) G2: 1.9 (1.3) Diff in change over time: (p<0.01)	NR	SCL-90, mean (SD) Pre-tx: G1: 169.3 (48.0) G2: 167.2 (45.6) End of treatment: G1: 143.6 (49.0) G2: 170.0 (57.5) Diff in change over time: (p<0.001) BDI, mean (SD) Pre-tx: G1: 20.7 (13.1) G2: 17.7 (9.8) End of treatment: G1: 12.9 (13.2) G2: 17.4 (10.5) Diff in change over time: (p<0.01) UCL-Passive reacting, mean (SD) Pre-tx: G1: 14.0 (3.5) G2: 13.5 (2.7) End of treatment: G1: 12.0 (3.6) G2: 13.6 (3.4) Diff in change over time: (p<0.01) Nonstatistically sig diff in change over time: UCL: Active tackling; palliative reacting; avoiding, waiting; seeking social support; expression of emotions; reassuring thoughts

Table 22. Outcomes of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Eldredge et al., 1997[155] G1: CBT-TL (36/32) G2: Waitlist (10/NR) Not reported Repeated measures ANOVA	Diary-binge-eating days/2weeks, mean (SD) Pre-tx: NR End of treatment: NR Diff in change over time: (p=0.046)	Nonstatistically sig diff in change over time: BES TFEQ-Restraint TFEQ-Disinhibition TFEQ-Hunger	Nonstatistically sig diff in change over time at end of treatment: BMI	Nonstatistically sig diff in change over time: IIP BDI RSES GSI
Peterson et al., 1998[71] G1: CBT-TL (16/14) G2: CBT-PTL (19/17) G3: CBTssh (15/11) G4: Waitlist (11/9) ITT sample Random regression ANCOVA	EB-IV-Total binge-eating episodes, mean (SD) Pre-tx: G1: 7.7 (3.8) G2: 8.2 (5.9) G3: 6.8 (2.4) G4: 5.7 (6.0) End of treatment: G1: 3.3 (3.6) G2: 2.7 (4.3) G3: 1.8 (2.9) G4: 6.6 (4.5) Diff in change over time: G1 G2, G3 v G4: (p=sig) for each comparison with G4, specific p-value not reported EB-IV-OBE, mean (SD) Pre-tx: G1: 3.4 (1.7) G2: 5.5 (6.5) G3: 3.1 (2.1) G4: 3.5 (4.9) End of treatment: G1: 0.7 (1.3) G2: 1.3 (3.4) G3: 0.4 (1.1) G4: 4.7 (4.7) Diff in change over time: G1, G2, G3 v G4: (p=sig) for each comparison with G4, specific p-value not reported	BES, mean (SD) Pre-tx: NR End of treatment: NR Diff in change over time: CBT formats combined vs. G4: (p=0.024) TFEQ-Hunger, mean (SD) Pre-tx: NR End of treatment: NR Diff in change over time: CBT formats combined v G4: (p=0.003) TFEQ-Disinhibition, mean (SD) Pre-tx: NR End of treatment: NR Diff in change over time: CBT formats combined vs. G4: (p=0.010) Nonstatistically sig diff in change over time: TFEQ-Restraint	Nonstatistically sig diff in change over time: BMI	Nonstatistically sig diff in change over time: HDRS RSES BSQ

Table 22. Outcomes of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Peterson et al., 1998[71] (continued)	EB-IV-Hours in binge-eating, mean (SD) Pre-tx: G1: 9.0 (6.7) G2: 13.4 (13.0) G3: 9.8 (5.5) G4: 8.3 (7.6) End of treatment: G1: 4.2 (6.9) G2: 3.2 (5.9) G3: 2.3 (3.3) G4: 9.6 (6.5) Diff in change over time: G1, G2, G3 vs. G4: (p=sig) for each comparison with G4, specific p-value not reported Total binge-eating abstinence, % Pre-tx: 0% End of treatment: G1: 18.8% G2: 36.8% G3: 53.5% G4: 0% Diff at end of treatment: CBT formats combined vs. G4: (p=0.04) OBE abstinence, % Pre-tx: 0% End of treatment: G1: 68.8% G2: 68.4% G3: 86.7% G4: 12.5% Diff at end of treatment: CBT formats combined vs. G4: (p=0.004)			

Table 22. Outcomes of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Peterson et al., 1998[71] (continued)	EB-IV-Hours in binge-eating abstinence, % Pre-tx: NR End of treatment: NR Diff at end of treatment: CBT formats combined vs. WL: (p=0.04)			
Peterson et al., 2009[70] G1: CBT-TL (60/53) G2: CBT-PTL (63/43) G3: CBTssh (67/40) G4: Waitlist (69/56)	EDE-Binge episodes/month, mean (SD) Pre-tx: G1: 24.6 (18.7) G2: 21.9 (12.3) G3: 22.4 (13.7) G4: 23.1 (14.1) End of treatment: G1: 6.3 (12.3) G2: 9.7 (12.4) G3: 11.9 (13.2) G4: 17.6 (14.6) Diff in change over time: G1 vs. G4: (p<0.008) G2 vs. G4: (p<0.008) G3 vs. G4: (p<0.008) EDE-Binge-eating days/month, mean (SD) Pre-tx: G1: 16.0 (6.9) G2: 16.4 (6.5) G3: 16.4 (6.8) G4: 17.1 (7.1) End of treatment: G1: 4.4 (7.3) G2: 7.6 (8.4) G3: 9.6 (8.6) G4: 13.5 (9.3) Diff in change over time: G1 vs. G4: (p<0.008) G2 vs. G4: (p<0.008) G3 vs. G4: (p=NS)	EDE-Restraint, mean (SD) Pre-tx: G1: 1.6 (1.3) G2: 1.3 (1.1) G3: 1.8 (1.5) G4: 1.5 (1.2) End of treatment: G1: 1.1 (1.0) G2: 1.1 (1.0) G3: 1.6 (1.2) G4: 1.5 (1.3) Diff in change over time: G1 vs. G4: (p=0.017) EDE-Global, mean (SD) Pre-tx: G1: 2.8 (0.8) G2: 2.4 (0.8) G3: 2.7 (0.9) G4: 2.6 (0.9) End of treatment: G1: 2.1 (0.9) G2: 1.8 (0.8) G3: 2.3 (1.0) G4: 2.3 (0.9) Diff in change over time: G1 vs. G4: (p=0.008) TFEQ-Disinhibition, mean (SD) Pre-tx: G1: 14.3 (1.5) G2: 13.6 (1.9) G3: 13.8 (1.7) G4: 13.6 (2.0)	Nonstatistically sig diff in change over time: BMI	Nonstatistically sig diff in change over time: IDS-SR RSES IWQOL

Table 22. Outcomes of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Peterson et al., 2009[70] (continued)	Abstinence, % Pre-tx: 0% End of treatment: G1: 51.7% G2: 33.3% G3: 17.9% G4: 10.1% Diff at end of treatment: G1 vs. G4 (p<0.008) G2 vs. G4: (p<0.008) G3 vs. G4: (p=NS)	End of treatment: G1: 11.9 (3.4) G2: 12.2 (2.9) G3: 12.7 (2.3) G4: 13.4 (2.1) Diff in change over time to end of treatment: G1, G2 vs. G4: (p=0.001)		

Table 22. Outcomes of trials of cognitive behavioral therapy compared with waitlist control for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Tasca et al., 2006[153] G1: PIPT-TL (48/37/35/37) (This arm is not discussed in this section of the results) G2: CBT-TL (47/37/32/37) G3: Waitlist (40/33) ITT sample Hierarchical linear model with restricted maximum likelihood method of estimation	EDE-Binge-eating days/week, mean (SD) Pre-tx: G2: 3.95 (1.70) G3: 4.00 (1.52) End of treatment: G2: 0.57 (0.93) G3: 3.58 (2.03) Diff in change over time: G2 vs. G3: (p<0.001) Abstinence, % Pre-tx: 0% End of treatment: G2: 62.2%; G3: 9.1% Diff at end of treatment: G2 vs. G3: (p<0.001) Improved (<2 binge-eating days/week), % Pre-tx: 0% End of treatment: G2: 86.5% G3: 12.1% Diff at end of treatment: G2 vs. G3 (p<0.001)	TFEQ-Restraint, mean (SD) Pre-tx: G2: 6.69 (4.01) G3: 8.10 (4.20) End of treatment: G2: 8.52 (3.75) G3: 6.63 (3.82) Diff in change over time: G2 vs. G3: (p=0.02) TFEQ-Hunger, mean (SD) Pre-tx: G2: 10.32 (2.89) G3: 9.95 (3.44) End of treatment: G2: 7.73 (3.82) G3: 9.54 (3.37) Diff in change over time: G2 vs. G3: (p=0.014)	BMI Diff in change over time to end of treatment: G2 vs. G3: (p=NS)	IIP-Total, mean (SD) Pre-tx: G2: 1.56 (0.53) G3: 1.53 (0.61) End of treatment: G2: 1.29 (0.61) G3: 1.50 (0.67) Diff in change over time: G2 vs. G3: (p=0.024) BMI Diff in change over time: G2 vs. G3: (p=NS) CESD RSES

ANCOVA= analysis of covariance; ANOVA = analysis of variance; BDI = Beck Depression Inventory; BED = binge-eating disorder; BES = Binge Eating Scale; BMI = body mass index; BSI = Brief Symptom Inventory; BSQ = body shape questionnaire; CBT = cognitive behavioral therapy; CBTgsh = cognitive behavioral therapy, guided self-help; CBT-PTL = cognitive behavioral therapy, partially therapist-led; CBTpsh = cognitive behavioral therapy, pure self-help; CBTssh = cognitive behavioral therapy, structured self-help; CBT-TL = cognitive behavioral therapy, therapist led; CESD = Center for Epidemiologic Studies Depression Scale; diff = difference; EB-IV = Eating Behaviors, Fourth Edition; EDE = Eating Disorder Examination Inventory; EDE-Q = Eating Disorder Examination Questionnaire; EDI-2 = Eating Disorder Inventory, Second Edition; HDRS = Hamilton Depression Rating Scale; G = group; GSI = Global Severity Index; IDS-SR = Inventory of Depressive Symptoms – Self-Report; IIP = Inventory of Interpersonal Problems; ITT = intent to treat; IWQOL = Impact of Weight on Quality of Life; RCT = randomized controlled trial; N = number; NR = not reported; OBE = objective binge-eating episodes; PIPT-TL = psychodynamic interpersonal therapy, therapist-led; RSE = Rosenberg Self Esteem; SCL-90 = Symptom Checklist 90; SD = standard deviation; sig= significant; TFEQ = Three-Factor Eating Questionnaire; tx = treatment; UCL= Utrecht Coping List; vs.. = versus

Table 23. Outcomes of trials of cognitive behavioral therapy compared with active control or usual care for binge-eating disorder

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo et al., 2005[73] G1: CBTgsh (37/32) G3: Active Control (15/13) ITT sample ANCOVA Maximum likelihood mixed model	Diary-Binge-eating episodes/month, mean (SD) Pre-tx: NR End of treatment: G1: 6.8 (6.1) G3: 3.8 (6.1) Diff in change over time: G1 vs. G3: (p=0.019) EDE-Q-Binge-eating episodes/month Pre-tx: G1: 12.1 (9.0) G3: 14.0 (4.8) End of treat: G1: 2.8 (5.1) G3: 8.1 (6.9) Diff in change over time: G1 vs. G3: (p=0.014) Diary-OBE abstinence, %: Pre-tx: 0% End of treatment: G1: 46% G3: 13.3% Diff at end of treatment: G1 vs. G3: (p=0.03) EDE-Q-OBE abstinence, %: Pre-tx: 0% End of treatment: G1: 59.5% G3: 26.7% Diff at end of treatment: G1 vs. G3: (p=0.03)	EDE-Q-Eating concern, mean (SD) Pre-tx: G1: 3.5 (1.2) G3: 2.8 (1.3) End of treatment: G1: 1.8 (1.3) G3: 2.4 (1.0) Diff in change over time: G1 vs. G3: (p=0.017) TFEQ-Hunger, mean (SD) Pre-tx: G1: 9.8 (3.0) G3: 9.3 (3.5) End of treatment: G1: 6.6 (3.5) G2: 8.2 (3.7) G3: 9.7 (3.0) Diff in change over time: G1 vs. G3: (p=0.001) TFEQ-Disinhibition, mean (SD) Pre-tx: G1: 12.8 (2.8) G3: 12.9 (2.5) End of treatment: G1: 11.2 (3.6) G3: 12.7 (2.4) Diff in change over time: G1 vs. G3: (p=0.003) TFEQ-Restraint, mean (SD) Pre-tx: G1: 9.1 (4.7) G3: 7.3 (3.6) End of treatment: G1: 10.8 (4.5) G3: 7.1 (5.1) Diff in change over time: G1 vs. G3: (p=0.037) Nonstatistically sig diff in change over time: EDE-Q-Weight concern EDE-Q-Shape concern	Nonstatistically sig diff in change over time: BMI	Nonstatistically sig diff in change over time: BDI RSES

Table 23. Outcomes of trials of cognitive behavioral therapy compared with active control or usual care for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo et al., 2013[156] G1: CBTpsh+UC (24/24) G2: UC (24/24) ITT sample Chi square mixed model analysis	EDE-Q-Binge-eating episodes/month, mean (SD) Pre-tx: G1: 13.83 (8.65) G2: 9.74 (7.11) End of treatment: G1: 4.54 (5.01) G2: 8.21 (9.36) Diff in change over time: (p=0.03) Nonstatistically sig diff at end of treatment: Abstinence (zero OBEs) EDE-Binge-eating episodes/month	Nonstatistically sig diff in change over time: EDE-Global EDE-Q-Global	Nonstatistically sig diff in change over time: BMI	Nonstatistically sig diff in change over time: BDI

ANCOVA = analysis of covariance; BDI = Beck Depression Inventory; BMI = body mass index; BWLgsh = behavioral weight loss, guided self-help; CBTgsh = cognitive behavioral therapy, guided self-help; CBTpsh = cognitive behavioral therapy plus self-help; EDE = Eating Disorder Examination Interview; EDE-Q = Eating Disorder Examination Questionnaire; G = group; ITT = intent to treat; NR = not reported; RSE = Rosenberg Self Esteem; SD = standard deviation; SE = standard error; TFEQ = Three-Factor Eating Questionnaire; tx = treatment; UC = Utrecht Coping List.

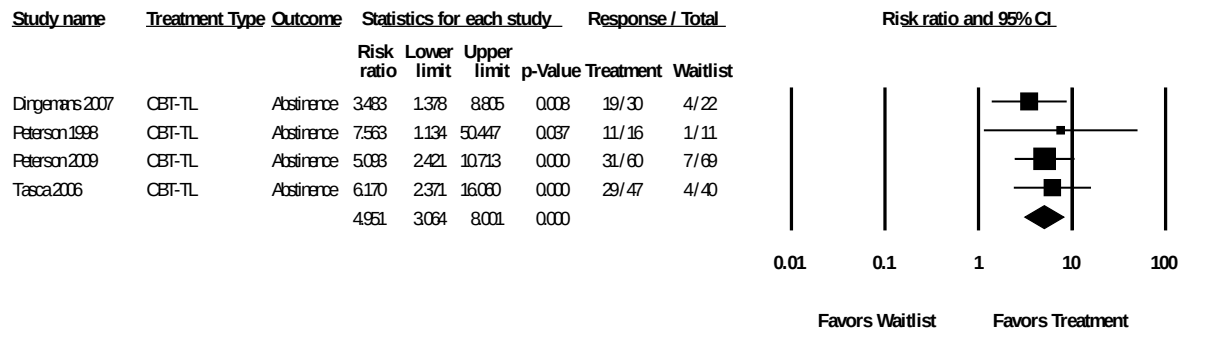
Binge-Eating Outcomes

Therapist-Led CBT: Meta-Analysis Results

We conducted meta-analyses (using random effects models) to determine the efficacy of therapist-led CBT in treating BED. Four trials provided data sufficient for the analysis of binge-eating abstinence; of these four, three provided data on binge-eating episodes per week.

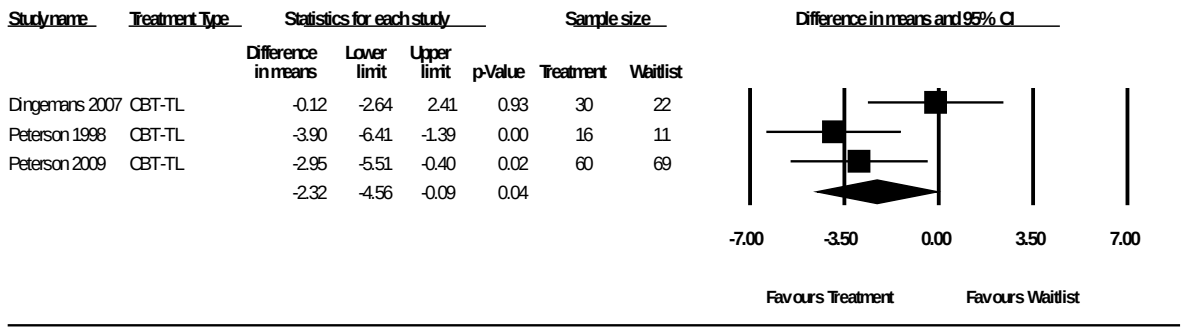
As shown in Figure 14, the likelihood of achieving abstinence was more than four times greater with therapist-led CBT than waitlist (four trials; RR, 4.95; 95% CI, 3.06 to 8.00; p=0.000; I^2=0). On average, 53 percent of participants treated with therapist-led CBT and 11 percent of participants on waitlist achieved abstinence at the end of treatment.

Figure 14. Abstinence: Therapist-led cognitive behavioral therapy versus waitlist



In addition, the therapist-led CBT was more effective in reducing binge-eating episode frequency as measured by binge-eating episode frequency per week (3 trials, mean difference -2.32; 95% CI, -4.56 to -0.09; p=0.00; I^2=0%; Figure 15). Over the course of treatment, the weighted mean reduction in binge-eating episodes per week was -3.0 among those receiving therapist-led CBT and -0.9 assigned to waitlist.

Figure 15. Binge-eating episodes per week: therapist-led cognitive behavioral therapy versus waitlist



CBT Versus Waitlist: Single Trial Results

Four of five trials found that therapist-led CBT produced greater reduction than waitlist control in binge-eating episode frequency at the end of treatment.[70,71,153-155] Similarly, in four trials that reported on abstinence at the end of treatment,[70,71,153,163] a significantly greater percentage of participants were abstinent in the therapist-led group than in control. The two partially therapist-led CBT trials[70,71] demonstrated a similar pattern of results: a greater decrease in binge-eating episode frequency and a greater percentage of participants who were abstinent among those in the CBT group than in the control group

In the four CBT self-help trials, binge-eating outcomes were significantly better at the end of therapy for participants in the CBT group regardless of the self-help format.[70,71,76,79] In two trials, structured self-help CBT was more effective than waitlist in reducing binge-eating episode frequency.[70,71] However, only one of these trials found that a significantly greater percentage of

participants receiving the self-help CBT were abstinent.[71] Both of the two guided self-help CBT trials (one with a facilitator[76] and one via the Internet[79]) and the one pure self-help CBT trial[76] demonstrated significantly greater decreases in binge-eating episode frequency and higher abstinence rates.

Finally (Table 23), one trial compared guided self-help CBT with active control[73] and one compared pure self-help CBT plus usual care with usual care alone.[156] Both kinds of CBT produced significantly greater reductions in binge-eating episode frequency at the end of treatment. Only the guided self-help trial had a greater percentage of participants who were abstinent.

Eating-Related Psychopathology Outcomes

Compared with waitlist (Table 22), at the end of treatment therapist-led CBT was associated with greater improvements in global eating-related psychopathology (as measured by the EDE) in two trials[70,154] and in susceptibility to hunger in two.[71,153] In the fifth trial, the two groups did not differ significantly on all three subscales of the TFEQ.[155] Outcomes comparing partially therapist-led CBT with waitlist were not consistent. Partially therapist-led CBT was associated with greater improvements in disinhibition (on the TFEQ) at the end of treatment in one of two trials;[70] however, in the second trial, the two groups did not differ significantly on all three subscales of the TFEQ and also on the BES.[71]

The effect of CBT self-help varied across trials. In the two trials comparing structured self-help CBT with waitlist,[70,71] one found a treatment benefit limited to greater reductions in two TFEQ subscales (hunger and disinhibition).[71] Both of the guided self-help trials and the pure self-help trial reported that CBT had a greater effect in reducing eating-related psychopathology as measured by both the global score of the EDE[76] and four subscales of the EDI.[79]

Similarly (Table 23), the effect of CBT self-help compared with active control or usual care varied across trials and outcome measures. Guided self-help significantly reduced eating concerns, hunger, and disinhibition, and increased cognitive restraint compared with active control.[73] However, pure self-help combined with usual care was not more effective than usual care alone in reducing eating-related psychopathology, as measured in the EDE-Q global score, at the end of the trial.[156]

Weight Outcomes

Across all comparisons of CBT completely or partially led by therapists, weight outcomes did not significantly differ between treatment and waitlist arms (Table 22).[70,71,153,155]

The self-help trials generally demonstrated a pattern similar to that of the therapist-led trials. All but one of the trials[79] found no differences in weight outcomes between treatment and waitlist;[70,71,76] the lone exception was a greater reduction in BMI at the end of treatment in those randomized to Internet-based guided self-help CBT.[79]

Similarly, weight outcomes did not differ in trials comparing self-help with active control[73] or with usual care[156] (Table 23).

General Psychological Outcomes

The therapist-led CBT groups and waitlist control groups did not differ in depression outcomes in four of five trials (Table 22).[70,71,153,155] One small trial (N=52) reported significantly better depression outcomes in the CBT group on the BDI.[154] Although both groups demonstrated a decrease in self-reported depression as measured by BDI scores, the change was greater in

those receiving CBT than those assigned to waitlist. The two trials comparing partially therapist-led CBT and waitlist groups also reported no difference in depression outcomes.[70,71]

CBT self-help and waitlist did not differ in depression outcomes (Table 22), whether delivered as structured self-help,[70,71] Internet-based guided self-help,[79] or pure self-help.[76] Only the in vivo guided self-help trial demonstrated a significant effect; at the end of treatment, the treatment group reported significantly lower depression scores.[76] However, the outcome measure used in this trial was the GSI from the Brief Symptom Inventory;[43] this instrument measures global psychological distress, and the authors did not report data specifically on the depression subscale.

Guided self-help CBT was not more effective than active control in reducing symptoms of depression.[73] Similarly, pure self-help CBT plus usual care was not more effective than usual care alone[156] (Table 23).

Self-esteem outcomes were reported in six trials (Table 22);[70,71,73,79,153,155] and general psychological distress (measured through the GSI) was documented in three trials.[76,79,155] Five of the self-help trials failed to find significant differences between the CBT and the waitlist groups.[70,71,73,153,155] The exception was the trial comparing Internet-based guided self-help CBT with waitlist controls; the intervention group had a greater improvement in self-esteem.[79] Three trials reported on GSI changes following four different CBT formats compared with waitlist: Only the Internet-based approach produced significantly greater reductions in psychological distress.[79]

Other Outcomes

The nine trials reported on a range of other outcomes; the most common was quality of life.[70,79] Participants assigned to Internet-based guided self-help reported better quality of life than those in the waitlist group at the end of treatment.[79]

Behavioral Interventions: Behavioral Weight Loss Versus an Active Comparator

Description of Studies

One trial compared guided self-help BWL treatment with an active control arm (Table 24).[73,164] Fifty-three overweight or obese adults were randomized to guided self-help BWL or an active control group.[73] Manualized BWL was provided through the Lifestyle, Exercise, Attitudes, Relationships, and Nutrition (LEARN) Program for Weight Management.[162] LEARN focuses on making lifestyle changes (e.g., goal setting, dealing with pressures to eat, changing attitude) along with moderate caloric restriction and increased physical activity to promote weight loss. In the active control group, participants completed self-monitoring records and also met with a therapist, but they did not receive any intervention or manual.

Table 24. Characteristics of trials of behavioral weight loss compared with active control for binge-eating disorder

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Grilo et al., 2005[73] Masheb et al., 2007[164a] United States Outpatient RCT Medium	DSM-IV (SCID/IP, EDE) *G1: not included in this comparison G2: 38 G3: 15 8 weeks (4 weeks) 18–60 years of age BMI ≥ 27 Mean age: 46.3 Mean BMI: 35.5 Female: 79% Any Axis I psychiatric disorder: 69% Nonwhite: 30%	G2: BWLgsh-Individual: Provided with manual[162] + six 15- to 20-minute, biweekly clinician sessions over 12 weeks G3: Active control-Individual: six 15- to 20-minute, biweekly, clinician sessions over 12 weeks; focused on self-monitoring Co-interventions: None	Binge • Binge-eating episodes/month (diary, EDEQ) • Abstinence (diary, EDEQ) Eating related • EDEQ, 4 subscales • TFEQ-Hunger • TFEQ-Restraint • TFEQ-Disinhibition Weight • BMI Psychological • BDI • RSES

BDI = Beck Depression Inventory; BMI = body mass index; BWLgsh = behavioral weight loss, guided self-help; DSM-IV = Diagnostic and Statistical Manual, fourth; EDE = Eating Disorders Examination; EDEQ = Eating Disorders Examination Questionnaire; G = group; N = number; RCT = randomized controlled trial; RSES = Rosenberg Self-Esteem, Patient Version; SCID/IP = Structured Clinical Interview for DSM Axis I Disorders, Patient Version; TFEQ = Three Factor Eating Questionnaire

[a] Examined rapid response in G1 and G2 only.

Key Points

- Efficacy of behavioral weight loss compared with active control could not be determined because this comparison was done in a single, small sample trial (SOE insufficient).

Detailed Synthesis

The trial reported on binge frequency and abstinence, eating-related psychopathology, BMI, and depression outcomes at the end of treatment. Binge-eating outcomes did not differ for the BWL and active control groups (see Table 25).[73] The investigators reported significantly greater improvements in cognitive restraint (mean change 3.5) and susceptibility to hunger (mean change -1.6) among patients receiving BWL compared with those receiving active control (-0.2 and 0.4, respectively); however, BMI, depression, and self-esteem all showed nonsignificant differences between groups.[73]

Table 25. Outcomes of trials of behavioral weight loss compared with an active control for binge-eating disorder

Author, Year Arm (N Randomized/Completed Treatment/Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo et al., 2005[73] Masheb et al., 2007[164]* G2: BWLgsh (38/38) G3: Active control (15/15) ITT sample ANCOVA Maximum likelihood mixed model	Nonstatistically sig diff at end of treatment: Diary/EDEQ-Binge episodes/month Diary/EDEQ-Abstinence	TFEQ-Hunger, mean (SD) Pre-tx: G2: 9.8 (3.0) G3: 9.3 (3.5) End of treatment: G2: 8.2 (3.7) G3: 9.7 (3.0) Diff at end of treatment (p=0.046) TFEQ-Restraint, mean (SD) Pre-tx: G2: 8.5 (3.5) G3: 7.3 (3.6) End of treatment: G2: 12.0 (4.7) G3: 7.1 (5.1) Diff at end of treatment (p=0.001) Nonstatistically sig diff in change over time: EDEQ-Weight concern EDEQ-Shape concern EDEQ-Eating concern EDEQ-Dietary restraint TFEQ-Disinhibition	Nonstatistically sig diff in change over time BMI	Nonstatistically sig diff in change over time BDI RSES

ANCOVA = analysis of covariance; BDI = Beck Depression Inventory; BMI = body mass index; BWLgsh = behavioral weight loss, guided self-help; diff = difference; EDEQ = Eating Disorders Examination Questionnaire; G = group; ITT = intent to treat; N = number; RSES = Rosenberg Self-Esteem, Patient Version; SD = standard deviation; sig = significant; TFEQ = Three Factor Eating Questionnaire; tx = treatment.

Behavioral Interventions: Psychodynamic Interpersonal Psychotherapy Versus Waitlist

Description of Studies

One trial involved therapist-led group psychodynamic interpersonal psychotherapy (PIPT) (Table 26).[153] Although PIPT is similar to more traditional interpersonal psychotherapy (IPT; described below in this chapter), PIPT differs from IPT in that it does not focus on social roles (e.g., role disputes in IPT) and places greater emphasis on present interactions among group members and with the therapist. PIPT uses cyclical relational patterns and circumplex models (versus social roles) to understand interpersonal patterns. PIPT also applies a specific model (Malan's Triangle of Conflict[165]) to elucidate a patient's attachment needs, negative affect, and binge eating as a means of coping.

Table 26. Characteristics of trials of psychodynamic interpersonal therapy compared with waitlist control for binge-eating disorder

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Tasca et al., 2006[153] Canada Outpatient RCT Medium	DSM-IV (SCID/IP, EDE) G1: 48 G2: 47 (not included in this comparison) G3: 40 16 weeks (G1 only: 12 months) ≥18 years old Mean age: 42.8 Mean BMI: 41.1 Female: 91% Nonwhite: 2% Current mood disorder: 62%	G1: PIPT-TL-Group: 16 90-minute, manualized[160] biweekly sessions G2: CBT-TL-Group: 16 90-minute, manualized[161] biweekly sessions G3: Waitlist control Co-interventions: none	Binge • Binge days (EDE) Weight • BMI Eating related • TFEQ, 2 scales Psychological • CES-D • IIP total • RSE

BMI = body mass index; CBT-TL = cognitive behavioral therapy, therapist led; CES-D = Center for Epidemiologic Studies Depression Scale; DSM-IV= Diagnostic and Statistical Manual, fourth edition; EDE = Eating Disorder Examination Inventory; G = group; IIP = Inventory of Interpersonal Problems; N = number; PIPT-TL = psychodynamic interpersonal therapy, therapist led; RCT = randomized controlled trial; RSE = Rosenberg Self-Esteem; SCID/IP = Structured Clinical Interview for DSM-IV Axis I Disorders–Patient Version; TFEQ = Three Factor Eating Questionnaire

The investigators randomized 88 participants to either PIPT or a waitlist. Among all 135 participants in the trial, including those randomized to CBT (described earlier in the chapter), virtually all were female and white race, with a mean age of 43 years and mean BMI of 41 kg/m^2. Participants assigned to PIPT received 16 weekly 90-minute sessions led by a therapist.

Key Points

- Results for PIPT compared with waitlist were based on evidence from one small trial (SOE insufficient).

Detailed Synthesis

Compared with patients assigned to waitlist, those in the PIPT group demonstrated greater change in binge frequency (approximately -0.5 vs. -3.0 binge days per week), and a higher percentage achieved abstinence (9.1 percent vs. 59.5 percent) (Table 27).[153] PIPT also produced greater improvements in dietary restraint, depression, and interpersonal problems; however, the two groups did not significantly differ on susceptibility to hunger (TFEQ), BMI, or self-esteem at the end of treatment.

Table 27. Outcomes of psychodynamic interpersonal therapy compared with waitlist control for binge-eating disorder

Author, Year Arm (N Randomized/Completed Treatment/Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Tasca et al., 2006[153] G1: PIPT-TL (48/37/35/37) G3: Waitlist (40/33) ITT sample Hierarchical linear model with restricted maximum likelihood method of estimation	EDE-Binge days/week, mean (SD) Pre-tx: G1: 4.11 (1.35) G3: 4.00 (1.52) End of treatment: G1: 1.11 (1.90) G3: 3.58 (2.03) Diff in change over time (end of treatment): G1 vs. G3: (p<0.001) Abstinence, % Pre-tx: NR End of treatment: G1: 59.5% G3: 9.1% Diff at end of treatment: G1 vs. G3: (p<0.001) Improved (<2 binge days/week), % Pre-tx: NR End of treatment: G1: 75.7% G3: 12.1% Diff in change over time (end of treatment): G1 vs. G3 (p<0.001)	TFEQ-Restraint, mean (SD) Pre-tx: G1: 7.86 (4.28) G3: 8.10 (4.20) End of treatment: G1: 8.75 (3.94) G3: 6.63 (3.82) Diff in change over time (end of treatment): G1 vs. G3: (p=0.028) Nonstatistically sig diff in change over time (end of treatment): TFEQ-Hunger	Nonstatistically sig diff in change over time (end of treatment): BMI	CESD, mean (SD) Pre-tx: G1: 24.65 (9.14) G3: 23.84 (9.93) End of treatment: G1: 16.81 (13.13) G3: 23.30 (12.28) Diff in change over time (end of treatment): G1 vs. G3: (p=0.018) IIP total, mean (SD) Pre-tx: G1: 1.39 (0.48) G3: 1.53 (0.61) End of treatment: G1: 1.23 (0.52) G3: 1.50 (0.67) Diff in change over time (end of treatment): G1 vs. G3: (p=0.016) Nonstatistically sig diff in change over time (end of treatment): RSES

BMI = body mass index; CESD = Center for Epidemiologic Studies Depression Scale; diff = difference; EDE = Eating Disorder Examination Inventory; G = group; IIP = Inventory of Interpersonal Problems; ITT = intent to treat; N =number; NR = not reported; PIPT-TL = psychodynamic interpersonal therapy, therapist led; RSES = Rosenberg Self-Esteem, Patient Version; SD = standard deviation; sig = significant; TFEQ = Three Factor Eating Questionnaire; tx = treatment; vs. = versus

Behavioral Interventions: Dialectical Behavioral Therapy Versus Waitlist or Active Control

Description of Studies

Table 28 presents the two trials involving dialectical behavioral therapy (DBT): one compared a guided self-help version of DBT with waitlist[166] and one trial compared therapist-led DBT with therapist-led active comparison group therapy (ACGT).[83,167,168] The guided self-help DBT trial involved 60 overweight and obese adults. Participants were provided with a manual[169] and had one 45-minute orientation session in addition to six biweekly 20-minute support calls over 13 weeks. The therapist-led DBT trial randomized 101 overweight and obese adults to either DBT or ACGT. Both were based on manuals and consisted of a single pretreatment orientation followed by 18 2-hour weekly group sessions and two sessions scheduled every other week.

Table 28. Characteristics of trials of dialectical behavioral therapy compared with waitlist or active control for binge-eating disorder

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Masson et al., 2013[166] Canada Outpatient RCT Medium	DSM-IV (EDE) G1: 30 G2: 30 13 weeks ≥18 years old Mean age: 42.8 (10.5) Mean BMI: 37.9 Female: 88.3% Nonwhite: 8.4%	G1: DBTgsh-Individual: Provided with manual[169] + one 45-minute orientation session + support from clinical psychologist in 6 biweekly 20-minute calls G2: Waitlist Co-interventions: none	Binge: • Binge episodes (EDE) Eating related • EDEQ, total score Weight • NR Psychological • DERS, total score • EDQLS
Safer et al., 2010[83] Safer et al., 2011[167] Robinson and Safer, 2012[168] United States Outpatient primary care RCT Medium	DSM-IV (EDE) G1: 50 G2: 51 21 weeks (12 months) Adults, overweight, lived or worked within commuting distance to the clinic Mean age: 52.2 Mean BMI: 36.4 Female: 85% Nonwhite: 24% Current mood disorder: 15%	G1: DBT-TL-Group: Based on Linehan's DBT for borderline PD, previously adapted for BED,[169] 20 sessions including 2 intro, 16 sessions of adaptive emotion-regulation skills, 2 sessions for review and relapse G2: ACGT-TL-Group: follows a Rogerian approach Co-interventions: none	Binge: • Abstinence • Binge days (EDE) Eating related • EDE, 4 subscales Weight • Body weight • BMI Psychological • BDI • RSE • NMR • EES, 2 scales • PANAS • DERS, 2 scales

ACGT-TL = active comparison group therapy, therapist led; BDI = Beck Depression Inventory; BMI = body mass index; DBT = dialectical behavioral therapy; DBTgsh = dialectical behavioral therapy-guided self-help; DBT-TL = dialectical behavioral therapy, therapist led; DERS = Difficulties in Emotion Regulation; DSM-IV = Diagnostic and Statistics Manual for DSM-IV Disorders; EDE = Eating Disorders Examination; EDEQ = Eating Disorders Examination Questionnaire; EES = Emotional Eating Scale; EDQLS = The Eating Disorder Quality of Life Scale; G = group; N = number; NMR = Negative Mood Regulation scale; NR = not reported; PANAS = Positive and Negative Affect Scale; PD = personality disorder; RCT = randomized controlled trial; RSE = Rosenberg Self-Esteem Scale.

Guided self-help DBT involved the use of a manualized treatment for BED,[169] which was aimed at teaching individuals the core skills of DBT including mindfulness, distress tolerance, and emotion regulation. During support calls, a clinical psychologist asked a series of standardized questions that encouraged participants to best use the manual and problem-solved with participants about strategies that it discusses.[166] Therapist-led DBT consisted of two introductory psychoeducational sessions, 16 core skill-learning and skill-building sessions (e.g., mindfulness, emotion regulation, distress tolerance), and two final review and relapse prevention sessions.[169] ACGT, based on a Rogerian approach,[170] was intended to act as an active comparison group that would generate nonspecific therapeutic factors that would also be present in DBT (i.e., rapport with the therapist, treatment expectations, a sense of optimism) but without delivering DBT-specific interventions. It focused on bolstering self-esteem and encouraging

patients to find answers within themselves (versus skills-based learning as in DBT). Outcome measures were collected at baseline; end of treatment; and at 3-, 6-, and 12-month followups.[83]

Key Points

- Two RCTs assessed DBT compared with either waitlist or an active control group therapy. Both DBT formats (therapist led and guided self-help) improved binge-eating and eating-related psychopathology outcomes, but the trials differed in both the DBT formats and the comparators. Consequently, the evidence did not allow for synthesis across studies (SOE insufficient based on evidence limited to one small study).

Detailed Synthesis

Both trials reported outcomes related to binge eating, eating-related psychopathology, and general psychological (Table 29); however, only the trial comparing therapist-led DBT measured abstinence, depression, and weight.[83] The guided self-help DBT trial provided outcomes data only at the end of treatment;[166] the therapist-led DBT trial addressed changes in outcomes at the end of treatment and from the end of treatment to 6-month followup and, separately, from the 6-month through 12-month followup.[83] Secondary analyses from this trial examined whether factors such as rapid response to treatment[167] and personality and dieting history[168] modified binge-eating outcomes.

Table 29. Outcomes of trials of dialectical behavioral therapy compared with waitlist or active control for binge-eating disorder

Author, Year Arm (N Randomized/Completed Treatment/Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Masson et al., 2013[166] G1: DBTgsh (30/21) G2: Waitlist (30/27) ITT sample Linear regression	EDEQ-Binge episodes/month, mean (SD) Pre-tx: G1: 18.67 (SD 13.17) G2: 19.60 (SD 11.91) End of treatment: G1: 5.97 (SD 9.42) G2: 14.37 (SD 11.86) Diff at end of treatment: (p<0.05; G1 better than G2)	EDEQ-Total, mean (SD) Pre-tx: G1: 4.68 (SD 0.71) G2: 4.60 (SD 0.85) End of treatment: G1: 3.65 (SD 1.03) G2: 4.36 (SD 1.00) Diff at end of treatment: (p<0.05; G1 better than G2)	NR	DERS, mean (SD) Pre-tx: G1: 100.02 (SD 26.38) G2: 100.97 (SD 23.36) End of treatment: G1: 84.39 (SD 26.81) G2: 104.03 (SD 24.64) Diff at end of treatment: (p<0.05; G1 better than G2) EDQLS, mean (SD) Pre-tx: G1: 118.93 (21.13) G2: 117.03 (SD 17.62) End of treatment: G1: 137.30 (SD 23.51) G2: 117.17 (SD 17.70) Diff at end of treatment: (p<0.05; G1 better than G2)

Table 29. Outcomes of trials of dialectical behavioral therapy compared with waitlist or active control for binge-eating disorder (continued)

Author, Year Arm (N Randomized/Completed Treatment/Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Safer et al., 2010[83] Safer et al., 2011[167] Robinson et al., 2012[168] G1: DBT-TL (50/50) G2: ACGT-TL (51/51) ITT sample Linear mixed model Chi-square ANOVA MacArthur method ANOVA T-tests	EDE-Binge days/month Pre-tx: NR End of treatment: NR Diff in change over time (baseline to end of treatment): (p=0.001; G1 better than G2) Abstinence End of treatment: G1: 64% G2: 36% 6 months: G1: 52% G2: 43% Diff in change over time (end of treatment to 6 months): (p=0.015) Binge days at end of treatment in those with avoidant personality disorder at baseline: Pre-tx: NR End of treatment: G1: 1.13 (1.73) G2: 11.25 (9.78) (p=0.014) Nonstatistically sig diff in change over time: Binge days, end of treatment–12 months Abstinence, 6–12 months Nonsignificant modifiers of binge days/month: Age of onset overweight and dieting; Rapid response to tx;	EDE-Eating concern, mean (SD) Pre-tx: G1: 2.25 (1.43) G2: 2.09 (1.32) End of treatment: G1: 0.54 (0.71) G2: 1.14 (1.39) Diff in change over time (p=0.008) 12 months: G1: 0.88 (1.38) G2: 0.66 (0.95) Diff in change over time (p=0.019) EDE-Restraint, mean (SD) Pre-tx: G1: 1.73 (1.12) G2: 2.00 (1.28) End of treatment: G1: 1.29 (1.04) G2: 1.91 (1.23) Diff in change over time (p=0.008) 12 months: G1: 1.10 (1.09) G2: 1.85 (1.42) Diff in change over time (p=0.004) Nonstatistically sig diff in change over time (end of treatment; 12 months): EDE-Weight concern EDE-Shape concern EES 3 subscales	Nonstatistically sig diffs at end of treatment, 12 months: Weight BMI	BDI, mean (SD) Pre-tx: G1: 17.94 (9.37) G2: 15.27 (6.83) End of treatment: G1: 9.10 (9.21) G2: 10.84 (6.86) Diff in change over time: (p=0.045) Nonstatistically sig diffs in change over time (end of treatment, 12 months): RSES PANAS, 2 subscales NMR DERS, 2 subscales

ACGT-TL = active comparison group therapy, therapist led; ANOVA = analysis of variance; BDI = Beck Depression Inventory; BMI = body mass index; DBTgsh = dialectical behavioral therapy-guided self-help; DBT-TL = dialectical behavioral therapy, therapist led; DERS = Difficulties in Emotion Regulation; diff = difference; DSM-IV = Diagnostic and Statistics Manual for

DSM-IV Disorders; EDE = Eating Disorders Examination; EDEQ = Eating Disorders Examination Questionnaire; EDQLS = The Eating Disorder Quality of Life Scale; EES = Emotional Eating Scale; G = group; TT = intent to treat; N = number; NMR = Negative Mood Regulation scale; NR = not reported; PANAS = Positive and Negative Affect Scale; PD = personality disorder; RSES = Rosenberg Self-Esteem Scale; SD = standard deviation; tx = treatment; vs. = versus.

At the end of treatment, compared with both waitlist and ACGT, DBT was associated with a greater reduction in binge frequency both in terms of binge-eating episodes[166] and binge days.[83] Additionally, in the therapist-led DBT trial, a greater percentage of participants receiving DBT compared with ACGT achieved abstinence at end of treatment (64 percent vs. 36 percent); this benefit persisted at 6-month followup (52 percent vs. 43 percent). Data on abstinence from the guided self-help DBT trial are consistent with this finding (40 percent vs. 3 percent); however, statistical tests were not conducted.[166] Similarly, DBT was associated with a greater reduction in overall eating-related psychopathology[166] and a faster rate of reduction in eating concerns and dietary restraint at end of treatment.[83] The improvements in eating concerns and dietary restraint continued to be significantly greater for those receiving DBT than ACGT at 12-month followup.[83] For psychological outcomes, both trials reported on the ability to tolerate and regulate affect; however, only guided self-help DBT (but not therapist-led DBT) was associated with improvements in this domain at end of treatment.[166] Therapist-led DBT was associated with greater reductions in depression at end of treatment compared with ACGT.[83] Guided self-help DBT was associated with greater improvements in quality of life at end of treatment than waitlist.[166]

In the trial comparing therapist-led DBT with ACGT, both age of onset of overweight and dieting, but not avoidant personality disorder, were significant moderators of binge outcomes.[83] Patients with early onset of overweight and dieting assigned to DBT reported significantly fewer binge days at the end of treatment than similar patients assigned to the active control. Rapidity of response did not differ between groups.

Behavioral Interventions: Cognitive Behavioral Therapy Versus Cognitive Behavioral Therapy Variants

Description of Studies

The variations of CBT discussed in this section include the therapist-led formats already described. Some are equivalent to those already discussed; others are subsets of those basic formats.

All but one of the therapist-led CBT approaches (including partially therapist led) are group based. Subsets include CBT with exposure (involving a body image exposure component), CBT with cognitive restructuring (involving a body image cognitive restructuring component), CBT plus ecological momentary assessment (which is an intensive monitoring schedule aimed at increasing adherence with self-monitoring), and therapist-led CBT. Therapist-led CBT is also provided individually.

The CBT self-help options are as described earlier. Structured self-help is a group-based approach in which members first watch a videotape and then participate in discussions led by a group member. Pure self-help and structured self-help are both individual-based approaches. Pure self-help has no facilitator, but participants receive a copy of a treatment manual (often Overcoming Binge Eating[152]) and are instructed to follow the advice for a specific period of time (e.g., 12 weeks) with no further advice or contact. By contrast, in guided self-help, participants

receive the same manual but also have regular, brief (e.g., six to eight 25-minute) meetings with a facilitator to help with using the manual.

Six trials compared CBT delivered in one format with CBT delivered in a different format (Table 30).[70,71,76,171-173] Two of the six trials had more than two treatment arms and are represented in multiple comparisons of CBT variants.[70,71] (These same trials randomized a portion of their participants to a waitlist control group[70,71] presented in the results above.) Here we document only evidence relating to the CBT comparisons.

Table 30. Characteristics of trials of cognitive behavioral therapy compared with variants of cognitive behavioral therapy for binge-eating disorder

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Carter & Fairburn, 1998[76] United Kingdom Outpatient RCT Medium	DSM-IV (EDE) G1: 24 G2: 24 G3: 24 12 weeks (6 months) Female Mean age: 40 Nonwhite: 3% Mean BMI: 31.6	G1: **CBTpsh-Individual**: Provided with manual[152] and told to independently follow its self-help program for 12 weeks G2: **CBTgsh-Individual**: Provided with manual[152] + support from nonspecialist therapists in 6–8 25-minute sessions for 12 weeks G3: **Waitlist control**: 12 weeks Co-interventions: None	Binge • Binge-eating frequency past 28 days (EDE) Eating related • EDE, global, 4 scores Psychological • BSI, 1 scale • RSES Weight • BMI
Hilbert et al., 2004[171] Germany Outpatient primary care RCT Low	DSM-IV (EDE) or subthreshold BED G1: 14 G2: 14 7 months (4 months) Females only Subthreshold = DSM-5 BED Mean age: 40.35 Mean BMI: 35.2	G1: **CBT-E-TL-Group**: 19 120-minute, manualized[174] weekly group sessions followed by 3 120-minute group sessions every 3rd week; 4 sessions and homework assignments focused on exposure for body image G2: **CBT-C-TL-Group**: 19 120-minute, manualized[174] weekly group sessions followed by 3 120-minute group sessions every 3rd week; 4 sessions and homework assignments on cognitive restructuring for body image Co-interventions: none	Binge • Binge per week (EDE) • BED improvement • SubBED improvement • % improved (EDE) • % abstinent (EDE) Eating related • EDE, 4 subscales Weight • BMI Psychological • Depression (BDI) • Body image (BSQ)

Table 30. Characteristics of trials of cognitive behavioral therapy compared with variants of cognitive behavioral therapy for binge-eating disorder (continued)

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
LeGrange et al., 2002 [172] United States Outpatient RCT Medium	DSM-IV G1: 22 G2: 19 12 weeks (12 mo) BMI ≥27 kg/m^2 Mean age: 44.2 Females: 100% Nonwhite: 7% Mean BMI: 36.7 Mean depression (BDI): 20.3	G1: **CBT-TL-Group**, 12 weeks of sessions, length and frequency of sessions: NR. G2: **CBT+EMA-TL-Group**, 12 weeks of sessions (length and frequency of sessions NR) + ecological momentary assessment (EMA) Co-Interventions: None	Binge • Prevalence of BED diagnosis • Frequency of binge episodes in previous 28 days • Frequency of binge episodes evaluated in previous 7 days Eating-related • EDEQ, 4 scales • TFEQ, 3 scales • EES, 3 scales Psychological • BDI • RSES Weight • BMI

Table 30. Characteristics of trials of cognitive behavioral therapy compared with variants of cognitive behavioral therapy for binge-eating disorder (continued)

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Peterson et al., 1998[71] Peterson et al, 2001[72] United States Outpatient RCT Medium	DSM-IV (structured clinical interview) G1: 16 G2: 19 G3: 15 G4: 11 8 weeks (1 months, 6 months, 12 months)[72] Adult females Mean age: 42.4 Nonwhite: 4% Mean BMI: 34.7 Peterson et al., 2001[72] Mean age: 42.9 Nonwhite: 4% Mean BMI: 34.1	G1: **CBT-TL-Group**: 14 60-minute manualized[158] sessions over 8 weeks; biweekly first 6 weeks, weekly last 2 weeks; 1st half of session TL manualized psychoeducational, 2nd half TL discussion G2: **CBT-PTL-Group**: 14 60-minute manualized[158] sessions over 8 weeks; biweekly first 6 weeks, weekly last 2 weeks; 1st half of session manualized psychoeducational through videotape of same psychologist as in TL; 2nd half TL discussion G3: **CBTssh-Group**: 14 60-minute manualized[158] sessions over 8 weeks; biweekly first 6 weeks, weekly last 2 weeks; 1st half of session manualized psychoeducational through videotape of same psychologist as in TL, 2nd half one group member assigned to facilitate group discussion G4: **Waitlist control**: 8 weeks Co-interventions: None	Binge: • OBE per week (EB IV) • Total episodes–OBE and SBE per week • Hours binge eating per week Eating related • BES • TFEQ, 3 scales • BSQ Psychological • HDRS • RSE • BDI[72] Weight • BMI

Table 30. Characteristics of trials of cognitive behavioral therapy compared with variants of cognitive behavioral therapy for binge-eating disorder (continued)

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Peterson et al., 2009[70] United States Clinical sites RCT Medium	DSM-IV G1: 60 G2: 63 G3: 67 G4: 69 20 weeks (6 months, 12 months) BMI ≥ 25 Mean age: 47.1 Females: 88% Nonwhite: 4% Mean BMI: 39 Antidepressant medication: 79%	G1: **CBT-TL-Group**: 14 60-minute manualized[158] sessions over 8 weeks; biweekly first 6 weeks, weekly last 2 weeks; 1st half of session TL manualized psychoeducational, 2nd half TL discussion G2: **CBT-PTL-Group**: 14 60-minute manualized[158] sessions over 8 weeks; biweekly first 6 weeks, weekly last 2 weeks; 1st half of session manualized psychoeducational through videotape of same psychologist as in TL; 2nd half TL discussion G3: **CBTssh-Group**: 14 60-minute manualized[158] sessions over 8 weeks; biweekly first 6 weeks, weekly last 2 weeks; 1st half of session manualized psychoeducational through videotape of same psychologist as in TL, 2nd half one group member assigned to facilitate group discussion G4: **Waitlist control**: 20 weeks, then offered CBT-TL-Group Co-interventions: None	Binge • Frequency of OBE episodes (EDE) • OBE in past 28 days • Abstinence from OBEs in past 28 days Eating related • EDE, global, 4 scores • TFEQ, 3 scores Psychological • IDS-SR–Depression Weight • BMI

Table 30. Characteristics of trials of cognitive behavioral therapy compared with variants of cognitive behavioral therapy for binge-eating disorder (continued)

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Ricca et al., 2010[173] Italy Outpatient Low	DSM-IV for BED or subthreshold BED G1: 72 G2: 72 24 weeks (3 years) Age 18–60 years Subthreshold BED: DSM-5 Mean age: 47 Female: 88% Mean BMI: 38.1 Any psychiatric comorbidity: 54% Adjustment disorder with depressed mood: 33% OCD: 3% Panic disorder: 12% Anxiety disorder: 12%	G1: **CBT-TL-Individual**: 22 50-minute individual sessions of manualized[142] CBT for 24 weeks G2: **CBT-TL-Group**: 20 60-minute group sessions of manualized[142] CBT for 22 weeks.	Binge • Binge episodes/month (EDE; DSM-IV-TR) • ED full recovery (<DSM-IV criteria or subthreshold BED) • ED diagnostic change • Treatment resistant Eating related • SCL-90 GSI • BES • EES • EDE global, 4 scales • Onset of frequent compensatory behaviors (end of treatment only) Psychological • BDI • STAI Weight • BMI • Weight loss >5% of initial BMI • Weight loss >10% of initial BMI

BDI = Beck Depression Inventory; BED = binge-eating disorder; BES = Binge Eating Scale; BMI = body mass index; BSI = Brief Symptom Inventory; BSQ = body shape questionnaire; CBT = cognitive behavioral therapy; CBT-C-TL = cognitive behavioral therapy–cognitive restructuring, therapist led; CBT-E-TL = cognitive behavioral therapy–exposure, therapist led; CBT+EMA-TL = cognitive behavioral therapy plus ecological momentary assessment; CBTgsh = cognitive behavioral therapy, guided self-help; CBTpsh = cognitive behavioral therapy, pure self-help; CBT-PTL = cognitive behavioral therapy, partially therapist led; CBTssh = cognitive behavioral therapy, structured self-help; CBT-TL = cognitive behavioral therapy, therapist led; DSM-IV = Diagnostic and Statistical Manual, fourth edition; EB-IV = Eating Behaviors, fourth edition; ED = eating disorder; EDE = Eating Disorder Examination Inventory; EES = Emotional Eating Scale; EMA = ecological momentary assessment; G = group; HDRS = Hamilton Depression Rating Scale; ICBT-TL = individual cognitive behavioral therapy, therapist led; IDS-SR = Inventory of Depressive Symptoms–Self-Report; N = number; OBE = objective binge episode; OCD = obsessive compulsive disorder; RCT = randomized controlled trial; RSE = Rosenberg Self-Esteem; SCL-90 = Symptom Checklist 90; SBE = subjective binge episodes; STAI = State Trait Anxiety Inventory; TFEQ = Three Factor Eating Questionnaire; TL = therapist led; TR = Text Revision.

These variations produced seven comparisons: four therapist-led comparisons including exposure versus cognitive restructuring;[171] therapist led versus ecological momentary assessment;[172] individual versus group CBT led by a therapist;[173] and full versus partially therapist-led interventions,[70-72] as well as one for guided self-help versus pure self-help,[76] and two comparisons of therapist led and structured self-help.

Most comparisons were restricted to single trials. The exceptions were repeated across the same two trials: full versus partially therapist led; therapist led versus structured self-help, and partially therapist led versus structured self-help.[70,71]

A total of 604 participants were randomized in the six trials. Participants ranged in age from 18 to 65 years. Most were overweight or obese, female (≥88 percent across all studies), and white race (93 percent to 97 percent in the four trials that reported race).[70,71,76,172]

Key Points

For comparisons of CBT interventions (Table 31):

- Binge-eating outcomes did not differ across comparisons of therapist-led CBT interventions (low SOE for no difference); one exception was one of two trials favoring therapist led over structured self-help (insufficient SOE for mixed results).
- BMI outcomes did not differ across types of CBT (low SOE for no difference).
- Depression symptom outcomes did not differ across types of CBT (low SOE of no difference).
- The comparative effectiveness of several other comparisons of variants on therapist-led or self-help approaches cannot be determined because these formats were studied in single, small sample trials (SOE insufficient).

Table 31. Strength of evidence for outcomes of trials of cognitive behavioral therapy compared with variants of cognitive behavioral therapy for binge-eating disorder

Treatment Comparison	Binge Eating	Eating-Related Psychopathology	Weight	Psychological Outcomes
Full versus partially therapist led	**Low** 2 RCTs (N=158) No difference	**Low** 2 RCTs (N=158) No difference	**Low** 2 RCTs (N=158) No difference	**Low** 2 RCTs (N=158) No difference
Structured self-help vs. therapist led	**Insufficient** 2 RCTs (N=158) Mixed results	**Low** 2 RCTs (N=158) No difference	**Low** 2 RCTs (N=158) No difference	**Low** 2 RCTs (N=58) No difference
Structured self-help vs. partially therapist led	**Low** 2 RCTs (N=164) No difference	**Low** 2 RCTs (N=164) No difference	**Low** 2 RCTs (N=164) No difference	**Low** 2 RCTs (N=164) No difference

N = number; RCT = randomized control trial; vs. = versus

Detailed Synthesis

All six trials reported on binge frequency; five reported on abstinence.[70,71,76,171,172] The trial that did not report abstinence[173] instead reported recovery (no longer meeting DSM-IV criteria for BED), various diagnostic shifts (from threshold to subthreshold BED and from BED to bulimia nervosa), treatment resistance (no diagnostic crossover/shift), and relapse (meeting a threshold diagnosis of BED or subthreshold BED at 3-year followup after full recovery as of the end of treatment). All six trials reported on eating-related psychopathology, BMI, and depression outcomes. Outcomes were assessed at the end of treatment; four trials reported short-term followup (<12 months),[70,76,171,172] and one gave data on long-term followup (3 years).[173]

Binge-Eating Outcomes, Eating-Related Psychopathology, Weight or Body Mass Index, Depression, and Other Outcomes

The collective body of results revealed nonsignificant differences between CBT variations on the primary outcomes of interest, regardless of the specific comparison (Table 32). Among the comparisons that were repeated across trials (full or partial therapist led and comparisons with

one or another of those options with structured self-help),[70,71] binge frequency or abstinence, eating-related psychopathology, BMI, or depression did not differ by groups (generally all insufficient evidence). This same general pattern of nonsignificant results was also seen in the single trial comparisons with few exceptions (see Table 32). However, because comparisons were limited to single (sometimes small) trials, evidence is insufficient to draw conclusions.

Table 32. Outcomes of trials of cognitive behavioral therapy compared with variants of cognitive behavioral therapy for binge-eating disorder

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Carter et al., 1998[76] G1: CBTpsh (NR) G2: CBTgsh (NR) G3: Waitlist (NR) (Not included in this comparison) Total N=72 ITT sample Repeated measures ANOVA (G1, G2, G3; pre- vs. end of treatment) Repeated measures ANOVA (G1 vs. G2; pre- vs. end of treatment vs. 3 months vs. 6 months)	Nonstatistically sig diff in change over time (end of treatment, 3, 6 months): EDE-Binge episodes/month Abstinence	EDE-Restraint, mean (SD) Pre-tx: G1: 2.4 (1.5) G2: 2.5 (1.4) End of treatment: G1: 2.1 (1.4) G2: 1.2 (1.3) Diff in change over time: (p=0.006) 3 months: G1: 1.9 (1.6) G2: 1.0 (1.0) Diff in change over time: (p=0.01) 6 months: G1: 2.0 (1.6) G2: 1.3 (1.2) Nonstatistically sig diff in change over time (end of treatment, 3, 6 months): EDE-Weight concern EDE-Shape concern EDE-Eating concern EDE-Global score Nonstatistically sig diff in change over time (6 months): EDE-Restraint	Nonstatistically sig diff in change over time (end of treatment, 3, 6 months): BMI	Nonstatistically sig diff in change over time (end of treatment, 3, 6 months): GSI

Table 32. Outcomes of trials of cognitive behavioral therapy compared with variants of cognitive behavioral therapy for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Hilbert et al., 2004[171] G1: CBT-E-TL (14/12) G2: CBT-C-TL (14/12) ITT sample Multivariate generalized linear models for repeated measures	Nonstatistically sig diff in change over time (pre-tx to end of treatment, pre-tx to 4 months): EDE-Binge episodes/month Abstinence < 4 OBEs/month % meeting BED diagnosis (DSM-IV)	Nonstatistically sig diff in change over time (pre-tx to end of treatment, pre-tx to 4 months): EDE-Weight concern EDE-Shape concern EDE-Eating concern EDE-Restraint	Nonstatistically sig diff in change over time (pre-tx to end of treatment, pre-tx to 4 months): BMI	Nonstatistically sig diffs in change over time (pre-tx to end of treatment, pre-tx to 4 months): BDI BSQ
Le Grange et al., 2002[172] G1: CBT (22/16) G2: CBT + EMA (19/12) ITT sample Repeated measures ANOVA	Nonstatistically sig diff in change over time (pre-tx to end of treatment; pre-tx to 12 months): EMA-Binge episodes/week EDEQ-Binge episodes/month 50% reduction in binge frequency Threshold BED abstinence	Nonstatistically sig diff in change over time: (pre-tx to end of treatment; pre-tx to 12 months): EDEQ TFEQ EES	Nonstatistically sig diff in change over time: (pre-tx to end of treatment; pre-tx to 12 months): BMI	Nonstatistically sig diffs in change over time: (pre-tx to end of treatment; pre-tx to 12 months): BDI RSES
Peterson et al., 1998[71] G1: CBT-TL (16/14/11/10/12) G2: CBT-PTL (19/17/15/11/13) G3: CBTssh (15/11) (16/13/12/12/12) G4: Waitlist control (11/9) (Not included in this comparison) ITT sample Random regression analysis ANCOVA[71] Mixed effects model Chi-square[72]	Nonstatistically sig diff at end of treatment: EB-IV-Total binge-eating episodes EB-IV-OBEs EB-IV-Hours binged Total binge abstinence OBE abstinence Hours binged abstinence Nonstatistically sig diff in change over time (end of treatment, 12 months): Total binge-eating episodes OBEs Hours binged abstinence (OBE, total) Subthreshold DSM-IV BED	Nonstatistically sig diff at end of treatment: TFEQ-Restraint TFEQ-Disinhibition TFEQ-Hunger BES Nonstatistically sig diff in change over time (end of treatment; 12 months): TFEQ-Restraint TFEQ-Disinhibition TFEQ-Hunger	Nonstatistically sig diff at end of treatment: BMI Nonstatistically sig diff in change over time (end of treatment: 12 months): BMI	Nonstatistically sig diff at end of treatment: HDRS RSES BSQ Nonstatistically sig diff in change over time (end of treatment; 12 months): BDI BSQ RSES

Table 32. Outcomes of trials of cognitive behavioral therapy compared with variants of cognitive behavioral therapy for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Peterson et al., 2009[70] G1: CBT-TL (60/53/40/25) G2: CBT-PTL (63/43/38/30) G3: CBTssh (67/40/39/36) G4: Waitlist control (not included in this comparison) (69/56)	EDE-Binge episodes/month, mean (SD) Pre-tx: G1: 24.6 (18.7) G2: 21.9 (12.3) G3: 22.4 (13.7) End of treatment: G1: 6.3 (12.3) G2: 9.7 (12.4) G3: 11.9 (13.2) Diff at end of treatment: G1 vs. G3: (p<0.008) EDE-Binge days/month, mean (SD) Pre-tx: G1: 16.0 (6.9) G2: 16.4 (6.5) G3: 16.4 (6.8) End of treatment: G1: 4.4 (7.3) G2: 7.6 (8.4) G3: 9.6 (8.6) Diff at end of treatment: G1 vs. G3: (p<0.008) Abstinence, % Pre-tx: NR End of treatment: G1: 51.7% G2: 33.3% G3: 17.9% Diff at end of treatment: G1 vs. G3: (p<0.008) Nonstatistically sig diff at 6 months, 12 months: Abstinence EDE-Binge days/month EDE-Binge episodes/month	Nonstatistically sig diff at end of treatment, 6 months, 12 months: TFEQ-Restraint TFEQ-Hunger TFEQ-Disinhibition EDE-Weight concern EDE-Shape concern EDE-Eating concern EDE-Restraint EDE-Global	Nonstatistically sig diff at end of treatment, 6 months, 12 months: BMI	Nonstatistically sig diffs at end of treatment, 6 months, 12 months: IDS-SR RSES IWQOL

Table 32. Outcomes of trials of cognitive behavioral therapy compared with variants of cognitive behavioral therapy for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Ricca et al., 2010[173] G1: ICBT-TL (72/69/68) G2: GCBT-TL (72/68/66) ITT sample Chi-square (categorical) and Mann-Whitney U (continuous variables) Repeated measures ANOVA	Recovery rate (<DSM-IV BED dx), % End of treatment: G1: 33.3% G2: 16.7% Diff in change over time (end of treatment): (p=0.02) Threshold BED to subthreshold BED, % Pre-tx: NR End of treatment: G1: 18.1% G2: 33.3% Diff in change over time (end of treatment): (p=0.03) Nonstatistically sig diff in change over time (36 months): EDE-Binge episodes/months Recovery rate (<DSM-IV BED dx) Threshold BED to subthreshold BED Tx resistance Threshold BED/subthreshold BED to BN Relapse	EDEQ-Total, median (quartiles) Pre-tx: G1: 3.2 (2.6; 3.7) G2: 3.0 (2.4; 3.6) End of treatment: G1: 2.1 (0.5; 3.3) G2: 2.9 (2.3; 3.5) 3-year followup: G1: 1.3 (0.5; 3.1) G2: 2.7 (2.1; 3.4) Diff in change over time (end of treatment; 36 months): (p<0.01) EDEQ-Weight concern, median (quartile) Pre-tx: G1: 3.5 (2.6; 4.1) G2: 3.4 (2.6; 4.0) End of treatment: G1: 3.5 (0.3; 4.5) G2: 3.3 (2.6; 4.2) 3-year followup: G1: 1.0 (0.2; 3.4) G2: 3.2 (2.2; 4.2) Diff in change over time: (p<0.01) EDEQ-Shape concern, median (quartile) Pre-tx: G1: 4.5 (4.1; 5.2) G2: 4.4 (3.3; 5.1) End of treatment: G1: 3.5 (0.3; 4.5) G2: 4.2 (3.2; 5.0) 3-year followup: G1: 1.3 (0.3; 4.3) G2: 4.0 (3.0; 5.0) Diff in change over time: (p<0.01)	Nonstatistically sig diff in change over time (end of treatment, 36 months): BMI	Nonstatistically sig diff in change over time (end of treatment, 36 months): SCL-90 BDI STAI

Table 32. Outcomes of trials of cognitive behavioral therapy compared with variants of cognitive behavioral therapy for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Ricca et al., 2010[173] (continued)		Nonstatistically sig diff in change over time (end of treatment; 36 months): EDEQ Eating concern EDEQ Restraint		

ANCOVA = analysis of covariance; ANOVA = analysis of variance; BDI = Beck Depression Inventory; BED = binge-eating disorder; BES = Binge Eating Scale; BMI = body mass index; BN = bulimia nervosa; BSQ = body shape questionnaire; CBT-C-TL = cognitive behavioral therapy–cognitive restructuring, therapist led; CBT-E-TL = cognitive behavioral therapy–exposure, therapist led; CBTgsh = cognitive behavioral therapy, guided self-help; CBTpsh = cognitive behavioral therapy, pure self-help; CBT-PTL = cognitive behavioral therapy, partially therapist led; CBTssh = cognitive behavioral therapy, structured self-help; CBT-TL = cognitive behavioral therapy, therapist led; diff = difference; DSM-IV = Diagnostic and Statistical Manual, fourth edition; dx= diagnosis; EB-IV = Eating Behaviors, fourth edition; EDE = Eating Disorder Examination Inventory; EDEQ = Eating Disorder Examination Questionnaire; EES = Emotional Eating Scale; EMA = ecological momentary assessment; G = group; GCBT-TL = group cognitive behavioral therapy, therapist led; GSI= General Severity Index; HDRS = Hamilton Depression Rating Scale; ICBT-TL = individual cognitive behavioral therapy, therapist led; IDS-SR = Inventory of Depressive Symptoms–Self-Report; ITT = intent to treat; IWQOL = Inpact of Weight on Quality of Life; N = number; NR = not reported; OBE = objective binge episodes; RSE = Rosenberg Self-Esteem; SCL-90 = Symptom Checklist 90; SD = standard deviation; sig = significant; STAI = State Trait Anxiety Inventory; TFEQ = Three Factor Eating Questionnaire; tx = treatment; vs. = versus

Behavioral Interventions: Cognitive Behavioral Therapy Versus Behavioral Weight Loss

Description of Studies

Four trials compared CBT with BWL approaches;[73,74,175,176] one also compared CBT and BWL with CBT plus BWL (Table 33).[74] The CBT format varied across trials and included both therapist led[74,175] and guided self-help.[73,176] The evidence consisted of the following treatment comparisons: two trials comparing CBT with BWL in which both arms were therapist led, group format;[74,175] one comparing CBT+BWL with just BWL (both arms therapist led, group format);[74] one comparing CBT with BWL (both guided self-help, individual format);[73] and one comparing CBT guided self-help with therapist-led BWL (both individual format).[176] The four trials had a total of 410 participants. Treatment ranged from 8[73] to 52[175] weeks, and followup ranged from 4 weeks[73] to 6 years.[177] Participants were 18 to 77 years of age. Virtually all participants were overweight or obese (mean BMI range: 34 to 38.8); most were white (77 percent to 82 percent) and female (67 percent to 89 percent). One trial was conducted in Switzerland;[175] the other three trials were conducted in the United States.

Table 33. Characteristics of trials of cognitive behavioral therapy compared with behavioral weight loss for binge-eating disorder

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of TreatmentFollowup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Grilo et al., 2011[74] Grilo et al., 2012[178] United States Outpatient RCT Medium	DSM-IV (SCID-I/P, EDE) G1: 45 G2: 45 G3: 35 24 weeks (6 months, 12 months) 18–60 years old BMI range: 30–55 Mean age: 44.8 Mean BMI: 38.8 Female: 67% Nonwhite: 23% Lifetime major depressive disorder: 43%	G1: **CBT-TL-Group:** 16 60-minute manualized[142] sessions over 24 weeks G2**: BWL-TL-Group:** 16 60-minute manualized[162] sessions over 24 weeks G3: **CBT-TL + BWL-TL-Group**: manualized[142] CBT (16 60-minute sessions over 16 weeks) followed by manualized[162] BWL (16 60-minute sessions over 24 weeks) Co-interventions: None	Binge • Binge episodes/month (EDE) • Remission Eating related • EDE, 4 subscales and global score Weight • BMI • Weight (pounds) • Weight loss (pounds) Psychological • BDI
Grilo et al., 2005[73] Masheb & Grilo, 2007[164] United States Outpatient RCT Medium	DSM-IV (SCID/IP, EDE) G1: 37 G2: 38 G3: 15 (not included in this comparison) 8 weeks (4 weeks) 18–60 years old BMI ≥ 27 Mean age: 46.3 Mean BMI: 35.5 Female: 79% Nonwhite: 23% Any Axis I psychiatric disorder: 68.91%	G1: **CBTgsh-Individual**: Provided with manual[152] + 6 15- to 20-minute biweekly clinician sessions over 12 weeks G2: **BWLgsh-Individual**: Provided with manual[162] + 6 15- to 20-minute, biweekly, clinician sessions over 12 weeks G3: **Active control-Individual**: 6 15- to 20-minute, biweekly, clinician sessions over 12 weeks; focused on self-monitoring Co-interventions: None	Binge • Binge episodes/month (diary, EDEQ) • Abstinence (diary, EDEQ) Eating-related • EDEQ, 4 subscales • TFEQ-Hunger • TFEQ-Restraint • TFEQ-Disinhibition Weight • BMI Psychological • BDI • RSES

Table 33. Characteristics of trials of cognitive behavioral therapy compared with behavioral weight loss for binge-eating disorder (continued)

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Munsch et al., 2007[175] Munsch et al., 2012[177] Switzerland Outpatient RCT Medium	DSM-IV-TR (EDE) G1: 44 G2: 36 12 months (6 years)* 18–70 years old BMI 27–40 Mean age: 45.9 Female: 89% BMI: 34 Current comorbidity axis 1: 41% Current depression: 10% Current anxiety disorders: 30%	G1: **CBT-TL-Group**: 16 90-minute, manualized[152] weekly sessions, followed by 6 monthly 90-minute sessions; last session 12 months after end of active treatment G2: **BWL-TL-Group**: 16 90-minute, manualized[179] weekly sessions, followed by 6 monthly 90-minute sessions; last session 12 months after end of active treatment Co-interventions: None	Binge • EDE, number of OBE days in past 28 days • Number of weekly binge-eating episodes • EDE, abstinence in past 28 days • BED diagnosis Eating related • EDE, 4 scores Psychological • BDI • BAI Weight • BMI
Wilson et al, 2010[176] Sysko et al., 2010[180] United States Outpatient RCT Medium	DSM-IV (Interview) G1: 64 G2: 66 G3: 75 (not included in this comparison) 24 weeks (18 months, 24 months, 30 months) >18 years old BMI 27–45 Mean age: 48.4 Female: 85% Nonwhite: 18% Mean BMI: 36.4	G1: **CBTgsh-Individual**: Provided with manual[152] + guidance from therapist; first 4 sessions weekly, next 2 at 2-week intervals, and last 4 at 4-week intervals G2: **BWL-TL-Individual**: 16 50-minute weekly sessions, then 4 at 2-week intervals based on NIDDK's Diabetes Prevention Program[181] G3: **IPT-TL-Individual**: 19 50–60 minute, manualized sessions over 24 weeks (first 3 during first 2 weeks, followed by 12 weekly, and final 4 at 2-week intervals)[182] Co-interventions: None	Binge • Number binge days in the past 28 days (EDE) Eating related • EDE, global, 4 scores Psychological • BDI • RSES Weight • BMI Weight (kg) • 5% reduction in body weight

BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; BED = binge-eating disorder; BMI = body mass index; BWLgsh = behavioral weight loss, guided self-help; BWL-TL = behavioral weight loss, therapist led; CBT = cognitive behavioral therapy; CBTgsh = cognitive behavioral therapy, guided self-help; CBT-TL = cognitive behavioral therapy, therapist led; DSM-IV = Diagnostic and Statistical Manual, fourth edition; EDE = Eating Disorder Examination Inventory; EDEQ = Eating Disorder Questionnaire; G = group; IPT-TL = interpersonal therapy, therapist led; kg= kilogram; N = number; OBE = objective binge episode; RCT = randomized controlled trial; RSES = Rosenberg Self-Esteem; SCID-I/P = Structured Clinical Interview for DSM-IV Axis I Disorders, patient version; SCL-90 = Symptom Checklist 90; STAI = State Trait Anxiety Inventory; TFEQ = Three Factor Eating Questionnaire; TR = Text Revision

In the two trials that compared therapist-led CBT and BWL in a group format,[74,175] the CBT was based largely on Fairburn's treatment manual for BED.[152] The BWL arms differed across the two studies; one[74] was based on the LEARN manual,[162] and the other[175] was based on the

treatment "Weight Loss with Xenical."[179] Weight Loss with Xenical fosters weight management by instructing patients to normalize fat intake and achieve balanced nutrition. The trial using the LEARN manual randomized participants to 16 sessions of either CBT or BWL or to 16 sessions of CBT followed by 16 sessions of BWL (CBT+BWL), thus comparing two single-modality behavioral treatments with sequential behavioral treatment.[74]

The guided self-help trials compared CBT (based on Fairburn's manual[152]) with BWL (based on the LEARN program)[73] or guided self-help CBT with therapist-led BWL (adapted from the National Institute of Diabetes and Digestive and Kidney Diseases' Diabetes Prevention Program's manual[181]).[176] The Diabetes Prevention Program entails moderate caloric restriction and exercise to promote a weight loss goal of 7 percent of one's initial weight. Specific instructions are provided in terms of reducing fat intake and setting an exercise goal of 2.5 hours of moderate exercise per week, combined with self-monitoring of fat intake, calories, and exercise.

Key Points

For therapist-led group interventions (Table 34):

- For reducing binge frequency, both CBT and BWL were associated with substantial improvement; however, CBT results were better than BWL at the end of treatment and at 12-month followup (low SOE for benefit of CBT).
- For abstinence, CBT and BWL did not differ at end of treatment or 12-month or 6-year followup (low SOE for no difference).
- For eating-related psychopathology, CBT and BWL were not significantly different at end of treatment or 12-month followup or 6-year followup (low SOE for no difference).
- For weight outcomes, BWL was better at reducing BMI than CBT at end of treatment (moderate SOE for benefit).

For individual guided self-help interventions:

- Evidence was insufficient for all outcomes because comparisons were limited to single small trials (SOE insufficient).

For either type of intervention:

- For depression outcomes, nonsignificant differences were reported across all four trials (SOE low).

Table 34. Strength of evidence for outcomes of trials of cognitive behavioral therapy compared with behavioral weight loss for binge-eating disorder

Treatment Comparison	Binge-Eating[a]	Eating-Related Psychopathology	Weight[b]	Depression
CBT vs. BWL (both therapist-led group format)	**Low** 2 RCTs (N=170) CBT better at end of treatment and short-term followup Binge frequency **Insufficient** 2 RCTs (N=170) Mixed results at end of treatment and short-term followup Abstinence	**Low** 2 RCTs (N=170) No difference at end of treatment and short-term followup	**Moderate** 2 RCTs (N=170) BWL better at end of treatment	**Low** 2 RCTs (N=170) No difference at end of treatment and short-term followup

BWL = behavioral weight loss; CBT = cognitive behavioral therapy; N = number; RCT = randomized controlled trial; vs. = versus.

[a] Unless otherwise noted, reflects binge frequency and abstinence outcomes.

[b] Unless otherwise noted, reflects weight and BMI outcomes.

Detailed Synthesis

All four trials reported on binge frequency, abstinence, eating-related psychopathology, BMI, and depression outcomes (Table 35). All trials reported results at the end of treatment and at later followup. One was limited to short-term followup (less than 12 months after treatment).[73] Three trials reported long-term followup at 24 months[74] and beyond 2 years including 30 months[176] and 6 years.[177] Two trials examined differences in binge-eating outcomes in rapid versus nonrapid responders;[164,178] one trial conducted latent class and latent transition analyses to examine factors associated with rapid response to treatment.[180]

Table 35. Outcomes of trials of cognitive behavioral therapy compared with behavioral weight loss for binge-eating disorder

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo et al., 2011[74] Grilo et al., 2012[178] G1: CBT-TL (45/37/37) G2: BWL-TL (45/39/37) G3: CBT-TL + BWL-TL (35/30/25) ITT analysis Chi-square (categorical variables) ANOVAs (continuous variables) Mixed model repeated measures ANOVA ROC curves	EDE-Binge episodes/month, mean (SD) Pre-tx: G1: 15.6 (8.0) G2: 14.9 (8.5) G3: 17.9 (9.4) End of treatment: G1: 2.2 (3.8) G2: 4.6 (11.0) G3: 3.4 (9.0) 6 months: G1: 2.7 (8.5) G2: 5.5 (7.6) G2: 3.2 (7.8) 12 months: G1: 2.4 (8.1) G2: 4.6 (6.0) G3: 4.0 (8.4) Diff at end of treatment: NS (G1 vs. G2, G1 vs. G3; G2 vs. G3) Diff at 6 months: G1 vs. G2 (p=0.009) Diff at 12 months: G1 vs. G2 (p=0.01) Nonstatistically sig diff at end of treatment, 6 months, 12 months: Abstinence (G1 vs. G2, G1 vs. G3; G2 vs. G3) Abstinence (rapid response, nonrapid response) Binge episodes/month (G2 vs. G3)	Nonstatistically sig diff at end of treatment, 6 months, 12 months: EDE-Weight concern EDE-Shape concerns EDE-Eating concern EDE-Restraint EDE-Global	BMI, mean (SD) Pre-tx: G1: 39.3 (6.1) G2: 38.0 (5.3) G3: 39.0 (6.1) End of treatment: G1: 38.5 (5.7) G2: 35.7 (5.9) G3: 38.9 (6.2) Diff at end of treatment: G1 vs. G2 (p=0.03) Diff in change from pretreatment to end of treatment: G1 vs. G2: (p=0.04) Weight, mean (SD) Pre-tx: G1: 250.1 (52.6) G2: 242.7 (45.8) G3: 237.2 (42.8) End of treatment: G1: 248.5 (49.3) G2: 221.1 (43.4) G3: 230.4 (40.9) Diff in change from pre-tx to end of treatment: G1 vs. G2 (p=0.02) Nonstatistically sig diff at end of treatment, 6 months, 12 months: BMI (G2 vs. G3) Nonstatistically sig diff at 6 months, 12 months: BMI	Nonstatistically sig diff at end of treatment, 6 months, 12 months: BDI

Table 35. Outcomes of trials of cognitive behavioral therapy compared with behavioral weight loss for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo et al., 2011[74] Grilo et al., 2012[178] (continued)			Nonstatistically sig diff from pre-tx to end of treatment: Absolute weight loss BMI (G2 vs. G3)	
Grilo et al., 2005[73] Masheb et al., 2007[164] G1: CBTgsh (37/37) G2: BWLgsh (38/38) G3: Active control (15/15) (not included in this comparison) ITT sample ANCOVA Maximum likelihood mixed model	Diary-Binge episodes/month, mean (SD) Pre-tx: NR End of treatment: G1: 6.8 (6.1) G2: 7.3 (8.2) Diff at end of treatment: (p=0.016) Nonrapid responders, EMM (SE) G1: 7.4 (1.3) G2: 11.3 (1.3) Diff at end of treatment: (p=0.032) EDEQ-Binge episodes/month, mean (SD) Pre-tx: G1: 12.1 (9.0) G2: 13.4 (12.1) End of treatment: G1: 2.8 (5.1) G2: 6.7 (8.0) Diff at end of treatment: (p=0.015) Nonrapid responders, EMM (SE) G1: 6.0 (1.4) G2: 9.2 (1.3) Diff at end of treatment: (p=0.013) Abstinence, % (diary): Pre-tx: NR End of treatment: G1: 46% G2: 18.4% Diff at end of treatment: (p=0.01)	TFEQ-Hunger, mean (SD) Pre-tx: G1: 9.8 (3.0) G2: 9.8 (3.0) End of treatment: G1: 6.6 (3.5) G2: 8.2 (3.7) Diff at end of treatment: (p=0.025) TFEQ-Restraint, mean (SD) Pre-tx: G1: 9.1 (4.7) G2: 8.5 (3.5) End of treatment: G1: 10.8 (4.5) G2: 12.0 (4.7) Diff at end of treatment: (p=0.047) Restraint (EDEQ) Rapid responders, EMM (SE) G1: 1.9 (0.2) G2: 2.8 (0.2) Diff at end of treatment: (p=0.004) Nonstatistically sig diff at end of treatment: EDEQ-Weight concern EDE-Q-Shape concern EDE-Q-Eating concern TFEQ-Disinhibition	Nonstatistically sig diff at end of treatment: BMI	Nonstatistically sig diffs at end of treatment: BDI RSES

Table 35. Outcomes of trials of cognitive behavioral therapy compared with behavioral weight loss for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo et al., 2005[73] (continued)	Abstinence, % (EDEQ): Pre-tx: NR End of treatment: G1: 59.5% G2: 23.7% Diff at end of treatment: (p=0.002) Nonstatistically sig diff in change over time: Rapid responders: Diary/EDEQ-Binge episodes/month	Nonrapid responders: TFEQ/EDEQ-Restraint		
Munsch et al., 2007[175] Munsch et al., 2012[177] G1: CBT-TL (44/31/30/30/29) G2: BWL-TL (36/27/27/24/23) ITT sample Linear mixed models Generalized linear mixed models (dichotomous and counted)	EDE-Binge episodes/month, mean (SD) (Completer analyses only) Pre-tx: G1: 3.81 (3.47) G2: 4.10 (3.71) End of treatment: G1: 0.14 (0.45) G2: 1.15 (1.89) Diff at end of treatment: (p<0.001) Diff at 12 months: (p=0.045) Diff from end of treatment to 72 months: (p<0.001) Abstinence End of treatment: G1: 41% G2: 58% Diff at end of treatment: (p=0.010) Nonstatistically sig diff at end of treatment: EDE-Binge days/month BED diagnosis	Nonstatistically sig diff at end of treatment; at 12 months; change from pre-tx to end of treatment; change from end of treatment to 72 months): EDE/EDEQ-Weight concern EDE/EDEQ-Shape concern EDE/EDEQ-Eating concern EDE/EDEQ-Restraint EDE/EDEQ-Global	BMI, mean (SD) Pre-tx: G1: 33.66 (4.31) G2: 34.36 (3.74) End of treatment: G1: 33.62 (4.70) G2: 33.08 (3.69) Diff at end of treatment: (p<0.001) Diff from pre-tx to end of treatment: (p<0.001) Nonstatistically sig diff in change from end of treatment to 12 months, 72 months): BMI	BAI, mean (SD) Pre-tx: G1: 13.79 (12.95) G2: 10.74 (9.43) End of treatment: G1: 9.72 (10.15) G2: 11.07 (9.46) 12 months: G1: 6.30 (10.10) G2: 11.00 (12.17) Diff at 12 months: (p=0.004) Nonstatistically sig at end of treatment, 12months: BDI FLZ SWE Nonstatistically sig diff in change over time (G1–G2: End of treatment; G1–G2: 72 months): BDI Nonstatistically sig diff at end of treatment: BAI

Table 35. Outcomes of trials of cognitive behavioral therapy compared with behavioral weight loss for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Munsch et al., 2007[175] Munsch et al., 2012[177] (continued)	Nonstatistically sig diff at 12 months: Abstinence EDE-Binge days/month Nonstatistically sig diff in change from pre-tx to end of treatment; end of treatment to 72 months: BED diagnosis Diff in change from end of treatment to 72 months: Abstinence			
Wilson et al., 2010[176] Sysko et al., 2010[180] G1: CBTgsh (66/66) G2: BWL-TL (64/64) G3: IPT-TL (75/75) (not included in this comparison) ITT sample Repeated measures ANOVA LCA	Abstinence End of treatment: NR 24 months: NR Diff in change from End of treatment to 24 months: (p<0.05) Probability of transitioning into the responder class (LTA analysis) Participants in G1: Class 3 vs. Class 2: (p<0.05) Class 2 vs. All classes G1: (p<0.05) Nonstatistically sig diff in change from pre-tx to end of treatment: Abstinence EDE-Binge days/month BED to subthreshold BED	EDE-Restraint, mean (SD) Pre-tx: NR End of treatment: NR Diff in change from pre-tx to end of treatment: (p<0.01) Nonstatistically sig diff in change over time (end of treatment): EDE-Weight concern EDE-Shape concern EDE-Eating concern EDE-Global	BMI, mean (SD) Pre-tx: G1: 36.2 (SD 4.3) G2: 36.8 (SD 5.5) End of treatment: G1: 36.1 (SD 4.4) G2: 35.4 (SD 5.7) 12 months: G1: 35.7 (SD 4.9) G2: 36.0 (SD 6.2) Diff in change from pre-tx to end of treatment: (p<0.005) Diff in change from end of treatment to 12 months: (p<0.05) 5% reduction in weight Pre-tx: NR End of treatment: G1: 15% G2: 41% Diff in change from pre-tx to end of treatment: (p<0.001)	Nonstatistically sig diff in change from pre-tx to end of treatment: BDI RSES

Table 35. Outcomes of trials of cognitive behavioral therapy compared with behavioral weight loss for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Wilson et al., 2010[176] Sysko et al., 2010[180] (continued)	Nonstatistically sig diff in change from end of treatment to 12 months: Abstinence EDE-Binge days/month BED to subthreshold BED		Nonstatistically sig diff in change from end of treatment to 24 months: Weight loss	

ANCOVA = analysis of covariance; ANOVA = analysis of variance; BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; BED = binge-eating disorder; BES = Binge Eating Scale; BMI = body mass index; BSI = Brief Symptom Inventory; BSQ = body shape questionnaire; BWLgsh = behavioral weight loss, guided self-help; BWL-TL = behavioral weight loss, therapist led; CBT = cognitive behavioral therapy; CBTgsh = cognitive behavioral therapy, guided self-help; CBT-TL = cognitive behavioral therapy, therapist led; diff = difference; DSM-IV = Diagnostic and Statistical Manual, fourth edition; EDE = Eating Disorder Examination Inventory; EDEQ = Eating Disorder Examination Questionnaire; EMM = estimated marginal mean; FLZ = Fragebogen zu Lebenszufriedenheit (life satisfaction); G = group; HDRS = Hamilton Depression Rating Scale; IPT-TL = interpersonal therapy, therapist led; IDS-SR = Inventory of Depressive Symptoms–Self-Report; ITT = intent to treat; RCT = randomized controlled trial; LEARN = Lifestyle, Exercise, Attitude, Relationships, Nutrition; LTA = latent transition analysis; N = number; NR = not reported; NRR = nonrapid response; OBE = objective binge episode; ROC = receiver operating characteristic; RR = rapid response; RSE = Rosenberg Self-Esteem; SCL-90 = Symptom Checklist 90; SD = standard deviation; SBE = subjective binge episodes; sig = significant; SE = standard error; SR = self-report; STAI = State Trait Anxiety Inventory; SWE = allegemeine Selbstwirksamkeits-Skala (self-efficacy); TFEQ = Three Factor Eating Questionnaire; TR = Text Revision; tx = treatment; vs. = versus.

Binge-Eating Outcomes

In two trials of therapist-led group treatment, participants receiving CBT or BWL both achieved significant reductions in binge frequency; however, CBT was better than BWL in reducing binge frequency at end of treatment. This benefit was sustained at three followup periods: 6 months,[74] 12 months,[74,175] and 6 years.[177] However, neither trial found significant benefit of CBT in the percentage of participants achieving abstinence at the end of treatment. Notably, in the Munsch study, the percentage of patients abstinent at the end of treatment was significantly *lower* in the CBT group (41 percent) than the BWL group (58 percent).[175] This difference in abstinence was no longer significant at either 12 months (52 percent versus 50 percent)[175] or 6 years.[177] Lastly, sequential therapist-led treatment (CBT followed by BWL), which more than doubled the duration of active treatment, was not more effective than either intervention alone in reducing binge frequency or affecting the percentage of participants achieving abstinence (44 percent [CBT], 38 percent [BWL], and 49 percent [CBT+BWL] at end of treatment; 51 percent [CBT], 33 percent [BWL], and 49 percent [CBT+BWL] at 6-month followup; 51 percent [CBT], 36 percent [BWL], and 40 percent [CBT+BWL] at 12-month followup).[74]

Guided self-help was considered in two trials. In one trial, CBT produced greater decreases in binge frequency and a higher percentage of participants achieving abstinence (46 percent [CBT] versus 18 percent [BWL]) at the end of treatment than BWL.[73] In another guided self-help trial, CBT was not more effective than therapist-led BWL in reducing binge frequency or

abstinence rates at the end of treatment or from end of treatment to 12-month followup (data not reported); however, over a longer 2-year time frame from the end of treatment followup period, a higher percentage of CBT participants than BWL participants achieved abstinence (data not reported).[176]

Using latent class analysis, Sysko and colleagues[180] identified four distinct groups of BED patients within their sample of 205 treatment-seeking overweight and obese individuals: Class 1 (lower mean BMI and increased physical activity); Class 2 (the most binge eating, shape and weight concerns, compensatory behaviors, and negative affect); Class 3 (binge-eating frequencies similar to Class 2, with lower levels of exercise or compensation); and Class 4 (highest average BMI, the most overeating episodes, fewer binge episodes, and an absence of compensatory behaviors). The authors conducted a latent transition analysis to predict treatment response, measured as a combined set of outcome variables including objective binge episodes, subjective binge episodes, objective overeating episodes, BMI, weight concern, shape concern, restraint, and BDI score. The results indicated a higher probability of abstinence, for those in Class 2, among those receiving guided self-help CBT than among those receiving BWL regardless of class membership.

Eating-Related Psychopathology Outcomes

Neither of the trials comparing therapist-led CBT and BWL nor the trial comparing therapist-led CBT and BWL with BWL alone demonstrated a significant difference between groups on eating-related psychopathology as measured by the EDE at the end of therapy,[74,175] short-term followup,[74,175] or long-term followup.[177] When guided self-help CBT was compared with both BWL approaches (guided self-help;[73] therapist led[176]), the BWL self-help treatment led to significantly greater higher (worse) restraint scores at the end of treatment; the investigators found no difference in comparison with the therapist-led group.

Weight Outcomes

For therapist-led approaches, BWL was better than CBT in reducing BMI at the end of treatment (33.6 and 38.5 [CBT] versus 32.4 and 35.7 [BWL])[74,175] This difference between groups was not sustained at either 12 months[74,175] or 6 years,[177] largely because BMI continued to decrease after treatment ended among those who had received the CBT intervention. However, both groups achieved a lower BMI than at pretreatment. Sequential treatment (BWL after CBT) and CBT alone were not more effective than BWL alone in reducing either weight or BMI.[74]

At the end of treatment, therapist-led BWL was better than guided self-help CBT in reducing BMI and was associated with a greater percentage of participants losing at least 5 percent of their total body weight.[176] However, over the 12-month followup period, mean BMI increased slightly in those randomized to the BWL group (+0.6) and decreased slightly in those assigned to the CBT group (-0.4); by 2-year followup, the difference in BMI between groups was no longer significant. Similarly, for a guided self-help approach, measured at the end of treatment, BWL was not better than CBT in reducing BMI.[73]

General Psychological Outcomes

One trial measured treatment-related changes in anxiety; the results suggested that therapist-led CBT was more effective than therapist-led BWL in reducing symptoms of anxiety at 12-

month followup.[175] In all four of the trials, the change in symptoms of depression did not differ between the CBT and BWL approaches at either the end of therapy or at followup.[73,74,164,175-177]

Other Outcomes

The trials inconsistently reported on a variety of other outcomes, including life satisfaction,[175] self-efficacy,[175] and self-esteem.[73,176] No treatment-related differences were observed in any of these outcomes.

Behavioral Interventions: Cognitive Behavioral Therapy Versus Interpersonal Therapy

Description of Studies

IPT was originally developed for treating patients with depression.[183] Wilfley and colleagues later modified this intervention and formulated it for BED.[182] This manualized treatment is designed to be a brief, focused therapy that targets problem resolution and symptom improvement within four social domains: (1) grief, (2) interpersonal role disputes, (3) role transitions, and (4) interpersonal deficits. Treatment occurs in three phases: developing a thorough understanding of the interpersonal contexts that contributed to the BED and identifying interpersonal problem areas, helping the individual make interpersonal changes in the identified problems areas, and reviewing progress and helping to consolidate treatment gains to prevent relapse.

PIPT differs from the more traditional IPT because it does not focus on social roles (as in role disputes in traditional IPT) and has a greater emphasis on present interactions among group members and with the therapist. PIPT uses cyclical relational patterns and circumplex models (vs. social roles) to understand interpersonal pattern. PIPT also applies a specific model (Malan's Triangle of Conflict[165]) to elucidate a patient's attachment needs, negative affect, and binge eating as a means of coping.

Three trials compared CBT with IPT in treating patients with BED (Table 36).[80,153,176] Two trials compared therapist-led IPT with either therapist-led CBT[80] or guided self-help CBT.[176] Another trial compared therapist-led PIPT with therapist-led CBT.[153]

Table 36. Characteristics of trials of cognitive behavioral therapy compared with interpersonal therapies for binge-eating disorder

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Tasca et al., 2006[153] Tasca et al, 2012[159] Canada Outpatient RCT Medium	DSM-IV (SCID/IP, EDE) G1: 48[a] G2: 47[a] G3: 40 (this arm is not discussed in this section of the results) 16 weeks (12 months) ≥18 years old Mean Age: 42.8 Mean BMI: 41.1 Female: 91% Nonwhite: 2% Current mood disorder: 64.7% Taking antidepressants: 62.1%	G1: **PIPT-TL-Group:** 16 90-minute, manualized[160] weekly sessions G2: **CBT-TL-Group:** 16 90-minute, manualized[161] weekly sessions G3: **Waitlist control:** 16 weeks Co-interventions: None	Binge • Days binged (EDE) Weight • BMI Eating Related • TFEQ, 2 scales Psychological • CES-D • IIP total • RSES
Wilfley et al., 2002[80] Hilbert et al., 2012[184] United States Outpatient primary care RCT Low	DSM-IV (SCID, EDE) G1: 81 G2: 81 20 weeks (46 months) 18–65 years old BMI 27–48 Mean age: 45 Mean BMI: 37.4 Female: 83% Nonwhite: 93% Current mood disorder: 22% Current anxiety disorder: 13%	G1**: CBT-TL-Group:** 20 90-minute manualized weekly sessions + 3 individual sessions at pretreatment, mid-treatment, and end of treatment G2: **IPT-TL-Group**: 20 90-minute manualized[182] weekly sessions + 3 individual sessions at pretreatment, mid-treatment, and end of treatment Co-interventions: none	Binge • Binge days (EDE) • Abstinence (EDE) • Remitted (EDE) Eating related • EDE, 4 subscales • EDEQ, 4 subscales • Improved (EDE) Weight • BMI Psychological • GSI (total) • RSE (total) • SCL Depression • IIP (total) • SAS (total)

Table 36. Characteristics of trials of cognitive behavioral therapy compared with interpersonal therapies for binge-eating disorder (continued)

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Wilson et al,, 2010[176] Sysko et al., 2010[180] United States Outpatient RCT Medium	DSM-IV (Interview) G1: 64 (not included in this comparison) G2: 66 G3: 75 24 weeks (18 months, 24 months, 30 months) >18 years old BMI 27–45 Mean age: 48.4 Female: 82% Nonwhite: 18% Mean BMI: 36.4	G1: **CBTgsh-Individual**: Provided with manual[152] + guidance from therapist; first 4 sessions weekly, next 2 at 2-week intervals, and last 4 at 4-week intervals. G2: **BWL-TL-Individual**: 16 50-minute weekly sessions, then 4 at 2-week intervals based on NIDDK's Diabetes Prevention Program[181] G3: **IPT-TL-Individual:** 19 50- to 60-minute, manualized[182] sessions over 24 weeks (first 3 during first 2 weeks, followed by 12 weekly, and final 4 at 2-week intervals) Co-interventions: None	Binge • Number binge days in the past 28 days (EDE) Eating related • EDE, global, 4 scores Psychological • BDI • RSES Weight • BMI • Weight (kg) • 5% reduction in body weight

BDI = Beck Depression Inventory; BED = binge-eating disorder; BMI = body mass index; BWL-TL = behavioral weight loss, therapist led; CBTgsh = cognitive behavioral therapy, guided self-help; CBT-TL = cognitive behavioral therapy, therapist led; CESD = Center for Epidemiologic Studies Depression Scale; DSM-IV = Diagnostic and Statistical Manual, fourth edition; EDE = Eating Disorder Examination Inventory; EDEQ = Eating Disorder Examination Questionnaire; G = group; GSI = Global Severity Index; IIP = Inventory of Interpersonal Problems; IPT-TL = interpersonal therapy, therapist led; kg = kilograms; N= number; PIPT-TL = psychodynamic interpersonal therapy, therapist led; RCT = randomized controlled trial; RSE = Rosenberg Self-Esteem; SAS = Social Adjustment Scale; SCID/IP = Structured Clinical Interview for DSM-IV Axis I Disorders, Patient Version; SCL-90 = Symptom Checklist 90; TFEQ = Three Factor Eating Questionnaire.

Wilfley and colleagues recruited 162 participants, ages 18 to 65, with a BMI between 27 and 48.[80] More than 82 percent of the sample was female; approximately 7 percent was from an ethnic or racial minority. Participants were randomized to receive either therapist-led CBT or IPT. Participants were initially followed up every 4 months for 1 year and then subsequently at 4 years.[184]

Wilson and colleagues randomized 141 overweight or obese adults with BED to either guided self-help CBT or therapist-led IPT.[176] Most participants were white (79 percent) and female (84 percent). All participants were followed up at 6-month intervals for 2 years after the end of treatment.

The PIPT trial recruited 95 participants; virtually all were white females (91 percent), with a mean age of 43 years and mean BMI of 41.1.[153] Both CBT and PIPT were conducted in groups led by a therapist. Outcome assessments occurred at the end of therapy and at 6 months later.

Key Points

- Three RCTs assessed CBT compared with interpersonal psychotherapy. Although IPT was associated with substantial abstinence rates at both 2-year[176] and 4-year followup[184],

individual trials differed in the CBT and IPT formats that were compared. Consequently, the evidence did not allow for synthesis across studies (SOE insufficient for all outcomes because evidence was limited to a single study).

Detailed Synthesis

All three trials reported on binge frequency and abstinence, eating-related psychopathology, weight, and depression (Table 37). One of these trials also reported results of a latent class analysis and subsequent latent transition analysis designed to identify common patient characteristics that predict better treatment outcome in those assigned to the guided self-help CBT group and those assigned to IPT.[180]

Table 37. Outcomes of trials of cognitive behavioral therapy compared with interpersonal therapies for binge-eating disorder

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Tasca et al., 2006[153] Tasca et al., 2012[159] G1: PIPT-TL (48/37/35/37) G2: CBT-TL (47/37/32/37) G3: Waitlist: (not included in this comparison) ITT sample Hierarchical linear model with restricted maximum likelihood method of estimation	Nonstatistically sig diff in change from pre-tx to end of treatment and pre-tx to 12 months: EDE-Binge days Nonstatistically sig diff at end of treatment, 6 months, 12 months: Abstinence Improved (<2 binge days/week)	Nonstatistically sig diff in change from pre-tx to end of treatment and pre-tx to 6 months: TFEQ-Restraint TFEQ-Hunger	Nonstatistically sig diff in change from pre-tx to end of treatment and pre-tx treatment to 12 months: BMI	RSES, mean (SD) Pre-tx G1: 25.14 (5.72) G2: 24.66 (6.40) End of treatment G1: 25.72 (2.27) G2: 26.17 (2.64) 6 months G1: 31.39 (3.61) G2: 23.76 (3.46) Diff in change from pre-tx to end of treatment: (p=0.006; G1 better than G2 and G3) Diff in change from pre-tx to 6 months: (p<0.001; G1 better than G2 and G3) IIP cold/distant, mean (SD): Pre-tx: G1: 9.22 (5.71) G2: 9.46 (5.19) 6 months G1: 5.84 (4.98) G2: 9.11 (5.83) Diff in rate of change from pre-tx to 6 months: (p=0.038; G1 better than G2)

Table 37. Outcomes of trials of cognitive behavioral therapy compared with interpersonal therapies for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Tasca et al., 2006[153] Tasca et al., 2012[159] (continued)				Nonstatistically sig diff in change from pre-tx to end of treatment and pre-tx to 6 months: CESD IIP total Nonstatistically sig diff in rate of change from pre-tx to 6 months: IIP domineering/controlling, IIP vindictive/self-centered, IIP socially inhibited, IIP nonassertive, IIP overly accommodating, IIP self-sacrificing, IIP intrusive/needy
Wilfley et al., 2002[80] Hilbert et al., 2012[184] G1: CBT-TL (81/78/67/65) G2: IPT-TL (81/80/71/68) ITT sample Generalized estimating equations (categorical) Hierarchical linear modeling (continuous)	Abstinence, % End of treatment: G1: 36 (81.8%) G2: 29 (64.4%) 12 months: G1: 28 (77.8%) G2: 22 (53.7%) 46 months: G1: 13 (52.0%) G2: 23 (76.7%) Diff between groups in change over time (end of treatment to 46 months, 12 months to 46 months): (p<0.001) Nonstatistically sig diff between groups (end of treatment to 12 months): Abstinence EDE-Binge days/month Remitted (<4 OBEs/month) Nonstatistically sig diff between groups end of treatment up to 46 months):	EDE-Restraint, mean (SD) Pre-tx: G1: 1.8 (1.2) G2: 2.1 (1.3) End of treatment: G1: 0.9 (0.9) G2: 1.5 (1.1) 4 months: G1: 0.9 (0.9) G2: 1.3 (1.2) Diff in change over time (end of treatment): (p<0.001) Diff in change over time (end of treatment to 4 months): (p=0.04) EDEQ-Eating Concern, mean (SE) Pre-tx: G1: 3.63 (0.15) G2: 3.55 (0.15) End of treatment: G1: 1.05 (0.16) G2: 1.85 (0.15) 12 months: G1: 0.92 (0.18) G2: 1.50 (0.17) 46 months: G1: 1.57 (0.21) G2: 1.19 (0.19)	Nonstatistically sig diffs between groups (46 months): BMI	Nonstatistically sig diffs between groups (up to 12 months): GSI RSES SCL Depression SAS IIP total Nonstatistically sig diff between groups (46 months): BSI-Anxiety BSI-Depression

Table 37. Outcomes of trials of cognitive behavioral therapy compared with interpersonal therapies for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Wilfley et al., 2002[80] Hilbert et al., 2012[184] (continued)	EDE-Binge days/month Remitted (<4 OBEs/month)	Diff in change over time (12 months to 46 months): (p<0.01) Diff in change over time (end of treatment to 46 months): (p<0.01) EDEQ-Shape Concern, mean (SE) Pre-tx: G1: 4.85 (0.18) G2: 4.79 (0.18) End of treatment: G1: 3.19 (0.19) G2: 3.72 (0.19) 12 months: G1: 2.92 (0.21) G2: 3.12 (0.20) 46 months: G1: 3.25 (0.25) G2: 2.82 (0.23) Diff in change over time (end of treatment to 46 months): (p<0.01) EDEQ-Global, mean (SE) Pre-tx: G1: 3.76 (0.14) G2: 3.80 (0.14) End of treatment: G1: 2.14 (0.14) G2: 2.72 (0.14) 46 months: G1: 2.41 (0.19) G2: 2.12 (0.17) Diff in change over time (end of treatment to 46 months): (p<0.01) EDE-Weight/Shape Concern, mean (SE) Pre-tx: G1: 4.92 (0.28) G2: 4.65 (0.25) End of treatment: G1: 2.90 (0.28) G2: 3.40 (0.25) 12 months: G1: 2.78 (0.28) G2: 3.27 (0.25)		

Table 37. Outcomes of trials of cognitive behavioral therapy compared with interpersonal therapies for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Wilfley et al., 2002[80] Hilbert et al., 2012[184] (continued)		46 months: G1: 3.80 (0.28) G2: 3.26 (0.25) Diff in change over time (12 months to 46 months): p<0.01 Nonstatistically sig diff between groups (end of treatment to 8 months, 12 months): EDE-Restraint Nonstatistically sig diff between groups (end of treatment to 12 months): EDE-Eating concern EDE-Weight concern EDE-Shape concern EDE-Global concern Nonstatistically sig diff between groups (up to 46 months): EDEQ-Weight Concern (EDEQ) EDEQ-Restraint (EDEQ) Improved (≤ normative EDE-Global)		

Table 37. Outcomes of trials of cognitive behavioral therapy compared with interpersonal therapies for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Wilson et al., 2010[176] Sysko et al., 2010[180] G1: BWL-TL (64/64) (not included in this comparison) G2: CBTgsh (66/66) G3: IPT-TL (75/75) ITT sample Repeated measures ANOVA LCA LTA	Abstinence at end of treatment in "high severity" (> 14 binge days/month at baseline): G2: 50% G3: 66% G2< G3 (sig diff, p=NR) Probability of transitioning into the responder class (LTA analysis) G2: Class 2 < all others (p<0.05) G3: Class 3 < all others (p<0.05) Class 2: G3 (0.81) > G2 (0.59) (sig diff, p=NR) Class 3: G2 (0.74) > G3 (0.61) (sig diff, p=NR) Nonstatistically sig diff in change over time (pre-tx to end of treatment; End of treatment to 12 months, 24 months): EDE-Binge days/month Abstinence BED to subthreshold BED	Nonstatistically sig diff in change over time (pre-tx to end of treatment): EDE-Weight concern EDE-Shape concern EDE-Eating concern EDE-Global	Nonstatistically sig diff in change over time (pre-tx to end of treatment): BMI	Nonstatistically sig diff in change over time (pre-tx to end of treatment): BDI RSES

ANOVA = analysis of variance; BDI = Beck Depression Inventory; BED = binge-eating disorder; BMI = body mass index; BSI = Brief Symptom Inventory; BWL-TL = behavioral weight loss, therapist led; CBTgsh = cognitive behavioral therapy, guided self-help; CBT-gsh = cognitive behavioral therapy, guided self-help; CBT-TL = cognitive behavioral therapy, therapist led; CESD = Center for Epidemiologic Studies Depression Scale; diff = difference; EDE = Eating Disorder Examination Inventory; EDEQ = Eating Disorder Examination Questionnaire; G = group; GSI = Global Severity Index; IIP = Inventory of Interpersonal Problems; IPT-TL = interpersonal therapy, therapist led; ITT = intent to treat; kg = kilograms; LCA = latent class analysis; LTA = latent transition analysis; NR = not reported; OBE = objective binge episode; PIPT-TL = psychodynamic interpersonal therapy, therapist led; RCT = randomized controlled trial; RSE = Rosenberg Self-Esteem; SAS = Social Adjustment Scale; SCL-90 = Symptom Checklist 90; SD = standard deviation; SE = standard error; sig = significant; TFEQ = Three Factor Eating Questionnaire; tx = treatment

Binge-Eating Outcomes

Binge frequency and abstinence outcomes did not differ between treatment groups at the end of treatment in the three trials[80,153] or at short-term (6-month) followup between CBT and PIPT in one trial.[153] Similarly, in one trial, at 30-month followup binge-eating outcomes did not differ between guided self-help CBT and therapist-led IPT.[176]

In contrast, in the Wilfley et al. trial comparing therapist-led CBT and IPT, over a longer, 46-month course of followup, the trajectory of abstinence differed between patients receiving CBT and those receiving IPT. In the CBT group, the percentage of the group that was abstinent was initially high (81 percent) at the end of treatment but dropped over time (52 percent); in the IPT arm, the percentage of abstinent patients was initially more modest (64 percent) at trial end but increased over time (77 percent); thus, the change over the longer time was considered significantly better in the IPT group than the CBT group.[80]

In the trial comparing the guided self-help CBT and therapist-led IPT, the investigators conducted secondary analyses to examine treatment outcome moderators[176] and predictors (also presented in the CBT versus BWL section of this chapter).[180] First, among those with high baseline binge severity (i.e., binge days > 14 in the past 28 days), those randomized to IPT fared better than those randomized to CBT (66 percent vs. 50 percent, respectively). Second, based on a latent class analysis results (also presented in the CBT vs. BWL section of this chapter), the authors conducted a subsequent latent transition analysis to predict treatment response (defined by a combined set of outcomes including OBEs, SBEs, OOEs, BMI, weight concern, shape concern, restraint, and BDI score). The results indicated differential response to treatment between classes such that there was a greater percentage of patients abstinent among those receiving IPT in Class 3 (e.g., (high binge-eating frequencies, with lower levels of exercise or compensatory behaviors) than all participants receiving guided self-help CBT regardless of class membership.

Eating-Related Psychopathology Outcomes

Across all assessment time points, eating-related outcomes did not differ significantly between therapist-led CBT and PIPT[153] or between guided self-help and therapist-led IPT.[176] By comparison, in the Wilfley et al. study, participants randomized to therapist-led CBT demonstrated better outcomes on dietary restraint than those receiving IPT at the end of treatment and through 4-month followup; those differences did not persist, however, over the longer course of followup (i.e., 12-month through 46-month followup).[80] Similarly in this study, those receiving therapist-led CBT compared with therapist-led IPT tended initially to show larger reductions in eating, shape, and weight concerns through 12-month followup, but by 46-month followup this pattern was reversed.

Weight Outcomes

BMI outcome did not differ between treatment groups at end of treatment or followup in any of these trials.[80,153,176]

General Psychological Outcomes

Symptoms of depression did not differ significantly between treatment groups at end of treatment or followup in any of these trials.[80,153,176]

Other Outcomes

In two trials, neither therapist-led PIPT[153] nor IPT[80] was better than CBT in reducing interpersonal problems. Similarly, at the end of treatment and through followup, IPT was no better than either therapist-led[80] or guided self-help CBT[176] in improving self-esteem. In contrast, self-esteem was significantly higher at the end of treatment and 6-month followup for patients randomized to the PIPT group than for those in the CBT group.[153]

Behavioral Interventions: Cognitive Behavioral Therapy Combined With Diet or Weight Loss Interventions

Description of Studies

Three trials examined the use of CBT plus additional interventions involving either diet or weight loss strategies (or both) in treating patients with BED (Table 38). Two trials compared CBT alone with CBT plus a diet or weight loss intervention,[74,185] and one trial compared CBT plus a low-energy dense diet with CBT plus general nutritional counseling. All trials included participants diagnosed with BED based on DSM-IV criteria.

Table 38. Characteristics of trials of cognitive behavioral therapy plus diet and/or weight loss interventions for binge-eating disorder

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
De Zwaan et al., 2005[185] United States Outpatient RCT Medium	DSM-IV (SCID/IP) G1: 36 G2: 35 24 weeks (12 months) Females only 18–55 years old ≥50 lbs. above “ideal” body weight Mean age: 39.3 Female: 100% Nonwhite: 2.8% Mean weight: 216.1 Mean BMI: 36.1	G1: **CBT-TL + VLCD-Group:** Liquid diet for 12 weeks followed by1,200 kcal/day diet for 12 weeks + 24 120-minute, weekly group sessions with a dietician and 10 90-minute, manualized weekly group sessions of CBT G2: **VLCD-Liquid diet** for 12 weeks followed by 1,200 kcal/day diet for 12 weeks + 24 120-minute, weekly group sessions with a dietician Co-interventions: none	Binge • Prevalence of BED diagnosis • % patients abstinent from binge-eating episodes in previous 7 days • % of weeks abstinent from binge eating • Frequency of binge-eating episodes in previous 7 days Eating related • EDI • TFEQ • BES Psychological • BDI • HAM-D • RSES

Table 38. Characteristics of trials of cognitive behavioral therapy plus diet and/or weight loss interventions for binge-eating disorder (continued)

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
De Zwaan et al., 2005[185] (continued)			Weight • Weight in pounds • % of initial weight lost following VCLD • Number of patients who lost ≥10% of initial body weight • Early substantial weight regain • BMI
Grilo et al., 2011[74] Grilo et al., 2012[178] United States Outpatient primary care RCT Medium	DSM-IV (SCID-I/P, EDE) G1: 45 G2: 45 (see section on CBT vs. BWL for outcomes of this arm) G3: 35 24 weeks (6, 12 months) 18–60 years old BMI 30–55 Mean age: 44.8 Mean BMI: 38.8 Female: 67% Nonwhite: 23% Lifetime major depressive disorder: 43.20%	G1: **CBT-TL-Group:** 16 60-minute manualized[142] sessions over 24 weeks G2: **BWL-TL-Group:** 16 60-minute manualized[162] sessions over 24 weeks G3: **CBT-TL + BWL-TL-Group:** manualized[142] CBT (16 60-minute sessions over 16 weeks) followed by manualized[162] BWL (16 60-minute sessions over 24 weeks) Co-interventions: None	Binge • Binge episodes/month (EDE) • Remission Eating related • EDE, 4 subscales and global score Weight • BMI • Weight (pounds) • Weight loss (pounds) Psychological • BDI
Masheb et al., 2011[75] United States Outpatient RCT Low	DSM-IV-TR (SCID/IP, EDE) G1: 25 G2: 25 6 months (6 months) Age 21–60 BMI ≥ 30 Available for length of treatment and followup at 6 months Mean age: 45.8 Females: 76% Nonwhite: 20% Mean BMI: 39.1	G1: **CBT-TL + Low energy dense diet-Individual:** 21 60-minute, weekly sessions for first 16 weeks, then every other week until the end of the 6-month treatment. Participants were educated about energy density and set goals to increase consumption of low-energy-density foods. G2: **CBT-TL + General nutrition counseling-Individual:** 21 60-minute, weekly sessions for first 16 weeks and then every other week until the end of the 6-month treatment.	Binge • Frequency of OBE episodes • EDE in past 28 days • Binge remission (0 binge-eating episodes for 28 days prior to the end of treatment) per EDE • Binge remission (0 binge-eating episodes for the 28 days prior to the end of treatment) per prospective self-monitoring Eating related • EDE, global, 4 scores • TFEQ, 3 scores

Table 38. Characteristics of trials of cognitive behavioral therapy plus diet and/or weight loss interventions for binge-eating disorder (continued)

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Masheb et al., 2011[75] (continued)		Participants were educated about general nutrition treatment. Clinicians reviewed and discussed weekly topics with patients, but no problem-solving or goal-setting was conducted. Co-interventions: None	Psychological • BDI Weight • BMI • % of all participants who received at least 5% weight loss • Mean % weight loss

BDI = Beck Depression Inventory; BED = binge-eating disorder; BES= binge-eating scale; BMI = body mass index; BWL = behavioral weight loss; CBT = cognitive behavioral therapy; DSM-IV = Diagnostic and Statistical Manual, fourth edition; EDE = Eating Disorders Examination; G = group; HAM-D = Hamilton Depression Rating Scale; kcal = kilocalories; lbs = pounds; LEARN = Lifestyle, Exercise, Attitude, Relationships, Nutrition; OBE = objective binge episode; RCT = randomized controlled trial; RSE = Rosenberg Self-Esteem scale; SCID/IP = Structured Clinical Interview for DSM Axis I Disorders, Patient version; TFEQ = Three Factor Eating Questionnaire; TL = therapist led; TR = text revision; SCID = Structured Clinical Interview for DSM Disorders; VLCD = very low calorie diet

The Masheb et al. trial recruited 50 obese participants (76 percent female) between the ages of 21 and 60.[75] Participants were randomized to therapist-led CBT plus either a diet intervention or general nutritional counseling. The diet intervention focused on the benefits of a following low-energy-dense diet and planning meals. The nutritional counseling intervention focused on general nutritional advice for health (vs. focusing on the diet approach per se).

In the de Zwaan et al. trial, 71 women (ages 22 to 55, mean BMI of 36.1 kg/m^2) were randomized to 24 weeks of either therapist-led CBT plus a very-low-calorie diet group or the very-low-calorie diet alone.[185] The diet consisted of 800 kcal/day via powdered nutritional supplement for 12 weeks followed by a 6-week period of reintroducing solid foods and then a 6-week stabilization period, eating a balanced 1,200 kcal/day diet. Weekly, all participants received a physical checkup and 90-minute group sessions with the dietician for nutritional education, weight reduction, and an exercise program. Of note, this study took a unique approach to recruitment and retention, requiring all participants to cover the cost of the diet ($1,000) and pay a $50 deposit (which was later returned to study completers). Followup was at the end of treatment and at 1-, 6-, and 12-month followup.

The third trial, conducted by Grilo and colleagues, randomized 80 obese adults (67 percent female, mean age of 45 years) to therapist-led CBT alone or therapist-led CBT plus therapist-led BWL.[74] CBT used the Fairburn manual.[142] The BWL intervention was based on the LEARN program manual.[162] Outcomes were measured at the end of treatment and at 6- and 12-month followup.

Key Points

- In relation to CBT combined with diet and/or weight loss interventions, treatment comparisons differed in three small RCTs (SOE insufficient).

Detailed Synthesis

All three trials reported on binge frequency, abstinence, eating-related psychopathology, BMI, and depression outcomes (Table 39).[74,75,185]

Table 39. Outcomes of trials of cognitive behavioral therapy plus diet and/or weight loss interventions for binge-eating disorder

Author, Year Arm (N Randomized/Completed Treatment/Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
de Zwaan et al., 2005[185] G1: CBT-TL + VLCD (36/36/30/28/31) G2: VLCD (35/35/25/32/31) ITT sample Random regression ANCOVA	Nonstatistically sig diff in change over time (end of treatment) EB-IV-Binge episodes/week Abstinence Nonstatistically sig diff in change over time (12 months): Threshold BED Abstinence	TFEQ-Hunger Pre-tx: NR 12 months: NR Diff in change over time (12 months): (p=0.04; G1 better than G2) EDI-Drive for thinness Pre-tx: NR 12 months: NR Diff in change over time (12 months): (p=0.04; G1 better than G2) EDI-Bulimia Pre-tx: NR 6 months: NR Diff in change over time (6 months): (p=0.02; G1 better than G2) Nonstatistically sig diff in change over time (end of treatment, 6 months, 12 months): TFEQ-Disinhibition TFEQ-Restraint BES EDI-Body dissatisfaction EDI-Ineffectiveness EDI-Perfectionism EDI-Interpersonal distrust EDI-Interoceptive awareness EDI-Maturity fears	Nonstatistically sig diff at end of treatment Absolute weight loss BMI Nonstatistically sig diff in change over time (6 months, 12 months): BMI Absolute weight loss 5% weight loss Weight regain (at 6 months)	Nonstatistically sig diff in change over time (end of treatment, 6 months, 12 months): HAMD RSES MPQ-Control/Impulsivity BDI

Table 39. Outcomes of trials of cognitive behavioral therapy plus diet and/or weight loss interventions for binge-eating disorder (continued)

Author, Year Arm (N Randomized/Completed Treatment/Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo et al., 2011[74] G1: CBT-TL (45/37/37) G2: BWL-TL (45/39/37) (Not included in this comparison) G3: CBT-TL + BWL-TL (35/30/25) ITT analysis Chi-square (categorical variables) ANOVAs (continuous variables) Mixed model repeated measures ANOVA ROC curves	Nonstatistically sig diff at end of treatment, 6 months, 12 months: EDE-Binge episodes/month Abstinence	Nonstatistically sig diff in change over time (end of treatment, 6, 12 months): EDE-Weight concern EDE-Shape concerns EDE-Eating concern EDE-Restraint EDE-Global	BMI, mean (SD) Pre-tx: G1: 39.3 (6.1) G3: 39.0 (6.1) End of treatment: G1: 38.5 (5.7) G3: 38.9 (6.2) Diff at end of treatment: G1 vs. G3 (p=0.04) Nonstatistically sig diff at 6, 12 months: BMI Nonstatistically sig diffs in change over time (end of treatment, 6 months, 12 months) Weight Absolute weight loss	Nonstatistically sig diff in change over time (end of treatment, 6, 12 months): BDI
Masheb et al., 2011[75] G1: CBT-TL + LED (25/20) G2: CBT-TL + GNC (25/23) Not reported Chi-square Mixed effects models Least square mean comparisons	Nonstatistically sig diff in change over time (end of treatment): Diary/EDE-Abstinence Nonstatistically sig diff in change over time (6 months): EDE-Binge episodes/month	Nonstatistically sig diff in change over time (6 months): TFEQ-Disinhibition TFEQ-Restraint TFEQ-Hunger EDE-Weight concern EDE-Shape concern EDE-Eating concern EDE-Global	Nonstatistically sig diff in change over time: (end of treatment, 6 months): 5% weight loss Absolute weight loss BMI	Nonstatistically sig diff in change over time (6 months): BDI Nonstatistically sig diff in change over time (end of treatment, 6 months): Total cholesterol HDL LDL Triglycerides Waist circumference Systolic BP Diastolic BP

ANCOVA = analysis of covariance; ANOVA = analysis of variance; BDI = Beck Depression Inventory; BED = binge-eating disorder; BES = binge eating scale; BMI = body mass index; BP = blood pressure; BWL = behavioral weight loss; CBT = cognitive behavioral therapy; diff = difference; EB-IV= Eating Behaviors, fourth edition; EDE = Eating Disorders Examination; EDI = Eating Disorders Inventory; G = group; GNC = general nutritional counseling; HAM-D = Hamilton Depression Rating Scale; HDL = high-density lipoprotein; ITT = intent to treat; kcal = kilocalories; LED = low energy dense diet; LDL= low-density lipoprotein cholesterol; MPQ= Multidimensional Personality Questionnaire; NR = not reported; OBE = objective binge episode; RCT = randomized controlled trial; ROC = receiver operating characteristic; RSE = Rosenberg Self-Esteem scale; SD = standard deviation; sig = significant; TFEQ = Three Factor Eating Questionnaire; TL = therapist-led; tx= treatment; VLCD = very low calorie diet

Binge-Eating Outcomes

None of these trials found a significant difference in abstinence or binge frequency at either the end of treatment or at the various followup points ranging from 6 to 12 months.[74,75,185]

Eating-Related Psychopathology Outcomes

With the exception of three subscales in one trial, treatment groups did not differ in eating-related psychological measures at the end of treatment or at followup. At 12-month followup, more favorable changes occurred in the TFEQ susceptibility for hunger subscale and in the EDI Drive for Thinness and Bulimia subscales in the CBT plus diet group than in the CBT group alone.[185]

Weight Outcomes

Compared with CBT alone, adding BWL to CBT promoted a small but significant additional amount of weight loss, measured by BMI at the end of treatment. This benefit did not persist to 12-month followup.[74]

General Psychological and Other Outcomes

In two of three trials, adding CBT to a weight loss intervention was not more effective than CBT alone in reducing symptoms of depression;[74,185] the pattern of results was similar for CBT plus various dietary interventions.[75] In one trial, neither self-esteem nor impulsivity improved to a greater extent with combination treatment (CBT+VLCD) than with the single intervention (VLCD alone).[185]

Behavioral Interventions: Behavioral Weight Loss Versus Interpersonal Psychotherapy

Description of Studies

One trial compared therapist-led BWL treatment with IPT.[176] Details of this trial are presented in Table 40. The trial randomized participants to therapist-led BWL or IPT groups.[176] BWL was based on the Diabetes Prevention Program's Manual[181] (described earlier in the CBT vs. BWL section of the report). Outcomes were assessed at the end of treatment and at 6-month intervals for 2 years after the end of treatment.

Table 40. Characteristics of trials of behavioral weight loss compared with interpersonal psychotherapy for binge-eating disorder

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Wilson et al,, 2010[176] Sysko et al., 2010[180 a] United States Outpatient RCT Medium	DSM-IV (Interview) G1: 64 G2: 66 (not included in this comparison) G3: 75 24 weeks (18 months, 24 months, 30 months) >18 years old BMI 27–45 Mean age: 48.4 Female: 85% Nonwhite: 18% Mean BMI: 36.4	G1: **CBTgsh-Individual**: Provided with manual[152] + guidance from therapist; first 4 sessions weekly, next 2 at 2-week intervals, and last 4 at 4-week intervals. G2: **BWL-TL-Individual**: 16 50-minute weekly sessions, then 4 at 2-week intervals based on NIDDK's Diabetes Prevention Program[181] G3: **IPT-TL-Individual**: 19 50- to 60-minute, manualized[182] sessions over 24 weeks (first 3 during first 2 weeks, followed by 12 weekly, and final 4 at 2-week intervals). Co-interventions: None	Binge • Number binge days in the past 28 days (EDE) Eating related • EDE, global, 4 scores Psychological • BDI • RSE Weight • BMI • Weight (kg) • 5% reduction in body weight

BMI = body mass index; BWL-TL = behavioral weight loss, therapist led; CBTgsh = cognitive behavioral therapy, guided self-help; DSM-IV= Diagnostic and Statistical Manual, fourth edition; EDE = Eating Disorders Examination; G = group; IPT-TL = interpersonal psychotherapy, therapist led; kg = kilogram; RCT = randomized controlled trial; RSE = Rosenberg Self-Esteem

[a] Conducted a latent class analysis and latent transition analysis.

Key Points

- The efficacy of BWL compared with IPT could not be determined, because evidence was based on a single, small sample trial (SOE insufficient).

Detailed Synthesis

Table 41 provides details about the outcomes of this trial. Binge-eating outcomes did not differ at the end of treatment for the BWL and IPT group.[176] However, at 24-month followup, the odds of achieving abstinence were more than twofold greater in the IPT group than the BWL group (OR, 2.6). Conversely, in relation to weight loss, a larger reduction was initially (i.e., at the end of treatment) experienced by the BWL group (-1.4 kg/m^2) than the IPT group (-0.4 kg/m^2), and a higher percentage of patients achieved at least 5 percent weight loss in the BWL (41 percent) than the IPT (15 percent) group. However, patients in the BWL group had gained more weight than those in IPT at 1-year followup; by 2-year followup, the two groups did not differ significantly.[176] Differences in eating-related psychological and general psychological symptoms including measures of depression and self-esteem were not significant.[73]

Table 41. Outcomes of trials of behavioral weight loss compared with interpersonal psychotherapy for binge-eating disorder

Author, Year Arm (N Randomized/Completed Treatment/Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Wilson et al., 2010[176] Sysko et al., 2010[180] G1: BWL-TL (64/64) G3: IPT-TL (75/75) ITT sample Repeated measures ANOVA Latent class and latent transition analyses	Abstinence, 24-month followup: G1 < G3, OR: 2.6 (sig diff, p=NR) Subgroup analyses: Abstinence at end of treatment: High binge frequency (>14 binge days/month) at baseline: G1 (46%) < G3 (66%) (diff sig, p=NR) Latent Class 3: G1 < G3 Nonstatistically sig diff in change over time: EDE-Binge days/month BED to subthreshold BED	Nonstatistically sig diff in change over time: EDE-Weight concern EDE-Shape concern EDE-Eating concern EDE-Dietary restraint EDE-Global	BMI Pre-tx: G1: 36.8 (SD 5.5) G3: 36.3 (SD 5.1) End of treatment: G1: 35.4 (SD 5.7) G3: 35.9 (SD 5.3) Change from baseline: G1 > G3, d=0.48 (diff sig, p=NR) 5% weight loss end of treatment: G1 (41%) > G3 (15%), OR: 3.9 (diff sig, p=NR) Nonstatistically sig diff in change over time BMI 5% weight loss	Nonstatistically sig diff in change over time BDI RSE

ANOVA= analysis of variance; BED = binge-eating disorder; BMI = body mass index; BWL-TL = behavioral weight loss, therapist led; CBTgsh = cognitive behavioral therapy, guided self-help; DSM-IV= Diagnostic and Statistical Manual, fourth edition; EDE = Eating Disorders Examination; diff= difference; G = group; IPT-TL = interpersonal psychotherapy, therapist led; ITT= intent to treat; kg = kilogram; NR= not reported; RCT = randomized controlled trial; RSE = Rosenberg Self-Esteem; SD= standard deviation; sig= significant; tx = treatment

Behavioral Interventions: Inpatient Treatment Versus Inpatient Treatment Plus Active Therapies

Description of Studies

Three trials examined treatment efficacy among those who received BED treatment in an inpatient setting (Table 42).[186-188] In each trial, patients received a standardized inpatient care program and were randomized to additional active therapies. Two trials used virtual reality for eating disorders modification (VREDIM), which aims to reduce body image distortions and food-related anxiety[186,187]; one of these studies combined VREDIM with CBT.[187] All trials were conducted in Italy.

Table 42. Characteristics of trials of inpatient treatment compared with inpatient treatment plus various active therapies for binge-eating disorder

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Castelnuovo et al., 2011[188] Italy Inpatient and outpatient RCT Low	DSM-IV G1: 30 G2: 30 7 months (6 months) Females, 18–50 years Mean age: 33.1 Mean weight: 105.4 kg	G1: **IP + CBT-Individual:** Inpatient treatment + 8 45-minute CBT sessions with a therapist followed by 8 outpatient telephone calls with same psychotherapist G2: **IP + BST-individual:** Inpatient treatment + 8 45-minute BST[189] sessions with a therapist followed by 8 outpatient telephone calls with the same psychotherapist	Binge: • Number of weekly binge episodes, "assessed with a self-report procedure" • BED remission (<2 weekly binge episodes) Eating related: • NR Psychological • OQ 45.2, Global index, 4 scales Weight • Percentage of weight loss
Cesa et al., 2013[187] Italy Inpatient RCT Medium	DSM-IV TR for at least 6 months G1: 31 G2: 30 G3: 29 6 weeks (12 months) Females, 18–50 Mean age: 31.8 Mean BMI: 40.5	G1: **IP + CBT + VRIDEM-Group and Individual:** Inpatient treatment + 15 CBT sessions (5 weekly group sessions and 10 biweekly individual sessions) + 10 60-minute 3D virtual reality biweekly sessions for negative body image G2: **IP + CBT-Group and Individual:** Inpatient treatment + 15 CBT sessions over 5 weeks (5 weekly group sessions and 10 biweekly individual sessions) G3: **IP only-Group:** 6-week hospital-based program of medical, nutritional, physical, and psychological care	Binge: • Number of binge-eating episodes (EDI Symptom Checklist) Eating related • NR Weight • BMI Psychological: • BSS • BIAQ • CDRS

Table 42. Characteristics of trials of inpatient treatment compared with inpatient treatment plus various active therapies for binge-eating disorder (continued)

Author, Year Country Setting Design Risk of Bias	DSM Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Riva et al., 2002[186] Italy ED clinic RCT Medium	DSM-IV TR for at least 6 months (clinical interview) Total: 20 G1: NR G2: NR 6.5 weeks Females No history of purging in the previous 6 months BMI>30 Mean age: 30.3 Mean BMI: 43.2	G1: **IP + VRIDEM-Individual:** Inpatient treatment + 7 50-minute sessions of 3D virtual reality therapy for negative body image G2: **IP + Psychonutritional-Group:** Inpatient treatment + psychonutritional groups delivered 3 times a week; focused on modifying behavior, stress management, problem-solving, and eating	Binge • Abstinence Eating related • DIET, total, 6 subscales Weight • NR Psychological • BIAQ, total, 4 subscales • STAI • WELSQ, total • BSS, total, 3 subscales • FRS • CDRS

BED = Binge-Eating Disorder; BIAQ = Body Image Avoidance Questionnaire; BMI = body mass index; BSS = Body Satisfaction Scale; BST = Brief Strategic Therapy; CBT = cognitive behavioral therapy; CDRS = Contour Drawing Rating Scale; DSM-IV = Diagnostic and Statistical Manual of Mental Disorders, 4th edition; DIET = Dieter's Inventory of Eating Temptations; ED = eating disorders; EDI = Eating Disorder Inventory; FRS = Figure Rating Scale; G= group; IP = Inpatient program; kg = kilogram; N= number; NR = not reported; OQ = Outcome Questionnaire; RCT = randomized controlled trial; STAI = State Trait Anxiety Inventory; TR= text revisions; VRIDEM = Virtual Reality for Eating Disorders Modification; WELSQ = Weight Efficacy Lifestyle Questionnaire

One trial included 20 obese adult (ages 18 to 45) females.[186] The inpatient program (mean duration, 6.5 weeks) consisted of a low-calorie diet (1,200 kcal/day) plus exercise (30 minutes of walking twice per week). The investigators compared inpatient care plus VRIDEM with inpatient care plus psychonutritional group sessions three times per week. The psychonutritional groups aimed to help participants modify unhealthy lifestyle behaviors using CBT-based principles to improve problem solving and manage stress and eating.

In another trial, 66 (of 90 randomized) obese adult women completed a 5-week inpatient program consisting of medical, nutritional, physical, and psychological care (24 of the 90 patients discharged themselves from the hospital before treatment was complete).[187] All participants were enrolled in an integrated multimodal medically managed inpatient program. Of the 66 patients, 29 were enrolled in inpatient care only, 20 patients received inpatient treatment plus five group and 10 individual CBT sessions, and 27 patients received inpatient care treatment plus five group CBT sessions and 10 sessions of VREDIM.[186]

The third trial recruited 60 treatment-seeking women (mean weight, 107 kg; mean age, 46).[188] Participants enrolled in a comprehensive treatment program consisting of 1-month inpatient care plus a 6-month outpatient treatment. Inpatient treatment consisted of a hospital-based, medically managed program incorporating a hypocaloric diet, nutritional counseling (45-minute group sessions, twice weekly), and daily group physical activity training. The RCT compared inpatient treatment plus individual sessions of CBT (twice weekly) with inpatient

treatment plus brief strategic therapy[189] (twice weekly). In the outpatient component of the treatment program, 30 patients each received either eight CBT or eight BST telephone-based sessions (whichever they had received during their inpatient stay), which aimed to consolidate strategies and abilities learned during inpatient therapy, support motivation, and prevent relapse.

Key Points

- The effectiveness of adding reality therapy and various active therapies to inpatient treatment could not be determined because these formats were studied in single, small sample trials (SOE insufficient).

Detailed Synthesis

One trial reported abstinence and eating-related psychopathology outcomes;[186] two trials reported binge frequency and weight-related outcomes;[187,188] and two studies reported on body image concerns (Table 43).[186,187]

Binge-Eating Outcomes

All three trials found nonsignificant differences in binge outcomes at the end of the trial.[186-188]

Table 43. Outcomes of trials of inpatient treatment compared with inpatient treatment plus active therapies for binge-eating disorder

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Cesa et al., 2013[187] G1: IP+CBT+VREDIM (31/27/18) G2: IP+CBT (30/20/14) G3: IP (29/19/12) ITT sample Exact methods with Monte Carlo approximation	Nonstatistically sig diff in change over time (end of treatment and end of treatment to 12 months): EDI-Binge episodes/month	NR	Weight, median Pre-tx: G1: 97.6 G2: 105.8 G3: 109 End of treatment: G1: 93.6 G2: 100 G3: 102 12 months: G1: 92 G2: 103.7 G3: 112 Diff in change over time (p=0.032) BMI, median Pre-tx: G1: 38.1 G2: 40.8 G3: 42 End of treatment: G1: 36.5 G2: 38 G3: 40.3 12months: G1: 36.2 G2: 39.1 G3: 41.5 Diff in change over time (p=0.015) Nonstatistically sig diff in change over time (end of treatment): Weight	BIAQ-Total, mean (SD) Pre-tx: G1: 34.4 (SD 8.5) G2: 33.85 (SD 5.8) G3: 35.53 (SD 7.16) End of treatment: G1: 27.2 (SD 7.23) G2: 31.95 (SD 6.9) G3: 33.1 (SD 10.26) Diff in change over time (End of treatment): (p=0.031) Nonstatistically sig diff in change over time (end of treatment): BSS CDRS

Table 43. Outcomes of inpatient treatment compared with inpatient treatment plus active therapies for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Castelnuovo et al., 2011[188] G1: IP+CBT (30/NR/NR) G2: IP+BST (30/NR/NR) Independent samples t tests Chi-square	BED improvement (< 2 episodes/week), mean (SD) Pre-tx: NR End of treatment: NR 6 months: G1: 20.0% G2: 63.3% Diff in change over time, end of treatment to 6 months (p=0.001) Nonstatistically sig diff in change over time (end of treatment): BED improvement (<2 episodes/week)	NR	Nonstatistically sig diffs in change over time (end of treatment; 6 months): Weight loss	OQ-Symptom distress, mean (SD) Pre-tx: G1: 48.47 (8.42) G2: 52.13 (11.19) End of treatment (diff): G1: -2.7 (3.49) G2: -3.2 (3.04) 6 months: G1: -7.93 (5.12) G2: -14.1 (5.98) Diff in change over time (end of treatment to 6 months): (p<0.000) OQ-Global index Pre-tx: G1: 92.37 (11.01) G2: 96.47 (10.22) End of treatment: G1: -5.57 (4.38) G2: -9.4 (7.46) 6 months: G1: 14.47 (12.07) G2: 27.2 (10.91) Diff in change over time (end of treatment to 6 months): (p<0.000) Nonstatistically sig diffs in change over time (end of treatment, 6 months): OQ-Interpersonal relations OQ-Social role Nonstatistically sig diffs in change over time (end of treatment): OQ-Symptom distress OQ-Global index

Table 43. Outcomes of trials of inpatient treatment compared with inpatient treatment plus active therapies for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Riva et al., 2002[186] G1: IP+VRIDEM (NR) G2: IP+Psychonutritional groups (NR) Total N = 20 Not reported Exact methods with marginal homogeneity test Riva et al., 2002[186]	Nonstatistically sig diff at end of treatment: Abstinence	Nonstatistically sig diff in change over time (end of treatment): DIET-Total DIET-Positive social DIET-Overeating DIET-Negative emotions DIET-Resisting temptations DIET-Exercise DIET-Food choice	NR	BIAQ-Clothing, mean Pre-tx: G1: 16.10 G2: 14.60 End of treatment: G1: 13.80 G2: 13.80 Diff in change over time: (p=0.035) STAI-Total Pre-tx: G1: 47.80 G2: 39.20 End of treatment: G1: 38.80 G2: 37.70 Diff in change over time: (p=0.035) WELSQ-Total Pre-tx: G1: 107.60 G2: 129.10 End of treatment: G1: 38.80 G2: 130.30 Diff in change over time: (p=0.005) Nonstatistically sig diffs in change over time (end of treatment): Assertion Inventory 2 subscales BSS total and 3 subscales BIAQ-total and 3 subscales FRS 3 subscales CDRS 3 subscales

BED = Binge-Eating Disorder; BIAQ = Body Image Avoidance Questionnaire; BMI = body mass index; BSS = Body Satisfaction Scale; BST = Brief Strategic Therapy; CBT = cognitive behavioral therapy; CDRS = Contour Drawing Rating Scale; DSM-IV = Diagnostic and Statistical Manual of Mental Disorders, 4th edition; DIET = Dieter's Inventory of Eating Temptations; diff= difference; ED = eating disorders; FRS = Figure Rating Scale; G= group; IP = Inpatient program; kg = kilogram; N= number; NR = not reported; OQ = Outcome Questionnaire; RCT = randomized controlled trial; SD = standard deviation; sig= significant; STAI = State Trait Anxiety Inventory; tx = treatment; VRIDEM = Virtual Reality for Eating Disorders Modification; WELSQ = Weight Efficacy Lifestyle Questionnaire

Eating-Related Psychopathology Outcomes

Scores on the Dieter's Inventory of Eating Temptations questionnaire at the end of treatment did not differ significantly between those randomized to virtual reality therapy and those assigned to psychonutritional counseling.[186]

Weight Outcomes

Weight-related outcomes did not differ at the end of treatment in two trials.[187,188] In one trial, however, median BMI was significantly lower at 12-month followup in individuals assigned to virtual reality therapy than in those who were assigned to CBT or received no additional treatment.[187]

General Psychological or Other Outcomes

Virtual reality therapy plus inpatient treatment was associated with greater reductions in Body Image Avoidance Questionnaire (BIAQ) scores than inpatient care plus CBT, inpatient care plus psychonutritional treatment, and inpatient treatment only.[186,187] Additionally, virtual reality therapy plus inpatient treatment was also associated with greater improvements in anxiety and resisting the desire to eat compared with inpatient treatment plus psychonutritional counseling.[186] Although groups did not differ at end of treatment, brief strategic therapy plus inpatient treatment was associated with greater improvements in symptom distress and overall symptom severity from end of treatment to 6-month followup than CBT plus inpatient treatment.[188]

Pharmacological Interventions: Combination Treatments Compared With Placebo and With Other Treatments

Description of Studies

Evidence about combination interventions for treating patients with BED consisted of seven placebo-controlled RCTs (Table 44). In all seven trials, investigators combined a medication with a behavioral treatment; in two, they combined a medication with two behavioral treatments.[95,140] The medications consisted of an antidepressant, which was used in three trials;[95,140,190] an anticonvulsant in one trial;[191] and an anti-obesity agent in three trials.[85,192,193] The behavioral interventions included CBT in three trials,[85,140,191] BWL in one trial,[85] CBT plus BWL in one trial,[190] hypocaloric diet in one trial,[193] and group psychological support plus diet counseling in one trial.[95]

Five trials randomized 283 individuals to one of two treatment arms; the remaining two trials[140,190] randomized 224 individuals to one of four treatment arms. As a result, 227 participants were randomized to combination treatment, 226 to behavioral treatment only, 27 to medication only, and 27 to placebo only. We rated four trials as low risk of bias and three trials as medium risk of bias.

Table 44. Characteristics of trials of combination treatments for binge-eating disorder

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Claudino, 2007[191] Brazil Outpatient RCT Medium	DSM-IV-TR (SCID-I/P) 18–60 years, BMI ≥ 30, BES > 17 G1: 37 G2: 36 21 weeks (including 2- to 5-week single-blind placebo run-in) Mean age: 38.3 Female: 96% Nonwhite: 43% Mean weight: 97.5 Mean BMI: 37.4 History of depression: 36%	G1: CBT + Topiramate, 25 mg/day titrated biweekly up to 150, then weekly up to 200 mg/day, then weekly up to 300 mg/day in those with poor response (≤5% weight loss or <50% reduction in binge days) G2: CBT + Placebo Co-interventions: none	Binge • Binge episodes/week • Binge days/week Eating related • BES Psychological • BDI Weight • Weight • BMI
Devlin, 2005[190] United States RCT Medium	DSM-IV (semistructured interview using the EDE, 12th edition) G1: 28 G2: 25 G3: 32 G4: 31 5 months 18–70 years, BMI ≥ 27, maximum weight = 159 kg Mean age: 43 Female: 78% Nonwhite: 23% Mean weight: 115.0 kg. Mean BMI: 40.9 Current major depression: 10.3%	G1: **BWL + CBT + Fluoxetine**, 60 mg/day G2: **BWL + CBT + Placebo** G3: **BWL + Fluoxetine** G4: **BWL + Placebo** Co-interventions: none	Binge • Binge episodes/month • Abstinence Eating related • BES • BSQ • TFEQ, 3 subscales Psychological • BDI • BSI • IIP • RSE Weight • Weight

Table 44. Characteristics of trials of combination treatments for binge-eating disorder (continued)

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Golay, 2005193 Switzerland Outpatient RCT Low	DSM-IV (semistructured interview) G1: 44 G2: 45 24 weeks 18–65 years, BMI ≥ 30 Mean age: 41 Female: 91% Mean weight: 98.4 kg Mean BMI: 36.5	G1: **HC diet + Orlistat**, 120 mg, 3 times/day G2: **HC diet + Placebo** Co-interventions: none	Binge • Binge episodes/week • Remission Eating related • EDI-2 Psychological • GAD • MDD • HAM-D • HAM-A • BDI Weight • BMI • Weight • % body fat • Waist circumference • Hip circumference • Total energy expenditure Quality of life • NHP
Grilo et al., 2005[140] United States Primary care RCT Low	DSM-IV (SCID, EDE) G1: 27 G2: 27 G3: 26 G4: 28 18–60 years, 100%–200% of ideal body weight Mean age: 44 Female: 78% Nonwhite: 11% Mean BMI: 36.3 Lifetime MDD: 50% Lifetime anxiety disorders: 37%	G1: **Fluoxetine:** 60 mg/day G2: **Placebo**: Same dosing as G1 G3: **CBT + Fluoxetine**: CBT: 16 weeks of individual, 60-minute sessions using method of Fairburn et al. Fluoxetine, same as G1 G4: **CBT + Placebo**: CBT: same as G3 Placebo: same dosing as G3 Co-intervention: minimal clinical management (<15- minute weekly during first 4 weeks, biweekly thereafter)	Binge • Binge episodes/month (EDE-Q) • Binge episodes/month (daily self-monitoring) Eating related • EDE-Q global, 4 subscales • TFEQ 3 subscales • BSQ Psychological • BDI Weight • BMI

Table 44. Characteristics of trials of combination treatments for binge-eating disorder (continued)

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Grilo, 2005[192] United States Outpatient RCT Low	DSM-IV (SCID-I/P, EDE) G1: 25 G2: 25 12 weeks (3 months) 35–60 years, BMI >30 Mean age: 47 Female: 88% Nonwhite: 12% Mean weight: 114.9 kg Mean BMI: 36	G1: **CBTgsh + Orlistat**, 120 mg, 3 times/day G2: **CBTgsh + Placebo** Co-interventions: none	Binge • Binge days/month • Binge episodes/month Eating related • EDE global, 4 subscales Psychological • BDI • RSE Weight • BMI • Weight
Grilo, 2013[85] United States Outpatient RCT Low	DSM-5 (SCID, EDE) G1: 20 G2: 20 4 months (6 months) 21–65 years, BMI $\geq$ 30, monolingual Spanish speaking Mean age: 45.8 Female: 78% Mean BMI: 38.1 Lifetime axis 1 disorder: 88% Lifetime mood disorder: 82% Lifetime anxiety disorder: 48% Lifetime substance disorder: 30%	G1: **BWL + Orlistat**, 120 mg, 3 times/day G2: **BWL + Placebo** Co-interventions: none	Binge • Binge episodes/month Eating related • S-EDE total, 4 subscales Psychological • S-BDI Weight • BMI

Table 44. Characteristics of trials of combination treatments for binge-eating disorder (continued)

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Duration Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Laederach-Hofmann et al., 1999[95] Switzerland Outpatient RCT Medium	DSM-IV (semistructured interview) G1: 15 G2: 16 8 weeks (6 months) 20–60 years, BMI > 27.5 Mean age: 38.1 Female: 87% Mean weight: 105.7 kg Mean BMI: 39.8	G1: **Individual diet counseling + group psychological support + Imipramine:** 25 mg, 3 times/day G2: **Individual diet counseling + group psychological support + Placebo:** same dosing as active treatment Co-interventions: none	Eating related • Binge episodes/week Psychological • SDRS • HDRS Weight • Weight • BMI

BDI = Beck Depression Inventory; BMI = body mass index; BWL = behavioral weight loss; CBTgsh = CBT guided self-help (culturally enhanced adaptation of the Diabetes Prevention Program delivered in Spanish); chEDE = Eating Disorder Evaluation standardized interview for children; DSM = Diagnostic and Statistical Manual; EDE = Eating Disorder Examination Inventory; EDI = Eating Disorder Inventory; FCI = Food Craving Inventory; GAD = Generalized Anxiety Disorder; G = group; HAM-A = Hamilton Anxiety scale; HAM-D = Hamilton Depression scale (a.k.a., HDRS, Hamilton Depression Rating Scale); Hospital Anxiety and Depression scale; IIP = Inventory of Interpersonal Problems IV = fourth edition; kg = kilogram; MDD = Major Depressive Disorder; mg = milligram; N = number; NR = not reported; RCT = randomized controlled trial; RSE = Rosenberg Self-Esteem Scale; S-BDI = BDI, Spanish version; SBE = subjective binge episodes; SCID = Structured Clinical Interview for DSM Disorders; SDRS = Self Depression Rating Scale; S-EDE = EDE, Spanish version; TR = Text Revision

Key Points

- The efficacy of any specific combination treatment in comparison to placebo or other treatment were studied only in single, small sample (N<90) trials (SOE insufficient).

Detailed Synthesis

Details of the outcomes of these seven trials appear in Table 45.

Table 45. Outcomes of trials of combination treatments for binge-eating disorder

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Claudino, 2007[191] G1: CBT+Topiramate (37/30) G2: CBT + Placebo (36/26) 21 weeks (including 2- to 5-week placebo run-in) ITT Repeated measures random regression	Abstinence G1: 83.8% G2: 61.1% (p=0.03) Nonstatistically sig diff in rate of change over time: Binge days/week Binge episodes/week	Nonstatistically sig diff in rate of change over time: BES	Weight, kg, mean (SD) Pre-tx: G1: 96.6 (16.7) G2: 98.4 (10.9) End of treatment: G1: 89.8 (13.4) G2: 97.5 (10.5) Diff in rate of change over time (p<0.001) BMI, mean (SD) Pre-tx: G1: 37.4 (4.9) G2: 37.4 (3.5) End of treatment: G1: 35.0 (3.5) G2: 36.7 (4.7) Diff in rate of change over time (p=0.0002)	Nonstatistically sig diff in rate of change over time: BDI
Devlin, 2005[190] G1: BWL+CBT+ Fluoxetine, 60 mg/day (28/NR) G2: BWL+CBT+ Placebo (25/NR) G3: BWL+Fluoxetine (32/NR) G4: BWL+Placebo (31/NR)	Nonstatistically sig diff in rate of change over time: Binge-eating episodes/month Abstinence	Nonstatistically sig diff in rate of change over time: TFEQ, 3 subscales BSQ	Nonstatistically sig diff in rate of change over time: Weight	BSI, mean (SD): Pre-tx: G1: 45.4 (28.1) G2: 39.4 (32.4) G3: 38.8 (27.7) G4: 45.8 (31.3) End of treatment: G1: 20.3 (26.1) G2: 25.9 (31.8) G3: 26.8 (29.5) G4: 28.8 (30.2) Diff in change over time, G1 > G2 = G3 = G4 (p=0.01) Nonstatistically sig diff in rate of change over time: BDI RSE IIP

Table 45. Outcomes of trials of combination treatments for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Golay, 2005[193] G1: HC Diet+Orlistat, 360 mg/day (44/39) G2: HC Diet+Placebo (45/32) 24 weeks ITT ANCOVA	Nonstatistically sig diff in change over time: Binge episodes/week % meeting DSM-IV criteria for BED	EDI total score at end of treatment G1: 48.7 G2: 58.5 (p=0.011) EDI Perfectionism (p<0.05) EDI Interoceptive awareness (p<0.05 Nonstatistically sig diff in change over time: EDI all other subscales % Remitted (no longer meets DSM-IV BED)	Weight loss, kg, mean diff between groups, -4.84 (p=0.0001) Fat mass, kg, mean diff between groups, -3.69 (p=0.002)	Nonstatistically sig diff in change over time: BDI HAD % DSM-IV GAD % DSM-IV MDD NHP QOL
Grilo, 2005[140]; Grilo, 2006[194,195]; Grilo, 2012[196] G1: Fluoxetine, 60 mg/day (27/21) G2: Placebo (27/23) G3: CBT+Fluoxetine, 60 mg/day (26/20) G4: CBT+Placebo (28/22) 16 weeks (12 months excluding G2) ITT Logistic regression, ANCOVA (baseline adjusted)	Binge-eating episodes/month (diary/EDE), mean (SD) Pre-tx: G1: 20.0 (11.6) G2: 16.3 (11.9) G3: 22.7 (13.7 G4: 22.8 (14.7) End of treatment: G1: 11.0 (11.2) G2: 7.4 (10.2) G3: 4.2 (6.9) G4: 2.6 (5.8) Diff between groups at 16 weeks: (p<0.0001), G1 > G3, G4, G2 > G3 Binge episodes/month (EDE-Q), mean (SD) Pre-tx: G1: 17.9 (12.2) G2: 13.2 (9.3) G3: 15.2 (7.7) G4: 16.6 (8.9)	EDE-Q Dietary Restraint, mean (SD) Pre-tx: G1: 2.4 (1.7) G2: 2.2 (1.5) G3: 2.5 (1.4) G4: 2.6 (1.5) End of treatment: G1: 2.4 (1.6) G2: 1.8 (1.5) G3: 1.6 (1.4) G4: 1.4 (1.0) Diff between groups at 16 weeks (p=0.01), G1 > G3, G4 Estimated marginal mean (SE) 6-month followup: G1: 2.88 (0.31) G3: 1.70 (0.30) G4: 1.56 (0.28) 12-month followup: G1: 2.40 (0.30) G3: 1.90 (0.29) G4: 2.37 (0.27)	Nonstatistically sig diff in change over time: BMI at end of treatment Weight loss at 6 and 12-month followup	BDI, mean (SD) Pre-tx: G1: 16.9 (8.4) G2: 18.7 (9.7) G3: 20.2 (12.1) G4: 16.5 (8.4) End of treatment: G1: 11.8 (9.8) G2: 11.7 (10.3) G3: 9.2 (7.3) G4: 6.5 (6.8) Diff between groups at 16 weeks (p= 0.03), G1 > G3, G4: G2 > G4 Estimated marginal mean (SE) 6-month followup: G1: 14.44 (1.67) G3: 10.73 (1.64) G4: 10.19 (1.49) 12-month followup: G1: 12.88 (1.63) G3: 11.17 (1.57) G4: 11.43 (1.49)

Table 45. Outcomes of trials of combination treatments for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo, 2005[140]; Grilo, 2006[194,195]; Grilo, 2012[196] (continued)	End of treatment: G1: 10.3 (11.1) G2: 7.2 (9.2) G3: 4.7 (11.9) G4: 1.8 (3.9) Diff between groups at week 16: (p<0.0001), G1 > G3, G4: G2 > G3 Binge episodes/month (EDE-Q), estimated marginal mean (SE) 6-month followup: G1: 11.63 (2.37) G3: 3.94 (1.55) G4: 5.73 (1.43) 12-month followup: G1: 11.63 (2.37) G3: 3.94 (1.55) G4: 5.73 (1.43) Diff between groups over time: (p<0.001), G1 > G3, G4 Abstinence at week16 G1: 22% G2: 26% G3: 50% G4: 61% (p=0.007) G3 > G1 (p = 0.05) G3 > G2 (p = 0.03) G4 > G1 (p = 0.004) G4 > G2 (p = 0.008) Abstinence at 6 month followup: G1: 3.7% G3: 34.6% G4: 25% (p=0.018) G1 < G3, G4	Diff between groups over time: G1 > G3 (p=0.009) G1 > G4 (p=0.012) EDE-Q Eating Concern, mean (SD) Pre-tx: G1: 4.0 (1.2) G2: 3.4 (1.4) G3: 3.9 (1.2) G4: 3.6 (1.2) End of treatment: G1: 2.8 (1.8) G2: 2.1 (1.5) G3: 1.5 (1.3) G4: 1.3 (0.7) Diff between groups at 16 weeks (p=0.001), G1 > G3, G4: G2 > G3, G4 Estimated marginal mean (SE) 6-month followup: G1: 2.94 (0.34) G3: 2.06 (0.33) G4: 1.85 (0.30) 12 month followup: G1: 2.93 (0.33) G3: 1.94 (0.32) G4: 1.99 (0.30) Diff between groups over time: G1 > G3 (p=0.004) G1 > G4 (p=0.002) EDE-Q Weight Concern, mean (SD) Pre-tx: G1: 4.1 (0.9) G2: 3.9 (1.5) G3: 4.3 (0.9) G4: 4.0 (0.8)		Diff between groups over time: G1 > G4 (p=0.03)

Table 45. Outcomes of trials of combination treatments for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End-of- Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo, 2005[140]; Grilo, 2006[194,195]; Grilo, 2012[196] (continued)	Abstinence at 12-month followup: G1: 3.7% G3: 26.9 G4: 35.7% (p=0.012) G1 < G3, G4	End of treatment: G1: 3.3 (1.3) G2: 3.0 (1.5) G3: 2.4 (1.5) G4: 2.6 (1.0) Diff between groups at 16 weeks (p=0.003), G1 > G3, G4: G2 > G3 Estimated marginal mean (SE) 6-month followup: G1: 3.86 (0.30) G3: 2.80 (0.29) G4: 2.91 (0.27) 12-month followup: G1: 3.58 (0.29) G3: 2.63 (0.28) G4: 3.03 (0.26) Diff between groups over time: G1 > G3 (p=0.002) G1 > G4 (p=0.021) EDE-Q Shape Concern, mean (SD) Pre-tx: G1: 5.0 (0.8) G2: 4.5 (1.4) G3: 5.1 (0.7) G4: 5.0 (0.8) End of treatment: G1: 3.9 (1.7) G2: 3.6 (1.8) G3: 3.1 (1.8) G4: 3.2 (1.4) Diff between groups at 16 weeks (p=0.005), G1 > G3, G4: G2 > G3, G4 Estimated marginal mean (SE) 6 month followup: G1: 4.45 (0.34) G3: 3.24 (0.33) G4: 3.74 (0.30)		

Table 45. Outcomes of trials of combination treatments for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of Treatment/ End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo, 2005[140]; Grilo, 2006[194,195]; Grilo, 2012[196] (continued)		12-month followup: G1: 4.41 (0.33) G3: 2.95 (0.31) G4: 3.57 (0.29) Diff between groups over time: G1 > G3 (p<0.001) G1 > G4 (p=0.019) EDE-Q Global, mean (SD) Pre-tx: G1: 3.9 (1.2) G2: 3.5 (1.5) G3: 4.0 (1.1) G4: 3.8 (1.1) End of treatment: G1: 3.1 (1.6) G2: 2.6 (1.6) G3: 2.2 (1.5) G4: 2.1 (1.0) Diff between groups at 16 weeks (p=0.005), G1 > G3, G4: G2 > G3, G4 Estimated marginal mean (SE) 6-month followup: G1: 3.52 (0.27) G3: 2.50 (0.26) G4: 2.50 (0.24) 12-month followup: G1: 3.32 (0.26) G3: 2.40 (0.25) G4: 2.73 (0.24) Diff between groups over time: G1 > G3 (p=0.001) G1 > G4 (p=0.003)		

Table 45. Outcomes of trials for combination treatments for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of Treatment/ End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo, 2005[140]; Grilo, 2006[194,195]; Grilo, 2012[196] (continued)		TFEQ-hunger, mean (SD) Pre-tx: G1: 10.1 (3.3) G2: 9.6 (3.9) G3: 10.0 (3.1) G4: 9.7 (3.2) End of treatment: G1: 8.9 (4.6) G2: 8.4 (4.3) G3: 5.7 (4.0) G4: 6.7 (3.3) Diff between groups at 16 weeks (p=0.01), G3 < G1, G2 TFEQ-disinhibition, mean (SD) Pre-tx: G1: 14.0 (1.3) G2: 13.9 (1.9) G3:14.0 (1.7) G4: 14.2 (1.6) End of treatment: G1: 12.2 (3.6) G2: 12.1 (4.3) G3: 8.3 (4.8) G4: 9.3 (4.8) Diff between groups at 16 weeks (p<0.0001), G1 > G3, G4: G2 > G3, G4 BSQ-body dissatisfaction, mean (SD) Pre-tx: G1: 136.3 (26.0) G2: 135.4 (35.2) G3: 139.1 (28.8) G4: 133.5 (24.3)		

Table 45. Outcomes of trials of combination treatments for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo, 2005[140]; Grilo, 2006[194,195]; Grilo, 2012[196] (continued)		End of treatment: G1: 117.5 (41.5) G2: 123.6 (41.0) G3: 106.0 (40.2) G4: 100.9 (23.5) Diff between groups at 16 weeks (p=0.01), G1 > G4: G2 > G3 (note: possible reporting error, G2 not diff than G4) Nonstatistically sig diff in change over time: TFEQ cognitive restraint		
Grilo et al., 2005[192] G1: CBTgsh+Orlistat, 360 mg/day (25/19) G2: CBTgsh+Placebo (25/20) 12 weeks (3 months followup) ITT ANCOVA	Abstinence End of treatment: G1: 64% G2: 36% (p=0.048) Nonstatistically sig diff in change over time: Binge episodes/month Binge days/month Abstinence 3-month followup	Nonstatistically sig diff in change over time: EDE-Q Global and 4 subscales	Weight loss, kg, mean (SD) End of treatment: G1: 3.5 (3.5) G2: 1.6 (2.4) (p=0.02) % Weight loss End of treatment: G1: 3.3 (3.3) G2: 1.6 (2.4) (p = 0.04) Nonstatistically sig diff in change over time: Weight loss followup % weight loss followup	Nonstatistically sig diff in change over time: End of treatment: BDI RSE followup: BDI RSE

Table 45. Outcomes of trials of combination treatments for binge-eating disorder (continued)

Author, Year Arm (N Randomized/ Completed Treatment/ Additional Followup If Any) Treatment Duration (Length of End of Treatment Followup) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Grilo, 2013[85] G1: BWL+Orlistat, 360 mg/day (20/14/18) G2: BWL+Placebo (20/15/19) 16 weeks (6-month followup) ITT RMANOVA	Nonstatistically sig diff in change over time: Binge episodes/month Binge days/month Abstinence	Nonstatistically sig diff in change over time: EDE-Q Total and 4 subscales	Nonstatistically sig diff in change over time: BMI	Nonstatistically sig diff in change over time: BDI
Laederach-Hofmann et al., 1999[95] G1: Imipramine, 75 mg/day (15/14) G2: Placebo (16/15) 8 weeks (24- week followup) Completer sample RMANOVA	Binge-eating episodes/week, mean (SD) Pre-tx: G1: 7.1 (4.1) G2: 7.1 (4.9) End of treatment: G1: 2.5 (2.9) G2: 5.3 (5.1) Diff between groups: (p<0.02) 24-week followup: G1: 4.1 (2.1) G2: 7.2 (4.3) Diff between groups (p<0.01) Abstinence= NR	NR	Weight, kg, mean (SD) Pre-tx: G1: 96.0 (14.2) G2: 114.8 (29.5) End of treatment: G1: 93. 8(14.4) G2: 113.0 (29.4) Diff between groups in % change: (p<0.05) 24-week followup: G1: 90.8 (13.5) G2: 117.0 (29.2) Diff between groups in % change (p=0.003)	HAM-D, mean (SD) Pre-tx: G1: 22.6 (9.8) G2: 21.3 (12.0) End of treatment: G1: 9.8 (7.0) G2: 16.0 (10.3) Diff between groups in % change: (p=0.02) 24-week followup: G1: 12.6 (5.8) G2: 19.2 (8.7) Diff between groups in % change (p=0.01) Nonstatistically sig diff in change over time: SBP DBP Cholesterol Glucose WHR

ANCOVA = analysis of covariance; b/t= between; BDI = Beck Depression Inventory; BED= binge-eating disorder; BES = Binge Eating Scale; BMI= body mass index; BSI = Brief Symptom Inventory; BSQ = Body Shape Questionnaire; BWL= behavioral weight loss; CBT= cognitive behavioral therapy; CBTgsh= cognitive behavioral therapy guided self-help; DBP = diastolic blood pressure; DSM- Diagnostic and Statistical Manual; EDE-Q= Eating Disorder Examination Questionnaire; EDI = Eating Disorders Inventory; G= group; GAD = Generalized Anxiety Disorder; HAD = Hospital Anxiety and Depression; HAM-D = Hamilton Depression scale; HC=hypocaloric; IIP = Inventory of Interpersonal Problems; ITT= intention to treat; kg=kilogram; MDD = Major Depressive Disorder; mg= milligram; N=number; NHP = Nottingham Health Profile; QOL= quality of life; RMANOVA= repeated measures analysis of variance; RSE = Rosenberg Self-Esteem scale; SBP = systolic blood pressure; SD=standard deviation; TFEQ = Three-Factor Eating Questionnaire; tx=treatment; WHR = wait-to-hip ratio

Binge-Eating Outcomes

In two of the seven combination trials, a greater percentage of participants in the combination treatment arm achieved abstinence than those in the behavioral treatment alone arm: CBT plus topiramate (84 percent) was more effective than CBT alone (61 percent)[191] and guided self-help plus orlistat (64 percent) was more effective than CBT alone (36 percent).[192] Neither trial, however, found corresponding significantly greater reductions in binge frequency with combination treatment than with behavioral treatment only. One possible explanation for these seemingly contradictory findings is that, among those who did not achieve abstinence, the degree of binge frequency reduction was similar across treatment arms. Conversely, one multicomponent combination trial comparing psychological support plus diet counseling plus imipramine with psychological support plus diet counseling plus placebo found greater reductions in binge frequency (but did not report abstinence as an outcome) among those who received imipramine than those who received placebo at the end of treatment and at 24-week followup after treatment ended.[95]

One trial addressed the comparative effectiveness of a combination therapy (CBT plus fluoxetine) with a pharmacological therapy (fluoxetine) alone. Binge frequency was significantly lower and the percentage of participants achieving abstinence was significantly greater following combination therapy.[140]

Eating-Related Psychopathology Outcomes

Generally, little evidence emerged for greater effectiveness of combination treatments compared with single pharmacological treatments in eating-related psychopathology outcomes. Hypocaloric diet plus orlistat compared with hypocaloric diet alone resulted in greater reductions in eating-disorder symptoms, particularly perfectionism, and greater increases in interoceptive awareness (i.e., the ability to discriminate hunger and satiety and other feelings and sensations).[193] Similarly, the combination of CBT plus fluoxetine was more effective than fluoxetine alone in reducing eating, shape and weight concerns, dietary restraint, disinhibition, and hunger.[140]

Weight-Related Outcomes

Four trials found greater weight loss with the combination treatment: CBT plus topiramate compared with CBT alone,[191] CBTgsh plus orlistat compared with CBTgsh alone,[192] hypocaloric diet plus orlistat compared with hypocaloric diet alone,[193] and psychological support plus diet counseling plus imipramine compared with psychological support plus diet counseling plus placebo.[95] In contrast, adding fluoxetine to CBT[140] did not produce greater weight loss than either CBT alone or fluoxetine alone;[140] adding fluoxetine to CBT plus BWL also did not lead to greater weight loss than CBT plus BWL alone.[190] Likewise, adding orlistat to BWL did not produce greater reductions in weight than BWL alone.[85]

General Psychological Outcomes

Two of these combination trials found significant improvement in indices of psychological well-being for the intervention group. The combination of BWL plus CBT plus fluoxetine was more effective than BWL plus CBT alone in reducing general psychological symptoms.[190] Psychological support plus diet counseling plus imipramine was more effective than these two interventions plus placebo in reducing symptoms of depression.[95]

Other Outcomes

One trial reported on other outcomes of interest, in this case QOL. QOL scores improved with treatment, but the extent of improvement did not differ between patients receiving BWL plus orlistat and those receiving only BWL.[193]

KQ 2: Harms Associated With Treatments or Combinations of Treatments

Pharmacological Interventions

Description of Studies

Thirty-three trials reported on harms; we had rated seven of these trials as high risk of bias for benefits but, as described in the methods, included them for examining safety and tolerability.[86,91,93,131-134] Two of the included trials did not provide any data on harms[85,140] and one failed to clearly distinguish harms according to treatment arm.[94] In this evidence base, 24 trials included a medication monotherapy arm, 22 included a placebo arm, and 12 included one or more medication plus behavioral intervention arms.

The trials differed in the level of detail used to report harms. For example, some trials provided, by treatment arm, an explicit accounting of events, accompanied by a declaration of attribution of specific events to study discontinuation. These trials were in the minority. More commonly, we observed less rigorous reporting. The investigators might have only reported a list of events by a threshold percentage of participants (e.g., 10 percent or more), or they may have reported events in the medication arm only and broadly stated that they had observed no significant differences between treatment arms. In two trials,[88,141] investigators enumerated adverse events in the treatment arm and stated that the treatment groups did not differ significantly in the number of any individual event; for these two trials, we reported numbers of events in the placebo group as being equal to those given for the treatment group.

Several trials provided either no information on adverse events or so little information that we could not attribute the harms to either group in the trial.[85,86,94,133,140,192,193] For one trial that used a symptom checklist to record adverse events, we subtracted from the total events the reported baseline symptom levels.[151]

Before analysis, we categorized the harms based on eight common side effects associated with antidepressants and anticonvulsants: gastrointestinal (GI) upset, dizziness, headache, sexual dysfunction or decreased libido, musculoskeletal pain or discomfort, sleep disturbance, sympathetic nervous system (SNS) arousal, and other. Examples of GI upset include nausea, diarrhea, and vomiting. Examples of SNS arousal include rapid pulse rate, sweating, and dry mouth. Examples of sleep disturbance include insomnia, sedation, and fatigue. For our analysis, we reduced the eight categories to five groups: GI upset, SNS arousal, sleep disturbance, headache, and other. We also report, when available, the incidence of study discontinuation attributable to adverse events or side effects by drug type and by treatment arm.

Harms were not consistently or thoroughly reported across all trials; thus, we were able to only do meta-analyses of lisdexamfetamine trials and all other results are qualitative. The main findings and strength of evidence grades appear in Table 46. In describing results, we use "worse" to signify a statistically significant difference; we use "higher" or "lower" to indicate a twofold or larger numerical difference that the investigators had not tested for statistical significance.

Table 46. Strength of evidence for commonly reported harms in trials of medication and combination medication plus behavioral treatment for binge-eating disorder

Treatment Comparison	GI Upset[a]	SNS Arousal[b]	Sleep Disturbance[c]	Headache	Others[d]
Topiramate vs. placebo, end of treatment	**Low** 2 RCTs (N=468) 52 vs. 42 No difference	**Moderate** 2 RCTs (N=468) 181 vs. 62) Medication worse[e]	**Low** 2 RCTs (N=468) 48 vs. 41 No difference	**Moderate** 2 RCTs (N=468) 37 vs. 36 No difference	**Moderate** 2 RCTs (N=468) 152 vs. 47 Medication worse[e]
Fluvoxamine vs. placebo, end of treatment	**Low** 2 RCTs (N=105) 18 vs. 6 Medication worse[e]	**Low** 2 RCTs (N=105) 15 vs. 7 Medication higher[e]	**Low** 2 RCTs (N=105) 42 vs. 15 Medication worse[e]	**Insufficient** 1 RCT (N=85)	**Insufficient** 1 RCTs (N=85)
Lisdexamfetamine (50mg/day or 70mg/day) vs. placebo, end of treatment	**Moderate** 3 RCTs (N=938) 88 (18%) vs 31 (7%) Medication worse: mix of symptoms	**Moderate** 3 RCTs (N=938) 283 (57%) vs 59 (13%) Medication worse: mix of symptoms	**High** MA, 3 RCTs (N=938) 11% vs. 5% Medication worse, Insomnia	**High** MA, 3 RCTs (N=938) 14% vs. 9% Medication worse	**Moderate** 3 RCTs (N=938) 53 (10%) vs 13 (3%) Medication worse: decreased appetite

CBT= cognitive behavioral therapy; GI = gastrointestinal; MA = meta-analysis; SNS = sympathetic nervous system; N = number; RCT = randomized controlled trial; vs. = versus

[a] Includes constipation, diarrhea, dyspepsia, flatulence, loss of appetite, nausea, gastrointestinal virus, and similar GI conditions.

[b] Includes rapid or irregular heart rate, dilated pupils, dry mouth, nervousness, sweating, rapid breathing, thinking abnormality, amnesia, paresthesia, others.

[c] Includes abnormal dreams, fatigue, insomnia, sedation, somnolence, yawning.

[d] Includes dizziness, pain, hypertension (high blood pressure), rash or itching, respiratory illness, eructation, urinary hesitancy, rhinitis, depression, bone fracture resulting from accidental injury, sinusitis, language problems, confusion, decreased appetite, taste aversion, others.

[e] Worse indicates a statistically significant difference, whereas higher and lower indicate ≥ 2-fold numerical difference not tested for statistical significance by the original investigators.

Key Points

- Harms of any type associated with treatment for BED and treatment discontinuations attributable to harms occurred approximately twice as often in patients receiving pharmacotherapy than in those receiving placebo.
- The number of *serious* adverse events was extremely low overall. Nonetheless, it was approximately twice as high among patients receiving a medication than among those receiving a placebo.
- Across all these trials, the most common side effect reported was SNS arousal.
- Topiramate was associated with a significantly higher number of SNS arousal and "other" events but no differences in GI upset, headache, or sleep disturbance, based on one large (N=407) efficacy trial that reported significant between-group differences and one smaller trial that found similar results but did not report whether these differences were statistically significant (moderate SOE for SNS and "other" harms).
- One medium-sized (N=85) trial found significantly higher numbers of GI upset and sleep disturbances in patients who received fluvoxamine than in those who received placebo. Similar findings were reported in one small high risk-of-bias trial (low SOE for GI upset and sleep harms). Based on evidence from these same trials, fluvoxamine was associated with a higher number of SNS arousal events (low SOE for SNS arousal).
- Lisdexamfetamine was associated with a higher likelihood of insomnia (RR, 2.66; 95% CI, 1.63 to 4.31; p=0.00); headache (RR, 1.63; 95% CI, 1.13 to 2.36; p=0.009) (high SOE for harms based on meta-analysis of three studies). Based on qualitative assessment of

three studies (N=938), lisdexamfetamine was also associated with a higher rate of GI upset, SNS arousal, and decreased appetite (moderate SOE for harms).

Detailed Synthesis

Table 47 summarizes the side effects reported across trials. The trials are listed *alphabetically by drug name* to facilitate composite views of the separate trials using fluoxetine, fluvoxamine, sertraline, and topiramate. The entries are the numbers of adverse events reported by treatment arms; for example, in the acamprosate trial, 29 events related to GI upset were reported, 20 among patients who received medication and 9 among patients who received placebo. All pharmaceutical trials are placebo-controlled unless otherwise noted in the relevant row.

Table 47. Numbers of harms and discontinuations attributed to harms (intervention/combination or placebo) reported in trials of medication-only and combination medication plus behavioral treatment for binge-eating disorder

Medication and Trial (N of Subjects)	GI Upset[a]	Dizzy	Headache	Libido	Muscle/ Joint[b]	Sleep Disturbance[c]	SNS Arousal[d]	Other[e]	Discontinued (Discontinued due to Serious Harm)[f]
Acamprosate[149] (40)	20/9	NR	3/2	NR	NR	4/1	NR	13/21	2/1
ALKS-33[150] (62)	16/7	10/0	9/6	NR	3/5	20/11	5/1	NR	12/NR
Atomoxetine[97] (40)	16/7	3/0	6/4	NR	0/2	9/5	24/9	10/3	3/1
Bupropion[141] (61)	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Chromium[151] (21)	20/18	1/2	9/5	NR	NR	28/13	NR	8/17	0/0
Citalopram[90] (61)	14/6	0/0	8/5	3/1	0/0	13/5	17/8	0/0	2/3
Desipramine+CBT+ BWL[86] (108)	NR	NR	NR	NR	NR	NR	NR	NR	8/NR
Duloxetine[969] (40)	14/14	NR	NR	NR	NR	1/0	12/12	2/0	3(1)/0
Escitalopram[98] (44)	9/10	0/0	3/4	3/0	0/0	9/8	12/7	7/8	1(1)/2(1)
Fluoxetine (20–60 mg/day)[190] (116)	NR	NR	NR	NR	NR	NR	NR	1/NR	1/NR
Fluoxetine, 60 mg/day[140] (108)	NR	NR	NR	NR	NR	NR	NR	NR	NR
Fluoxetine, 80 md/day[889] (60)	15/15	NR	NR	4/4	NR	18/18	11/11	4/4	2/2
Fluoxetine, 40-80 mg/day and Sertraline 100-200 mg/day[94]	7	NR	3	NR	NR	3	3	NR	0/0
Fluoxetine (20–60 mg/day)+CBT[134] (65)	NR	NR	NR	NR	NR	1/0	1/0	NR	2/0
Fluoxetine (60 mg/day) and Fluoxetine+CBT[93] (43)	11	NR	3	1	NR	4	NR	NR	5
Fluvoxamine[92] (85)	14/5[h]	10/6	17/12	4/1	14/8	34/12[h]	11/4	9/4	5/0
Fluvoxamine (300 mg/day) and Fluvoxamine+ CBT[93] (44)	13	NR	2	NR	NR	5	NR	NR	7
Fluvoxamine[91] (20)	4/1	NR	NR	3/0	NR	8/3	4/3	NR	1(1)/NR

Table 47. Numbers of harms and discontinuations attributed to harms (intervention/placebo or combination) reported in trials of medication-only and combination medication plus behavioral treatment for binge-eating disorder (continued)

Medication and Trial (N of Subjects)	GI Upset[a]	Dizzy	Headache	Libido	Muscle/ Joint[b]	Sleep Disturbance[c]	SNS Arousal[d]	Other[e]	Discontinued (Discontinued due to Serious Harm)[f]
Imipramine+Diet+ Psych Support[95] (31)	NR	NR	NR	NR	NR	NR	1/NR	NR/1	1/1
Lamotrigine[144] (51)	4/1	1/2	9/7	0/2	NR	16/7	4/0	9/6	3/1
Lisdexamfetamine (30 mg/day, 50 mg/day, 70 mg/day)[87] (259)	15/14/ 10/1	NR	9/9/5/6	NR	NR	8/13/13/1	36/34/39 /9	26/17/2 0/10	9(3)/NR
Lisdexamfetamine (50 mg/day or 70 mg/day)[145,146]	27/18	NR	26/17	NR	NR	41/24	140/39	25/17	34 (12)/34 (5)
Lisdexamfetamine (50 mg/day or 70 mg/day)[146,147]	37/12	NR	32/16	NR	NR	36/15	70/11	11/3	48 (7)/48 (5)
Orlistat (360 mg/day)+BWL[85] (40)	NR	NR	NR	NR	NR	NR	NR	NR	NR
Orlistat (360 mg/day)+CBT[192] (50)	NR	NR	NR	NR	NR	NR	NR	NR	2/NR
Orlistat (360 mg/day)+Diet[193] (89)	NR	NR	NR	NR	NR	NR	NR	NR	0/4
Sertraline[89] (33)	NR	NR	NR	NR	NR	7/1	NR	NR	0/0
Sertraline (50–100 mg/day)+ Topiramate 25 to 150 mg/day)+Diet+ CBT[133] (30)	NR	NR	NR	NR	NR	NR	NR	NR	0/0
Topiramate[99] (61)	20/17	8/4	12/7	NR	6/2	14/15	41/15	22/2	6/3
Topiramate[143] (407)	32/25	NR	25/29	NR	NR	34/26	140/47[h]	116/39[h]	29(3)/16(3)
Topiramate+CBT(25–300 mg/day)[191] (73)	19/21	11/7	19/19	NR	20/12	14/20	22/11	22/8	1/0
Zonisamide[131] (40)	33/26	4/2	11/9	3/1	7/4	16/9	40/28	14/9	8/4
Zonisamide(25–150 mg/day)+CBT[132] (52)	2/NR	2/NR	2/NR	NR	NR	NR	NR	NR	6

BWL = behavioral weight loss; CBT = cognitive behavioral therapy; GI = gastrointestinal; mg = milligrams; NR = not reported

[a] Includes constipation, diarrhea, dyspepsia, flatulence, loss of appetite, nausea, gastrointestinal virus, and similar GI conditions.

[b] Includes asthenia, myalgia, pain, and weakness.

[c] Includes abnormal dreams, fatigue, insomnia, sedation, somnolence, and yawning.

[d] Includes rapid/irregular heart rate, dilated pupils, dry mouth, nervousness, anxiety, sweating, rapid breathing, thinking abnormality, amnesia, paresthesias, and others.

[e] Other includes hypertension (high blood pressure), rash or itching, respiratory illness, eructation, urinary hesitancy, rhinitis, depression, bone fracture resulting from accidental injury, sinusitis, language problems, confusion, taste aversion, cholecystitis, decreased appetite, and others.

[f] Discontinued because of an adverse side effect; patients discontinuing because of specific serious adverse event are reported within the parentheses. For Agras[86] discontinuations because of adverse effects were not attributed to any specific types of events.

[g] The investigators reported only the total number of events and claimed that the events did not differ between intervention and comparison groups. Between-group differences were not significant for all symptoms.

[h] Statistically significant difference between treatment arms.

Across 30 (of 33 possible trials), the investigators reported 3,049 participants (2,059 receiving a drug; 990 receiving placebo) experienced harm. Only 2 of the 22 placebo-controlled trials reported whether the number of harms differed significantly between patients receiving drugs and those receiving placebos. Specifically, fluvoxamine was associated with a significantly higher number of events related to GI upset and sleep disturbances,[92] and topiramate was associated with a significantly higher number of SNS arousal and "other" events.[143] Notably, these two trials had two of the three largest samples; thus, the lack of significant differences in other trials may reflect sample size limitations with the exception of the three lisdexamfetamine trials, which did not report whether differences were statistically significant.[87,145-147] However, because of similarity across these studies, we were able to conduct meta-analyses of several harms outcomes.

A total of 186 study discontinuations because of adverse events or side effects were reported: 138 among those randomized to medication alone (N=118) or to an intervention that combined a medication behavioral treatment (N=20) and 48 among those randomized to placebo. Very few discontinuations were directly attributed to serious adverse events (11 associated with pharmacotherapy, 4 with placebo).

Meta-analyses of harms in the three lisdexamfetamine trials, comparing 50 mg/day or 70 mg/day (the two higher dosage treatment arms of the Phase 2 trial and the Phase 3 treatment arms) to placebo. The lisdexamfetamine group had a 63 percent greater likelihood of having one or more headaches during the trial (RR, 1.63; 95% CI, 1.13 to 2.36; p=0.009; I^2=0%); 14 percent compared to 9 percent. Insomnia was also higher in the lisdexamfetamine group (RR, 2.66; 95% CI, 1.63 to 4.31; p=0.00; I^2=0%); 11 percent compared to 5 percent. Overall, experiencing one or more nonserious harms (gastrointestinal disorders, fatigue, feeling jittery, decreased appetite, headache or insomnia) during the trial was more likely in the lisdexamfetamine group (RR, 1.81; 95% CI, 1.38 to 2.37; p=0.00; I^2=0%); 66 percent compared to 34 percent. In addition, through qualitative assessment, we found that GI upset, SNS arousal and decreased appetite were more than twice as likely in the treatment arms (Table 47).

Only the lisdexamfetamine trials reported serious adverse events that could be directly attributed to study medication. In the Phase 2 trial, the death of one participant in the 70 mg/day dose group was reported. However, the post-mortem examination revealed other drug use; methamphetamine and amphetamine levels were consistent with a methamphetamine overdose.[146]In the Phase 3 trials, serious adverse events included syncope in three patients (two in the treatment arm and one in the placebo arm).[145-147]

Psychological and Behavioral Interventions

Across the body of evidence on trials of psychological and behavioral interventions, we found limited evidence of any harms, side effects, or other reasons for discontinuing treatment. The evidence is insufficient to draw any conclusions about safety or tolerability from this body of evidence.

One trial comparing therapist-led CBT with waitlist-reported numbers of patients who discontinued treatment for various reasons: dissatisfaction with treatment (CBT, 6; waitlist, 1), lack of time (CBT, 2), major depression (CBT, 1), and unspecified (CBT, 33).[155] Another trial of therapist-led inpatient treatment reported reasons that four patients withdrew (CBT, 3; IPT, 1):[80] dissatisfaction with treatment (2 patients), agoraphobia (1), and unspecified (1).

KQ 3: Differences in the Effectiveness of Treatments or Combinations of Treatments for Subgroups of Adults With Binge-Eating Disorder

BED treatment effectiveness for subgroups of patients is particularly important but was not well studied. We found no evidence examining differences in the effectiveness of any of the treatments for BED based on differences in patient sociodemographic or health characteristics. The majority of patients included in these trials were women. No trial reported on outcomes separately by sex, thereby limiting our ability to draw conclusions about differences in effectiveness based on sex.

Grilo and colleagues examined possible moderators of response to BED treatment in two RCTs. In one trial of 108 patients randomized to fluoxetine, placebo, CBT plus fluoxetine, or CBT plus placebo, the study team used mixed-effects models to test the interaction of treatment type with numerous baseline variables to examine differences in effectiveness by key patient characteristics including age and sex.[194] Unfortunately, the authors combined treatment arms in this analysis (fluoxetine alone with placebo alone and CBT alone with CBT plus fluoxetine). Therefore, we could not use their results to evaluate differences in CBT and fluoxetine effectiveness.

In a second trial, they examined whether rapid response to treatment had any bearing on binge-eating outcomes in a trial comparing guided self-help interventions (CBT and BWL).[73,178] Rapid response was defined as a 65 percent or greater reduction in binge eating by the fourth (of 12) week of treatment. In a comparison limited to nonrapid responders in both arms, those receiving CBT had significantly fewer binge episodes as measured by both self-report and the EDE-Q. Rapid responders did not have this same CBT result, but those in the BWL group reported significantly greater restraint than those in the CBT group.

Results: Loss-of-Control Eating

Introduction

This chapter presents our analysis of results for each Key Question (KQ) concerning treatment for two populations with loss-of-control (LOC) eating. The first section deals with treatment for bariatric surgery patients (KQs 6 through 8); the second deals with treatment for children (KQs 11 through 13).

LOC Eating Among Bariatric Surgery Patients

KQ 6: Effectiveness of Treatments or Combinations of Treatments

We found no evidence examining the effectiveness of treatments or combinations of treatments for LOC eating among bariatric surgery patients.

KQ 7: Harms Associated With Treatments or Combinations of Treatments

We found no evidence examining harms associated with treatments or combinations of treatments for LOC eating among bariatric surgery patients.

KQ 8: Differences in the Effectiveness of Treatments or Combinations of Treatments for Various Subgroups

We found no evidence examining differences in the effectiveness of treatments or combinations of treatments for LOC eating among bariatric surgery patients based on differences in patient sociodemographic or health characteristics.

LOC Eating Among Children

KQ 11: Effectiveness of Treatments or Combinations of Treatments

Interventions: Comparisons With Waitlist and Other Treatments

Description of Studies

The included evidence about treatment of children for LOC eating consisted of four randomized controlled trials (RCTs) described in Table 48.[197-200] Three focused on adolescents[198,199] and one on children 8 to 12 years of age.[197] All participants were overweight or obese. Two trials included boys as well as girls.[197,198] Two trials were conducted by Tanofsky-Kraff and colleagues; the first smaller trial (N=20) was considered a pilot study for the larger second trial (N=106). The treatment arms were the same in both trials.

Table 48. Characteristics of trials for treatment of loss-of-control eating in children

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Boutelle et al., 2011[197] United States Outpatient RCT Medium	Eating in the absence of hunger (chEDE) G1:18 G2: 18 8 weeks (6 and 12 months) Overweight and obese, 8 to 12 years of age Mean age:10.3 Mean BMI: 27.4 Female: 58% Nonwhite: 40%	**G1: Volcravo**: manualized cue-exposure, 8 weekly, 45-minute, 8–10 member parent and child group sessions, followed by 30-minute individual parent and child exercise **G2: CAAT:** manualized appetite awareness training, 8 weekly, 45 minute 8–10 member parent and child group sessions, followed by 30- minute individual parent and child exercise Cointerventions: None	Binge • OBE, SBE, OOE (child) • Binge, EAH (parent report) Eating related • None Weight • BMI Psychological and other • None
Jones et al., 2008[198] United States Internet RCT Medium	Binge eating or overeating behaviors (EBI modified to focus on binge symptoms and objective overeating) G1: 52 G2: 53 16 weeks (9 months) High school students, ≥85th percentile for BMI Mean age: 15.1 Mean BMI: 30.6 Female: 70% Nonwhite: 36%	**G1: SB2-BED**: manualized, 16-week, Internet-facilitated semistructured, CBT, self-help program **G2: Waitlist control** Cointerventions: None	Binge • OBE, SBE • OOE Eating-related • Weight and shape concerns Weight • BMI Psychological and other • Depressed mood • Dietary fat intake
Tanofsky-Kraff et al., 2010[199] United States Outpatient RCT Medium	LOC eating in the month prior to the assessment (EDE) G1: 11 G2: 9 12 weeks (6 and 12 months from baseline) Girls, 12–17 years of age, BMI 75th–97th percentile Mean age: 15.3[a] Mean BMI: 25.3[a] Nonwhite: 50%[a]	**G1: IPT-WG**: manualized, 12 weekly 75- to 90-minute group sessions, based on IPT-AST and IPT for BED **G2: HE:** manualized, 12 weekly 75- to 90-minute group sessions, "attention-only" comparison Cointerventions: None	Binge • Number of episodes Eating-related • None Weight • BMI Psychological and other • None

Table 48. Characteristics of trials for treatment of loss-of-control eating in children (continued)

Author, Year Country Funding Source Setting Design Risk of Bias	Diagnosis (Diagnostic Method) N Randomized Treatment Duration (Length of End of Treatment Followup) Key Inclusion Criteria Key Characteristics	Intervention Comparator Co-interventions	Major Benefit Outcome Measures Subgroup Analyses and Comparisons (If Any)
Tanofsky-Kraff et al., 2014[200] United States Outpatient RCT Medium	At least one episode of LOC eating in the month prior to the assessment (EDE) G1: 56 G2: 60 12 weeks (6 and 12 months from baseline) Girls, 12–17 years of age, BMI 75th–97th percentile Mean BMI: 27.0 Nonwhite: 43%	**G1: IPT-WG**: manualized, one 90-minute individual session, followed by 12 weekly 75–90 minute group sessions, based on IPT-AST and IPT for BED **G2: HE**: manualized, one 90-minute individual session, followed by 12 weekly 75- to 90-minute group sessions, "attention-only" comparison Cointerventions: None	Binge • LOC episodes • Presence of LOC eating • Presence of frequent LOC eating • Binge eating • OBEs Eating-related • None Weight • BMI • Percent obese Psychological and other • None

BED = binge-eating disorder; BMI = body mass index; CAAT: = children's appetite awareness training; CBT = cognitive behavioral therapy; chEDE = Eating Disorder Evaluation standardized interview for children; EAH = eating in the absence of hunger; EBI = Eating Behaviors Inventory; EDE = Eating Disorder Examination Inventory; G = group; HE = Hey-Durham; IPT = interpersonal psychotherapy; IPT-AST = IPT-Adolescent Skills Training; IPT-WG = IPT for the prevention of excess weight gain; LOC = loss of control; N = number; OBE = objective binge episodes; OOE = objective overeating episode; RCT = randomized controlled trial; SB2-BED: StudentBodies2-BED; SBE = subjective binge episodes

[a] Data obtained directly from the first author.

The trials differed in the definition of LOC eating that the investigators used to determine participant eligibility. Boutelle et al. included preadolescent children who were eating in the absence of hunger (EAH). The authors proposed EAH as "a key symptom that contributes to episodes of binge eating."[197,p2] They determined EAH with an assessment measure asking children about hunger and fullness following a standard meal. Children qualified for the trial if their EAH was greater than 10 percent of their daily caloric needs. Jones et al. included high school students who reported binge eating on the Eating Behaviors Inventory (EBI);[198] the EBI is a semistructured diagnostic instrument adapted from the Eating Disorder Examination (EDE) for use with adolescents. Participants were included even if they did not meet EBI criteria for having objective binge episodes (OBEs), subjective binge episodes (SBEs), or objective overeating episodes (OOEs). TheTanofsky-Kraff et al. trials included adolescent girls who had experienced LOC eating in the prior month, based on an EDE assessment.[199,200]

One trial compared two treatments for BED.[197] In the other trials, one was with a waitlist control group[198] and two were with an "attention-only" arm.[199,200]

Key Points

- The evidence consisted of four trials. They differed in the criteria used for defining LOC eating among participants, treatment comparisons, and measures used to evaluate binge outcomes. With the exception of weight (low strength of evidence for no difference), strength of evidence was insufficient across all outcomes. Table 49 documents the

numbers of trials and subjects available as evidence for each treatment comparison and outcome.

Table 49. Strength of evidence for outcomes of trials for treatment of loss-of-control eating among children

Treatment Comparison	Binge-Eating Outcomes	Eating-Related Psychopathology	Weight Outcomes	Psychological Outcomes	Other Outcomes
Cue exposure vs. appetite awareness	**Insufficient** 1 RCT (N= 36) Inconsistent results based on end points and measures	**Insufficient** No studies	**Insufficient** 1 RCT (N=36) No difference	**Insufficient** No studies	**Insufficient** No studies
Self-help CBT vs. waitlist	**Insufficient** 1 RCT (N=105) Greater reduction in OBEs and SBEs at 9 months	**Insufficient** No studies	**Insufficient** 1 RCT; (N=105) Greater reduction in BMI at 9 months	**Insufficient** No studies	**Insufficient** No studies
Interpersonal psychotherapy vs. non-BED health education "attention only"	**Insufficient** 2 RCTs (N=116) Inconsistent results based on measure	**Insufficient** No studies	**Low** 2 RCTs (N=116) No difference	**Insufficient** No studies	**Insufficient** No studies

BED = binge-eating disorder; BMI = body mass index; CBT = cognitive behavioral therapy; N = number; OBE = objective binge episodes; RCT = randomized controlled trial; SBE = subjective binge episodes

Detailed Synthesis

The one comparative effectiveness trial focused on treatment of preadolescent children. Interventions in both arms consisted of eight weekly sessions and included participation by both children and their parents (Table 49).[197] The investigators compared Volcravo, a cue exposure treatment intended to provide children with skills for coping with food cravings, with children's appetite awareness training (CAAT), a system to increase children's sensitivity to hunger and satiety along with coping skills to manage the urge to eat when not hungry. They measured outcomes at the end of treatment and up to a year after treatment.

Of the three trials with adolescent participants, one concerned the efficacy of a 16-week Internet-facilitated program called SB2-BED, incorporating cognitive-behavioral principles in a self-help approach, compared with waitlist controls.[198] Adherence was low; 31 percent of the participants never logged on to the Internet program. The second trial with adolescents included a subset of participants with LOC eating who could be analyzed separately. This pilot study compared interpersonal psychotherapy for the prevention of excessive weight gain (IPT-WG) for BED with a health education program (HE) that did not address BED.[199] Both arms consisted of weekly group sessions. All participants in both arms completed the programs, attending at least 80 percent of the sessions. In the succeeding larger trial comparing IPT with HE, 86 percent of the IPT-WG group and 66 percent of the HE group attended at least 80 percent of the sessions.[200]

Binge-Eating Outcomes

In the comparative effectiveness trial, various measures of binge-eating outcomes may hint at greater improvement with Volcravo than CAAT, but results were not sustained within any one measure and not supported by parent report (Table 50).[197] Volcravo showed greater improvement in EAH at the end of treatment, OBEs at 6-month followup, and overeating episodes (OBEs plus

objective overeating episodes) at 12-months followup. No child measures at any other endpoints and no parent measures at any endpoints were significantly different.

Table 50. Outcomes of trials for treatment of loss-of-control eating among children

Author, Year Arm (N Randomized/Completed Treatment/Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Boutelle et al., 2011[197] G1: Volcravo (18/16/16/12) G2: CAAT (18/16/16/11) ITT sample Generalized linear mixed model; data presented are predicted means; p-values present difference between groups in change over time from baseline	EAH (eating in the absence of hunger, expressed as a percentage of daily caloric needs) Baseline: G1: 20% G2: 18% End of treatment G1: 10% G2: 19% (p < 0.001) 6-month followup (p=NS) 12-month followup (p=NS) OBE Baseline: G1: 1.22 G2: 0.89 End of treatment (p=NS) 6-month followup G1: 0.00 G2: 0.44 (p < 0.001) 12-month followup (p= NS) Overeating episodes (OBE+OOE) Baseline: G1: 1.61 G2: 0.94 Posttreatment (p=NS) 6-month followup (p=NS) 12-month followup G1: 0.00 G2: 0.10 (p < 0.001) Nonstatistically sig diff in change over time at all end points: SBE; LOC eating; EAH (parent reported) Binge eating (parent reported)	NR	Nonstatistically sig diff in change over time at all end points BMI BMI (parent reported)	NR

Table 50. Outcomes of trials for treatment of loss-of-control eating among children (continued)

Author, Year Arm (N Randomized/Completed Treatment/Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Jones et al., 2008[198] G1: SB2-BED (52/46/44) G2: WLC (53/47/43) ITT sample Linear regression; mean change in effect size	OBEs and SBEs, mean (SD) Baseline: G1: 18.37 (22.63) G2: 8.27 (17.75) Posttreatment: G1: 7.44 (17.89) G2: 6.16 (16.10) 9-month followup: G1: 9.0 (19.45) G2: 3.20 (8.92) ($p < 0.05$) Nonstatistically sig diff in change over time: OOEs	NR	BMI, mean (SD), kg/m^2 Baseline: G1: 30.53 (5.17) G2: 31.03 (6.29) Posttreatment: G1: 29.22 (5.2) G2: 30.44 (6.69) 9 months: G1: 29.83 (5.3) G2: 31.47 (6.55) ($p < 0.05$) BMI, z score, mean (SD) Baseline: G1: 1.79 (0.49) G2: 1.81 (0.52) Posttreatment: G1: 1.60 (0.58) G2: 1.68 (0.62) 9-months followup: G1: 1.61 (0.61) G2: 1.78 (0.57) ($p < 0.001$)	Nonstatistically sig diff in change over time: Depressed mood
Tanofsky-Kraff et al., 2010[199] G1: IPT-WG (11/11/11) G2: HE (9/9/9) No attrition Linear model with repeated measures and group interaction term	Reduction in loss of control episodes (SD): 6 months: G1: 0.53 (0.9) G2: 0.21 (0.5) ($p = 0.036$) Nonstatistically sig diff in change over time at 6 months: Binge episodes	NR	Nonstatistically sig diff in change over time at 1 year: BMI	NR

Table 50. Outcomes of trials for treatment of loss-of-control eating among children (continued)

Author, Year Arm (N Randomized/Completed Treatment/Additional Followup If Any) Analysis Approach	Binge-Eating Outcomes	Eating-Related Psychopathology Outcomes	Weight Outcomes	Psychological and Other Outcomes
Tanofsky-Kraff et al., 2014[200] G1: IPT-WG (56/49) G2: HE (60/49) Linear model with repeated measures (full-information maximum-likelihood estimation) and group interaction term	Binge eating episodes, controlling for number of episodes at posttreatment, because number differed at baseline Baseline: G1: 0.4 (0.3, 0.5) G2: 0.8 (0.6, 1.1) 12 months G1: 0.04 (0.00–0.09) G2: 0.16 (0.14, 0.23) (p = 0.03) Presence of binge eating G1: 25.5% G2: 37.9% 12 months G1: NR G2: NR G2 girls were >7 times more likely to endorse binge eating at 12 months than G1 girls; OR, 7.32; 95% CI, 1.57, 34.18, (p = 0.01) Nonstatistically sig diff in change over time at 12 months: LOC episodes; Likelihood of any LOC eating (controlling for baseline LOC eating; Presence of frequent LOC eating (at least 1 per week for 3 months); OBEs; Presence of frequent binge eating (at least 1 per week for 3 months), controlling for baseline. Development of eating disorder, excluding those with BED at baseline	NR	Nonstatistically sig diff in change over time at 12 months: BMI	Nonstatistically sig diff in change over time at 12 months: Social Adjustment Scale; Beck Depression Inventory; State-Trait Anxiety Inventory for Children

BED = binge-eating disorder; BMI = body mass index; CAAT = children's appetite awareness training; CI = confidence intervals; diff = difference; EAH = eating in the absence of hunger; diff= difference; G = group; HE = Hey-Durham; IPT = interpersonal psychotherapy; IPT-AST = IPT-Adolescent Skills Training; IPT-WG = IPT for the prevention of excess weight gain; ITT = intent-to-treat; LOC = loss of control; NR = not reported; NS = nonsignificant; OBE = objective binge episodes; OOE = objective overeating episode; OR = odds ratio; SBE = subjective binge episodes; SD = standard deviation; sig = significant; WLC = wait list control

The trial of SB2-BED, the Internet-based treatment, evaluated binge-eating outcomes through a measure combining OBEs and SBEs; it found a greater reduction from baseline to 9-month followup among the SB2-BED group.[198] The pilot study of IPT-WG showed mixed results at followup of 6 month after treatment. The IPT-WG group had a greater reduction in LOC episodes than the HE group but no difference in change in binge episodes.[199] In contrast, in the larger study comparing IPT-WG and health education at 12-month followup, the IPT-WG

group had fewer binge episodes, controlling for baseline differences, and these participants were less likely to be binge eating. However, the two groups did not differ in measures of LOC eating.

Weight Outcomes

Only the trial of SB2-BED (the Internet-facilitated intervention) showed a significant difference between arms in change in BMI at any posttreatment evaluation.[198] Mean BMI declined in the SB2-BED arm from 30.53 kg/m^2 at baseline to 29.83 kg/m^2 at 9-month followup; it rose in the control group from 31.03 kg/m^2 to 31.47 kg/m^2 ($p<0.05$). In two trials, BMI measured at 1 year did not differ in an IPT-WG arm and an HE "attention only" intervention arm.[199,200]

Other Outcomes

No trial reported on eating-related psychopathology, psychological, or other outcomes.

KQ 12: Harms Associated With Treatments or Combinations of Treatments

We found no evidence examining harms associated with treatments or combinations of treatments for LOC eating among children.

KQ 13: Differences in the Effectiveness of Treatments or Combinations of Treatments for Subgroups of Children

One trial (a follow-on to a pilot study) examined differences in the effectiveness of treatments or combinations of treatments for LOC eating among children based on differences in patient sociodemographic or health characteristics. In the larger trial comparing IPT-WG and a HE "attention only," Tanofsky-Kraff et al. found that race was not a moderator of the group effect in measuring binge-eating outcomes.[200]

Results: Course of Illness

Introduction

This chapter presents the results of our literature search and findings for Key Questions (KQs) concerning course of illness in individuals with binge-eating disorder (BED), bariatric surgery patients with loss-of-control (LOC) eating, and children with LOC eating. For each group, we examine the course of illness for 1 year or longer and explore whether course of illness differs by patient characteristics and duration of illness. We report our results separately for each condition in the three main sections of the chapter.

The review focuses on five main outcome categories: binge eating or LOC eating, eating-related scale measures, weight or body mass index (BMI), psychiatric or psychological variables, and a catchall category for all other outcomes. We present summary tables describing characteristics of studies including the study design, the diagnostic criteria used to determine BED or LOC eating, patient characteristics, and outcomes. Separate outcomes tables present the analytic approach and results for each outcome category. Articles that discuss results from the same study are grouped in the same row. As appropriate, we comment on strength of evidence (SOE) as in earlier chapters.

Study designs are all observational. They include longitudinal case-control (following a group of individuals with the condition and a matched group of individuals without), community cohort (following a group of individuals with the condition), and patient case series (following a group of individuals with the condition who received treatment). Several of the patient case series studies that we use as evidence for BED course of illness are also included as evidence for treatment effectiveness. In this chapter, we limit our findings to outcomes for treatment groups followed for 1 year or more past the end of treatment; we do not compare across treatment modalities. Because of the small number of studies meeting our inclusion criteria, we used case series studies that we had determined to be at high risk of bias based on an assessment relevant for observational studies. In addition to other possible shortcomings, these studies follow one group with BED over time and do not control for characteristics that may be related to the outcome.

Binge-Eating Disorder

KQ 4: Course of Illness

Description of Studies

Our discussion of the course of illness among individuals with BED is based on evidence from 10 studies (Table 51). All these studies of course of illness were limited to participants who had earlier participated in BED treatment studies. Seven of the studies assessed patient outcomes following outpatient behavioral interventions. They included 1 year following cognitive behavioral therapy (CBT),[201]1 year following group CBT or group interpersonal psychotherapy (IPT),[80,138] 1 year following group psychodynamic interpersonal psychotherapy (GPIP),[202], up to 2 years following behavioral weight loss (BWL), CBT guided self-help, or IPT,[176]and 3 years following CBT in two separate studies conducted at the same Italian clinic.[173,203] The course of illness of one group of patients who received inpatient treatment was assessed at 3-, 6-, and 12-year followup.[137,204-206] Another study compared reproductive health outcomes in women with

BED with those of matched controls.[207] Finally, one review of three studies[208] and one additional single study report[209]looked at the risk of suicide 5 years following treatment in relationship to the risk in the general population.

Table 51. Characteristics of course of illness studies among individuals with binge-eating disorder

Author, Year Country Design Length of Time Followed Risk of Bias	Research Objective Definition of Binge-Eating Disorder	Groups (Number Analyzed) Key Population Characteristics at Baseline	Major Outcome Categories Measures Subgroup Analyses and Comparisons (If Any)
Agras et al., 1997[201] United States End of treatment cohort High	To examine course of illness in a BED cohort 1 year following the end of CBT and weight loss treatment BED diagnostic criteria not specified	BED end of treatment cohort G1: 93 at baseline, end of treatment analysis cohort (N= 76) Mean age: 46 Female: 100% Nonwhite: 8% BMI: 36.7	Binge eating Number of days with one or more binge-eating episodes Abstinence Weight BMI
Castellini et al., 2012[203] Italy End of treatment cohort Medium	To examine course of illness in a BED cohort 3 years following the end of CBT BED meeting DSM-IV-TR assessed by structural clinical interview	BED end of treatment cohort G1: Started treatment (N=150); Included in analysis of change over time (N=133) Mean age: 43.9 (18-60) Female: 88% Nonwhite: NR BMI: 38.0 (7.3)	Binge eating Objective binge episodes Subjective binge episodes Weight BMI
Fichter et al., 1993;[204] Fichter et al., 1998;[137] Fichter et al., 2003;[205] Fichter et al., 2008[206] Germany End of treatment cohort Fichter et al., 1993;[204] Fichter et al., 1998;[137]: High Fichter et al., 2003;[205] Fichter et al., 2008[206]: Medium	To examine course of illness in a BED cohort 3, 6, and 12 years following inpatient treatment DSM-IV through self-report, chart review and therapist diagnosis	BED end of treatment cohort G1: started treatment (N=68); followup at 3 years (N=67); followup at 6 years (N=67); followup at 12 years (N=62) Mean age: 29.3 Female: 100% Nonwhite: NR BMI: 33.7	Binge BED Any eating disorder Binge eating episodes Binge severity Eating-related EDI ANIS SIAB Weight BMI Psychological BDI

Table 51. Characteristics of course of illness studies among individuals with binge-eating disorder (continued)

Author, Year Country Design Length of Time Followed Risk of Bias	Research Objective Definition of Binge-Eating Disorder	Groups (Number Analyzed) Key Population Characteristics at Baseline	Major Outcome Categories Measures Subgroup Analyses and Comparisons (If Any)
Linna et al., 2013[207] Finland End of treatment cases matched to controls Low	To examine reproductive health outcomes in BED treatment patients compared with matched controls DSM-IV	BED end of treatment cohort:G1 (N= 149) matched controls: G2 (4 controls per patient) Mean age: 34.1 (29.3-40.1) Female: 100% Nonwhite: NR BMI: NR	Other Miscarriage
Maxwell et al., 2014[202] Canada End of treatment cohort Medium	To examine whether changes in attachment insecurity are related to 1-year outcomes in a BED population that received group psychodynamic IPT DSM-IV	BED end of treatment cohort G1: started treatment (N= 102), followup at 1 year (N=55) Mean age: 44.3 Female: 100% Nonwhite: 11% BMI: all $\geq$ 27	Binge Days binged
Preti et al., 2011[208] Review Medium	To examine the risk of suicide in BED populations followed for 5 years or more compared to the general population DSM-IV	Cohorts of BED patients from 3 studies G1: 246 Mean age: NR Female: NR Nonwhite: NR BMI: NR	Other Suicide
Ricca et al., 2010[173] Italy RCT End of treatment CBT trial cohort Low	To evaluate possible predictors of BED outcomes at 3-year followup among individual and group CBT patients DSM-IV or DSM-5 criteria for BED	Individual CBT G1: 72 Group CBT G2: 72 Mean age:47 Female: 88% Any psychiatric comorbidity G1: 51% G2: 57%	Binge episodes Full recovery BMI reduction >5%
Suokas et al., 2014[209] Finland Case-control study 5 years Medium	Prevalence of hospital-treated suicide attempts among eating disorder patients DSM-IV	BED cohort G1 (N=171) G2:4 controls for each BED patient BED and registry controls Mean age: G1: 37.0 G2: 26.2	Suicide attempts

Table 51. Characteristics of course of illness studies among individuals with binge-eating disorder (continued)

Author, Year Country Design Length of Time Followed Risk of Bias	Research Objective Definition of Binge-Eating Disorder	Groups (Number Analyzed) Key Population Characteristics at Baseline	Major Outcome Categories Measures Subgroup Analyses and Comparisons (If Any)
Wilfley et al., 2000[138]; Wilfley et al., 2002[80] United States End of treatment cohort Medium	To examine the relationship of comorbid psychopathology to severity of binge eating, and degree of overall eating pathology 1-year following group CBT or group IPT treatment. DSM-IV assessed through the Eating Disorder Examination	BED end of treatment cohort G1: 162 Mean age: 45.2 (18-65) Female: 83% Nonwhite: 7% BMI: 37.1	Abstinence Binge Binge episodes OBEs
Wilson et al., 2010[176] United States RCT End of treatment cohort Medium	To examine up to 2-year followup of a trial population who had received one of three treatments: behavioral weight loss (BWL), cognitive behavioral therapy-guided self-help (CBTgsh), or interpersonal psychotherapy (IPT) DSM-IV	BED end of treatment combined cohort: G1: 1-year followup: (N=175) G1: 2-year followup: (N=171) Treatment baseline: Age range: 19-77 Female: 85% Nonwhite: 82% Mean BMI end of treatment: 35.8	Abstinence Weight

ANIS = Anorexia Nervosa Inventory for Selfrating; BDI = Beck Depression Index; BED = binge-eating disorder; BMI = body mass index; CBT = cognitive behavioral therapy; DSM = Diagnostic and Statistical Manual; EDI = Eating Disorder Inventory; G = group; IPT = interpersonal therapy; IV= fourth edition; N = number; NR = not reported; OBE = objective binge episodes; RCT = randomized controlled trial; SIAB= Structured Interview for Anorexia and Bulimia Nervosa for measuring psychopathology; TR= text revision

Key Points

- We identified 10 studies that examined the course of illness among individuals with BED. All were limited to patient populations following treatment; none followed a cohort identified in the community. Three studies used a case series design, comparing outcomes in a treatment population with those in matched controls identified through a registry.
- Binge outcomes were the most commonly reported outcomes across studies. Studies differed in the characteristics that the investigators had hypothesized might be related to better outcomes (SOE insufficient).
- Weight outcomes, measured as BMI, were examined in four studies. Only one measured change from end of treatment rather than the beginning. None controlled for potential confounding. Results were mixed (SOE insufficient).
- One study found an increased risk of miscarriage among women with BED (SOE insufficient).
- A study (measuring attempted suicides) and a review article of three studies (measuring suicides) found no evidence of increased risk of suicide among BED patients 5 years after treatment (SOE moderate for no effect).

Detailed Synthesis

Binge-Eating Outcomes

Binge-eating outcomes were assessed in seven studies that followed behavioral intervention patients for 1 year or more after therapy ended and an additional study involving women receiving inpatient care (Table 52). The focus of the analyses differed across studies.

Table 52. Course of illness studies of individuals with binge-eating disorder: Binge-eating outcomes

Author, Year Groups (Number Analyzed) Analysis Approach	Length of Time Followed Outcomes
Agras et al., 1997[201] G1: (N=76) Repeated measures ANOVA	52 weeks, 70 weeks, and 88 weeks after treatment Number of days with one or more binge-eating episodes Differences between group that achieved abstinence by 12 weeks of treatment and group that did not: 52 weeks (p=NS), 70 weeks (p=0.04), 88 weeks (p=0.05)
Castellini et al., 2012[203] G1: (N=133) Multiple linear regression	3 years post-CBT treatment Baseline OBEs/week: 5 (2-10) Predictors of change in OBEs (per week episodes) from baseline to 3-year followup: baseline OBE frequency: B=0.65 (p<0.001) EES anxiety: B= -0.23 (p<0.01) EES depression: B= -0.39 (p<0.001) Variables included in model that were not significant: gender, age, BMI, SCL-90 GSI Baseline SBEs/week: G1: 4 (0-8) Predictors of change in SBEs (per week episodes) from baseline to 3-year followup: baseline SBE frequency: B= 0.74 (p<0.001) BDI: B= -0.34 (p <0.001) EES depression: B = -0.39 (p<0.001) Variables included in model that were not significant: gender, age, BMI, EES depression
Fichter et al., 1993;[204] Fichter et al., 1998;[137] Fichter et al., 2003;[205] Fichter et al., 2008[206] G1: started treatment (N=68); followup at between 2 or 3 years (N=67); followup at 6 years (N=67); followup at 12 years (N=62) Structural equation model (SEM) of the path of BED Stepwise logistic regression to identify predictors of 12-year followup	2, 6, & 12 years postinpatient treatment Binge eating ≥ 2 times per week at 3 years: 16%; at 6 years: 34% SEM results: BED at start of treatment sig predicted BED at end of treatment; BED at end of treatment predicted BED at 2-year followup and at 6-year followup Noneating related (general) psychopathology did not predict BED at future endpoints. Predictors of poor diagnostic outcome at 12 years (any eating disorder---AN, BN, BED or ED-NOS): Psychiatric comorbidity OR, 6.00 (1.17 to 30.95) Severe sexual abuse: OR, 4.55 (1.04 to 1.9) Other nonsignificant predictor: self-injury Predictors of poor binge episode outcome at 12 years (one or more binge-eating episodes occurred in the 3 months preceding followup) Psychiatric comorbidity OR, 13.09 (95% CI, 1.45 to 118.62) Other nonsignificant predictors: self-injury, emotional liability, interoceptive awareness, obesity of patient's father

Table 52. Course of illness studies of individuals with binge-eating disorder: Binge-eating outcomes (continued)

Author, Year Groups (Number Analyzed) Analysis Approach	Length of Time Followed Outcomes
Fichter et al., 1993;[204] Fichter et al., 1998;[137] Fichter et al., 2003;[205] Fichter et al., 2008[206] (continued)	Predictors of poor binge severity outcome at 12 years (severe and frequent binge-eating episodes, meeting DSM-IV definition) Impulsivity: OR, 13.60 (95% CI, 1.57 to117.68) Psychiatric comorbidity: OR, 12.37 (95% CI, 1.42 to 107.79) Nonsignificant predictors: self-injury, inefficiency
Maxwell et al., 2014[202] BED end of treatment cohort G1: started treatment (N= 102), followup at 1 year (N=55) Time-varying covariate model	1 year after treatment Days binged in the past 28 days: Neither attachment avoidance nor attachment anxiety related to change in days binged (p=NS)
Ricca et al., 2010[173] Individual CBT, G1: 72 Group CBT, G2: 72 Repeated measures ANOVA	3 years after treatment Predictors of full recovery-combined group (controlling for age and gender): Emotional Eating Scale OR = 0.54 (95% CI, 0.34 to 0.85) Binge Eating Scale OR = 0.93 (95% CI, 0.89 to 0.98) Nonsignificant predictors: shape concern, weight concern, eating concern, restraint, STAI, BDI, SCL 90, type of therapy, BED DSM—IV or 5, diet attempts, amphetamine use, overweight childhood
Wilfley et al., 2000[138]; Wilfley et al., 2002[80] BED end of treatment cohort G1: 162 Repeated measures MANOVA Change over time modeling using generalized estimating equation	I year after treatment Binge episodes at 1-year followup: Axis II psychopathology vs. not (p=ns) Binge episodes at 1-year followup: Cluster B psychopathology (narcissistic, borderline, histrionic, or antisocial) vs. not (p=0.022) Binge episodes at 1-year followup: Axis I psychopathology (mood, anxiety, or substance abuse disorder) vs. not: (p=NS) Abstinence (no OBEs in past month) at 1-year followup Predicted probability of abstinence at end of treatment: 78%, 1-year followup: 65% Change from end of treatment to 1 year, slight decline in probability of abstinence (p=0.03); no difference between treatment groups Binge-eating < 4 days per month with OBEs at 1-year followup Predicted probability decreased from end of treatment 91% to 1-year followup: 84% Change from end of treatment to 1 year, decline over time (p=0.007); no difference between treatment groups Binge days per month at 12-month followup CBT group: 1.7 (SD 4.3, range 0-25) IPT group: 1.2 (SD 2.6, range 0-11) GEE quadratic (p<0.001) and cubic (p=0.002) main effects of time from end of treatment through 1-year followup, indicating a slight increase, then remaining stable, with a slight tendency for further increase within later 1-year assessments; no difference between treatment groups

Table 52. Course of illness studies of individuals with binge-eating disorder: Binge-eating outcomes (continued)

Author, Year Groups (Number Analyzed) Analysis Approach	Length of Time Followed Outcomes
Wilson et al., 2010[176] Combined study arms that received behavioral weight loss, CBT guided self-help or IPT treatment G1:175 at 1 year G1: 171 at 2 years Repeated measures ANOVA	1 year and 2 years after treatment Abstinence at 1 year and 2 years after treatment: No significant moderator effect of negative affect subtype (P=NS) Relationship with percentage change in weight (P=NS) Lower with lifetime history of depression (endpoint not provided): (p<0.05)

AN = anorexia; ANOVA = analysis of variance; BDI = Beck Depression Inventory; BED = binge eating disorder; BMI = body mass index; BN = bulimia; CBT = cognitive behavioral therapy; CI = confidence interval; DSM = Diagnostic and Statistical Manual; ED-NOS = eating disorder not otherwise specified; EES = emotional eating scale; G = group; GEE = generalized estimated equation; IPT = interpersonal therapy; IV = fourth edition; N = number; NS = nonsignificant; OBE = objective binge episode; OR = odds ratio; SBE = subjective binge episodes; SCL-90 = symptom checklist 90; SD = standard deviation; STAI = State-Trait Anxiety Inventory; vs = versus

Agras et al. compared long-term outcomes between those who had achieved abstinence during treatment and those who had not.[201] With respect to the number of days with one or more binge-eating episodes, the researchers did not find a statistically significant difference between no binge-eating episodes at 12 weeks and abstinence at 52 weeks but did find a relationship between 12-week outcomes and further endpoints (70 and 88 weeks); the early abstinence group had fewer binge days. In another study, Wilfley et al. examined changes in three binge-eating-related outcomes from end of treatment to 1-year followup. They found a significant decline over time in the percentage of the group that was abstinent; 75 percent at the end of treatment and 65 percent 1 year later (p=0.03).[80] Although the total percentage of patients experiencing fewer than four binge-eating episodes per month remained high, this outcome declined from 91 percent at the end of treatment to 84 percent at 1 year (p=0.007).[80] Finally, over time, binge days per month increased significantly and then stabilized.[80]

Four studies examined predictors associated with long-term outcomes. Wilfley et al. examined 1-year binge episode outcomes by differences in coexisting psychopathology.[138] Cluster B personality disorders (narcissistic, borderline, histrionic, or antisocial) were related to worse outcomes. Maxwell and colleagues determined that, at 1 year, days binged in the previous 28 days were not related to decreases in attachment anxiety or attachment avoidance.[202] Castellini et al. separately assessed predictors of changes in objective binge episodes (OBEs) and subjective binge episodes (SBEs) 3 years following the end of treatment.[203] Lower OBE reduction at followup was related to OBE frequency at baseline and higher depression and anxiety based on the Emotional Eating Scale (EES), controlling for age, sex, and BMI. Lower SBE reduction over the same period was related to SBE frequency at baseline and to depression, as measured by the Beck Depression Inventory (BDI), controlling for age, sex, and BMI. Ricca et al. found that abstinence at 3-year followup (controlling for age and sex) was related to significantly lower scores on the EES (OR = 0.54) and the Binge Eating Scale (BES) (odds ratio [OR] = 0.93) at baseline.[173] In a fourth study, abstinence at 1 and 2 years after treatment was not moderated by negative effect personality subtype; abstinence was estimated to be lower among those with a lifetime history of depression.[176]

Fichter and colleagues followed 68 women who had received inpatient treatment at a clinic in Germany. In one analysis, the researchers developed latent constructs using factor analysis and included these in a structural equation model to examine the interaction between eating disorder pathology and noneating-related (general) psychopathology over time (from the start of treatment through to 6-year followup).[205] BED at each time point (start of treatment, end of treatment, 2-year followup) predicted BED at each of the later time points. In contrast, only between end of treatment and 2-year followup did noneating-related (general) psychopathology predict future BED. General psychopathology was derived from depression measures and indicators from the Hopkins Symptom Checklist (SCL): somatization, obsessive-compulsive behavior, anger/hostility, phobic anxiety, and anxiety. In a second analysis, based on logistic regression analysis, having any psychiatric comorbidity before treatment was related to three separate 12-year outcomes, controlling for other characteristics; these were having an eating disorder diagnosis, a poor binge episode outcome, and a poor binge severity outcome.[206]

Eating-Related Outcomes

The Fichter research team examined an eating-related outcome other than binge eating (Table 53). They conducted eating disorder inventory (EDI) follow-up assessments of their inpatient treatment group at 3 and 6 years.[137] The total EDI score incorporates subscores measuring drive for thinness, bulimia, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, and maturity fears. The EDI total score at both 3 and 6 years was lower than it had been before treatment, but it was not significantly different from the end of treatment.

Table 53. Course of illness studies of individuals with binge-eating disorder: Eating-related outcomes

Author, Year Groups (Number Analyzed) Analysis Approach	Length of Time Followed Outcomes
Fichter et al., 1993;[204] Fichter et al., 1998;[137] Fichter et al., 2003;[205] G1: started treatment (N=68); followup at 3 years (N=67); followup at 6 years (N=67) MANOVA	Followup at 3 and 6 years EDI total: start of treatment vs. followup at 3 years: (p<0.001) EDI total: end of treatment vs. followup at 3 years: (p=NS) EDI total: start of treatment vs. followup at 6 years: (p<0.001) EDI total: end of treatment vs. followup at 6 years: (p=NS)

EDI = Eating Disorder Inventory; G = group; MANOVA, multivariate analysis of variance; N= number; NS = nonsignificant

Weight Outcomes

Four studies measured change in BMI over time (Table 54). Three of four studies found significant reductions over time; of these, two studies compared outcomes from treatment baseline before treatment[173,203] and one from 1 year past the end of treatment.[80] One study examined factors that may be related to change in weight or BMI. Greater than 5 percent weight loss at 3-year followup was predicted by a lower EES scale score at baseline (OR, 0.65).[173]

Table 54. Course of illness studies of individuals with binge-eating disorder: Weight outcomes

Author, Year Groups (Number Analyzed) Analysis Approach	Length of Time Followed Outcomes
Castellini et al., 2012[203] G1: (N=133)	Followup at 3 years BMI start of treatment (SD): 38.0 (7.3) BMI 3-year followup (SD): 37.1 (7.4) (p<0.05)
Fichter et al., 1993;[204] Fichter et al., 1998;[137] Fichter et al., 2003;[205] G1: started treatment (N=68); followup at 3 years (N=67); followup at 6 years (N=67) followup at 12 years (N=62) MANOVA	Followup at 3, 6, and 12 years BMI, start of treatment: 33.7 (9.0) BMI, followup at 3 years: 31.9 (9.9) BMI, followup at 6 years: 32.7 (10.1) BMI, followup at 12 years: 32.0 (9.2) Difference across time: (p=NS)
Ricca et al., 2010[173] Individual CBT, G1: 72 Group CBT, G2: 72 Repeated measures ANOVA	Followup 3 years after treatment Change in BMI from baseline G1: (p<0.001); G2 (p<0.05) 3-year weight loss >5% of initial BMI G1: 37.5% G2:31.9% Predictors of BMI reduction >5% combined group (controlling for age and sex): Emotional Eating Scale OR, 0.65 (95% CI, 0.44 to 0.97) Nonsignificant predictors: Binge Eating Scale, shape concern, weight concern, eating concern, restraint, STAI, BDI, SCL 90, type of therapy, BED DSM—IV or 5, diet attempts, amphetamine use, overweight childhood Association between full recovery and BMI reduction >5%: (p=0.038)
Wilfley et al., 2000[138]; Wilfley et al., 2002[80] BED end of treatment cohort G1: 162 Change over time modeling using generalized estimating equation	1 year after treatment BMI decrease from end of treatment to 12-month followup, patients had received CBT or IPT: (p=0.008)

ANOVA = analysis of variance; BDI = Beck Depression Inventory; BED= binge eating disorder; BMI = body mass index; CBT = cognitive behavioral; therapy; CI = confidence interval; DSM = Diagnostic and Statistical Manual; G = group; IPT = interpersonal therapy; IV = fourth edition; MANCOVA = multivariate analyses of covariance; N=number; NS = nonsignificant; OR = odds ratio; SD = standard deviation; STAI = State-Trait Anxiety Inventory; SCL-90= symptom checklist 90

Psychological Outcomes

Among the included studies, only Fichter and colleagues measured psychological outcomes (Table 55).[137] Depression, measured by the BDI, was improved overall from the start of treatment through to 6-year followup. The mean BDI value was lowest, however, at the end of treatment.

Table 55. Course of illness studies of individuals with binge-eating disorder: Psychological outcomes

Author, Year Groups (Number analyzed) Analysis approach	Length of Time Followed Outcomes
Fichter et al., 1993;[204] Fichter et al., 1998;[137] Fichter et al., 2003;[205] G1: started treatment (N=68); followup at 3 years (N=67); followup at 6 years (N=67) MANCOVA	6-year followup BDI start of treatment: 23.2; end of treatment: 11.6; followup at 6 years: 15.3 BDI: start of treatment vs. followup at 6 years: (p<0.001) BDI: end of treatment vs. followup at 6 years: (p<0.01) MANCOVA: 25.7 (p<0.001)

BDI = Beck Depression Inventory; G = group; N=number; MANCOVA = multivariate analysis of covariance

Other Outcomes

One study examined the relationship between BED and poor birth outcomes; two investigated risk of suicide (Table 56). In a Finnish study, Linna and colleagues matched a cohort of women with BED who had received treatment at one clinic to controls using population registry data.[207] The odds that a women with BED would suffer a miscarriage, compared with having at least one live childbirth, were more than 3 times greater than the odds of matched controls who did not have an eating disorder. Preti et al. attempted to estimate the risk of suicide among individuals with BED followed for 5 or more years, using results from earlier studies.[208] Three studies met their inclusion criteria but because none reported any suicides, the authors could not calculate a standardized mortality ratio. In a separate study, Suokas et al. estimated that the risk of attempted suicides after 5 years was not significantly higher among those with BED than among controls (BED: 0.6 percent, controls: 0.8 percent).[209]

Table 56. Course of illness studies of individuals with binge-eating disorder: Other outcomes

Author, Year Groups (Number Analyzed) Analysis Approach	Length of Time Followed Outcomes
Linna et al., 2013[207] G1: Cases (N=149) G2: Controls (N=596) Logistic regression: Controls matched by sex, age, and geographic area	Outcome measured as first childbirth, induced abortion, or miscarriage Miscarriage: (compared with childbirth): OR, 3.18 (1.52 to 6.66) in BED group compared with matched controls
Preti et al., 2011[208] G1: 3 studies (N=246)	5 or more years Suicide: Standardized mortality ratio could not be calculated because included studies had not reported any suicides.
Suokas et al., 2014[209] BED G1: (N=171) G2: 4 controls for each patient Poisson regressions Follow-up time modeled using a spline function with three knots (1, 3 and 5 years).	5 years Percentage who had attempted suicide before followup: BED: 0.6% Controls: 0.8% RR = 2.66 (95% CI: 0.82 to 8.63)

BED = binge-eating disorder; G = group; N= number; OR = odds ratio; RR = relative risk

KQ 5: Differences in Course of Illness by Age, Sex, Race, Ethnicity, Sexual Orientation, Initial Body Mass Index, Duration of Illness, or Coexisting Conditions

We found no evidence examining differences in the course of illness among individuals with BED based on differences in sociodemographic or health characteristics.

Loss-of-Control Eating Among Bariatric Surgery Patients

KQ 9: Course of Illness

Description of Studies

The included evidence about the course of illness among bariatric surgery patients who had LOC eating consisted of two studies (Table 57).[24,139] Both studies identified whether patients had BED or LOC eating (or both) before surgery, followed the cohort for 1 year or more after surgery, and compared outcomes between patients who initially had experienced LOC eating and those who had not. The two studies differed in the criteria used to define LOC eating and the length of time that they followed patients. Although both studies examined weight outcomes, only one examined binge outcomes.[24]

Table 57. Characteristics of course of illness studies among bariatric surgery patients

Author, Year Country Design Length of Time Followed Risk of Bias	Research Objective Definition of Loss of Control Eating Groups (Number Analyzed)	Key Population Characteristics at Baseline	Major Outcome Category Measures Subgroup Analyses and Comparisons (If Any)
Busetto et al., 2005[139] Italy Longitudinal cohort with comparison group 5 years Medium	To investigate the 5-year outcomes of morbidly obese patients with BED (compared with those without BED) treated surgically with laparoscopic adjustable gastric banding BED, before surgery, based on DSM-IV criteria, diagnosed by clinical assessment G1: Cases with BED before surgery, DSM-IV (as proposed) established through clinical interview (N=130) G2: Comparisons without BED before surgery (N=249)	Mean age: G1: 36.0 (10.3), G2: 38.3 (10.9) (p<0.05) Female: G1: 79.2%, G2: 71.5% (p<0.05) Nonwhite: NR Mean BMI: G1: 47.7 (7.4), G2: 46.6 (7.3) (p=NS)	Weight Excess weight loss Weight regain

Table 57. Characteristics of course of illness studies among bariatric surgery patients

Author, Year Country Design Length of Time Followed Risk of Bias	Research Objective Definition of Loss of Control Eating Groups (Number Analyzed)	Key Population Characteristics at Baseline	Major Outcome Category Measures Subgroup Analyses and Comparisons (If Any)
White et al., 2010[24] United States Longitudinal postsurgical cohort with comparison group 12 and 24 months after surgery Medium	To investigate outcomes at 12 and 24 months after bariatric surgery, among those with LOC eating (before and after surgery) and those without LOC eating: Any LOC eating episodes in the previous 28-day period, as measured by the EDE-Q. Includes both objective binge episodes (OBEs) and subjective binge episodes (SBEs) G1: Cases with LOC eating before surgery (N=220) G2: Comparisons without LOC before surgery (N=141)	Mean age: 43.7 (10.0) Female: 86% Nonwhite: 18.6% Mean BMI: 51.1 (8.3) Mean depression score: Preoperative LOC: 17.1 (9.7); No preoperative LOC: 11.1 (8.0) (p=0.000)	Binge eating LOC episodes Weight Weight regain BMI

BED = binge-eating disorder; BMI = body mass index; DSM = Diagnostic and Statistical Manual; EDE-Q= Eating Disorder Examination Questionnaire; G = group; IV= fourth edition; LAGB =; LOC = loss of control; N=number; NR = not reported; NS = nonsignificant; OBE= objective binge episode; SBE= subjective binge episode

Busetto et al.[139] followed for 5 years after surgery 379 obese patients who had been treated by laparoscopic adjustable gastric banding at one hospital; their patients included 130 who had been identified as having BED before surgery in accordance with DSM-IV criteria. At baseline, compared with non-BED patients, patients with BED were significantly more likely to be younger (approximately 2 years) and female and to engage in night eating. All patients with BED were provided with some psychotherapy before surgery. Without adjusting for any of these potential confounding factors, outcome differences between those with and without BED before surgery were compared after 5 years.

In the other study, White and colleagues followed 361 gastric bypass surgery patients for up to 2 years after their operation.[24] Before surgery, BED was not diagnosed in patients. Rather they were identified as experiencing LOC eating based on three definitions: OBEs, eating unusually large amounts of food while experiencing a subjective sense of loss of control; SBEs, experiencing a sense of loss of control while eating small or normal amounts of food; and LOC-general, defined as experiencing either OBEs or SBEs. Researchers assessed LOC based on patient self-report using the Eating Disorder Examination Questionnaire.

Key Points

- The two studies providing evidence for bariatric surgery patients with LOC eating differed in the criteria used for defining LOC eating at baseline (before surgery). One study found that LOC eating before surgery was related to LOC eating following surgery but not to weight loss or weight regain. (SOE insufficient across all outcomes because of a lack of clear and consistent finding in more than one study.)

Detailed Synthesis

Across the two studies, outcomes were limited to binge eating (one study) and weight or BMI (two studies).

Binge-Eating Outcomes

White and colleagues measured LOC eating at baseline, separately considering those experiencing OBEs and SBEs; they then measured outcomes in both groups after 12 and 24 months (Table 58).[24] Both measures of LOC eating before surgery predicted LOC after surgery in three of four comparisons. More specifically, those experiencing LOC eating by measures of either OBEs or SBEs before surgery were also more likely to report LOC episodes at 12 and 24 months than those who had no episodes before surgery. The probability of LOC episodes increased over time.

Table 58. Course of illness studies among bariatric surgery patients: Binge or loss-of-control eating episode outcomes

Author, Year Groups (Number Analyzed) Analysis Approach	Length of Time Followed Outcomes
White et al., 2010[24] Analyses compare outcomes between those with and without LOC at baseline, Pre-op LOC: LOC OBEs: 42% (N= 153) LOC SBEs: 40% (N= 145) LOC-general (either OBEs or SBEs: 61% (N= 221) No LOC-general (neither OBEs or SBEs): 39% (N= 141) Mixed effects regression	12-month LOC, as a function of baseline pre-op LOC OBEs (large episodes) 12-month LOC among those with objective LOC at baseline: 49.6% (N=57) 12-month LOC among those with no objective LOC at baseline: 28.1% (N=47) Difference in LOC episodes at 12-month followup: (p < 0.001) 12-month LOC, as a function of baseline pre-op subjective LOC (small episodes) 12-month LOC among those with subjective LOC at baseline: 47.4% (N=54) 12-month LOC among those with no subjective LOC at baseline: 29.4% (N=50) Difference in LOC episodes at 12-month followup: (p < 0.002) 12-month LOC, as a function of baseline pre-op LOC-general (objective or subjective LOC) 12-month LOC among those with LOC-general at baseline: 45.3% (N=77) 12-month LOC among those with no LOC-general at baseline: 23.0% (N=36) Difference in LOC-general episodes at 12-month followup: (p < 0.001) 24-month objective LOC, as a function of baseline pre-op objective LOC (large episodes) 24-month LOC among those with objective LOC at baseline: 46.2% (N=36) 24-month LOC among those with no objective LOC at baseline: 33.7% (N=30) Difference in LOC episodes at 24-month followup: (p < 0.102) 24-month LOC, as a function of baseline pre-op subjective LOC (small episodes) 24-month LOC among those with subjective LOC at baseline: 52.5% (N=34) 24-month LOC among those with no subjective LOC at baseline: 31.4% (N=32) Difference in LOC episodes at 24-month followup: (p < 0.010) 24-month LOC, as a function of baseline pre-op LOC-general (objective or subjective LOC) 24-month LOC among those with LOC-general at baseline: 49.0% (N=50) 24-month LOC among those with no LOC-general at baseline: 24.2% (N=16) Difference in LOC episodes at 24-month followup: (p < 0.002) Postop LOC was predicted by pre-op LOC β =1.43 (p=0.0001) and time β=0.36 (p=0.04)

β = beta coefficient; LOC= loss of control; N=number; OBE = objective binge episodes; Op= operation; SBE = subjective binge episodes

Weight Outcomes

Both studies reported weight outcomes (Table 59). Busetto et al. described outcomes in both those with and those without BED before surgery; they did not record, however, whether differences were statistically significant.[139] However, based on our review of the article, weight outcomes were similar between the two groups. Likewise, White et al. did not find that preoperative LOC eating behavior was related to weight loss after surgery.[24] They did determine, however, that LOC eating at 12-month followup after surgery was related to a lower probability of weight loss and to a greater probability of regaining weight at 24 months (OR, 2.16; 95% CI, 0.995 to 4.687).

Table 59. Course of illness studies among bariatric surgery patients: Weight, body mass index, and other biomarker outcomes

Author, Year Groups (Number analyzed) Analysis Approach	Length of Time Followed Outcomes
Busetto et al., 2005[139] G1: LAGB cases with BED before surgery (N= 130) G2: LAGB comparisons without BED (N= 249) Paired t-test and chi-square tests for comparisons across groups	5 years Percentage with excess weight loss (EWL) >50%: G1: 23.1%; G2: 25.7% (p=NR) Percentage with %EWL < 20%: G1: 23.8%; G2: 24.1% (p=NR) Percentage with weight regain (at least 20% of baseline excess weight):G1: 20.8%, G2: 22.5% (p=NR)
White et al., 2010[24] Analyses compare groups with and without LOC at various time points Mixed effects regression	Weight loss at 12 or 24 months: as predicted by preoperative LOC (p=NS) Weight loss (BMI) at 24 months: as predicted by LOC at 12 months (p=0.004) LOC at 12 months: 18.3 (5.6); no LOC at 12 months: 21.2 (7.2) (p=0.004) Weight regain from 12-24 months, as predicted by LOC at 12 months OR = 2.16 (95% CI, 0.995 to 4.687); higher odds for those with LOC eating Weight loss at 12 or 24 months: as predicted by preoperative BED (LOC over eating large amounts of food at least twice weekly) (p=NS)

BED = binge-eating disorder; BMI = body mass index; CI = confidence interval; G = group; LAGB = laparoscopic adjustable gastric banding; LOC = loss of control; N = number; NR = not reported; NS = nonsignificant; OR = odds ratio

KQ 10: Differences in Course of Illness by Age, Sex, Race, Ethnicity, Sexual Orientation, Initial Body Mass Index, Duration of Illness, or Coexisting Conditions

We found no evidence examining differences in the course of illness among bariatric surgery patients based on differences in patient sociodemographic or health characteristics.

Loss-of-Control Eating Among Children

KQ 14: Course of Illness

Description of Studies

The evidence on the course of illness among children with LOC eating consists of three cohort studies reported in seven articles (Table 60). One study reports on 5- and 10-year

outcomes from Project EAT (Eating Among Teens and Young Adults), a longitudinal study tracking binge eating, dieting, and weight control behaviors.[210-212] Another set of reports is from the Growing Up Today Study (GUTS), a longitudinal study tracking health in an adolescent cohort that included a subset of participants with LOC and binge eating who were followed for up to 13 years.[213,214] Finally, a German longitudinal study followed a cohort of preadolescent cases with LOC eating at baseline and matched controls for up to 5.5 years.[215,216] In this study, children were matched based on age, sex, percentile of BMI, education (school type and grade), and the mother's years of education.

Table 60. Characteristics of course of illness studies among children with loss-of-control eating

Author, Year Country Design Length of Time Followed Risk of Bias	Research Objective Definition of LOC Eating	Groups (Number Analyzed) Key Population Characteristics at Baseline	Major Outcome Categories Measures Subgroup Analyses and Comparisons (if any)
Eisenberg et al., 2010[210]; Neumark-Sztainer et al., 2011[211]; Goldschmidt et al., 2014[212] United States Longitudinal cohort Medium	To examine predictors of continued binge or LOC eating in adolescent cohort, 5 and 10 years after baseline assessments; outcomes from Project EAT Binge or LOC eating, assessed with 2 questions: "In the past year, have you ever eaten so much food in a short period of time that you would be embarrassed if others saw you (binge eating)?" "During the times when you ate this way, did you feel you couldn't stop eating or control what or how much you were eating?" Those who indicated feeling LOC were classified as binge eaters.	Cohort of middle school and high school students followed up after 5 and 10 years. G1: Assessed at 5 years: (N=2,516) G2: Assessed at 10 years: (n =2,287) G3: Cohort with binge or LOC eating at 2 consecutive measurements (N=262) Middle school age:32% High school age: 68% Female: 55% Nonwhite: 50% BMI: 22.4 (SD 4.5) Binge or LOC eating: N=323	Binge eating Binge eating or LOC eating
Hilbert et al., 2013[215]; Hilbert & Brauhardt, 2014[216] Germany Longitudinal case-control Low	To examine the course of LOC eating in preadolescents, approximately 2 and 5.5 years after the baseline assessment LOC eating, at least 1 episode (objective and/or subjective) during past 3 months, based on the clinical semistructured eating disorders interview Eating Disorder Examination adapted for Children (ChEDE).The ChEDE was also used to diagnose both BED (according to the DSM–IV–TR) and partial BED. Partial BED was defined as: having at least 1 episode of LOC eating per week over the previous 3 months; having at least some degree of distress associated with the LOC episodes; and meeting at least 2 or more of the 5 behavioral symptoms.	Cohort of children 8 to 13 years of age, assessed approximately every 6 months for 2 years (t1-t5), and then at approximately 5.5 years (t6) G1: Cases (N=55, data at ≥ 3 of 5 t2-t5 assessments; N=32 t6 assessment) G2: Matched controls (N=57, data at ≥ 3 of 5 t2-t5 assessments; N=44 t6 assessment) Mean age: 10.7 Female: 60% BMI: 23.99 (SD 5.45).	Binge eating LOC eating, stability, persistence BED, partial BED onset Weight BMI Psychological Depression

Table 60. Characteristics of course of illness studies among children with loss-of-control eating (continued)

Author, Year Country Design Length of Time Followed Risk of Bias	Research Objective Definition of LOC Eating	Groups (Number Analyzed) Key Population Characteristics at Baseline	Major Outcome Categories Measures Subgroup Analyses and Comparisons (if any)
Sonneville et al., 2013[213]; Field et al., 2013[214] United States Longitudinal cohort Medium	To examine whether overeating and binge eating are prospectively associated with adverse health outcomes in adolescents; outcomes from GUTS cohort Binge eating assessed with two questions "In the past year, have you ever eaten so much food in a short period of time that you would be embarrassed if others saw you (binge eating)?" "During the times when you ate this way, did you feel you couldn't stop eating or control what or how much you were eating?" Those who indicated at least weekly episodes of eating a large amount of food with LOC during the episodes were classified as binge eaters.	Cohort of children 9 to 15 years of age followed up annually for 5 years (1996-2001), then biennially for 8 years (2001-2007) Analysis 1: Boys and girls with 2 consecutive assessments (full cohort all eating classifications N=14,166) Analysis 2: Girls only with 2 consecutive assessments (full cohort all eating classifications N=8,594) Age range: 9-15, mean: 12.0 (SD: 1.6) Nonwhite: <10% Overweight or obese: 22%	Weight Incident overweight Psychological and Other Develop high depressive symptoms Start binge drinking frequently Start to use drugs

BED = binge-eating disorder; BMI = body mass index; DSM = Diagnostic and Statistical Manual; G = group; GUTS = Growing Up Today Study; IV= fourth edition; LOC = loss of control; N=number; SD = standard deviation; t = time

Key Points

- Evidence concerning the course of illness among children with LOC eating behavior was obtained from three longitudinal cohort studies. Early adolescent binge or LOC eating predicted similar behavior in later adolescence in two studies (low SOE).
- Evidence of additional outcomes was limited or inconsistent across studies (SOE insufficient).

Detailed Synthesis

The Project EAT and GUTS studies similarly assessed participant baseline binge or LOC eating, based on two questions (see Table 61). The first question asked children to remember whether, during the previous year, they had engaged in a binge-eating episode; the followup question asked whether they felt out of control during the episode. The Project EAT study considered participants to have LOC eating if they experienced binge or LOC eating one or more times.[210] The GUTS study was more restrictive and limited the group with binge or LOC eating to those who had experienced LOC eating at least weekly during the past year.[213] In contrast, Hilbert and colleagues used a clinical interview to determine whether children had LOC eating based on whether they had experienced one or more OBE or SBE during the past 3 months.[215]

The age of the children at baseline differed across studies. The Hilbert et al. group was the youngest (8 to 13 years of age), followed by GUTS (9 to 15 years of age) and then Project EATS (approximately one-third middle school students and two-thirds high school students).

Table 61. Course of illness studies among children with loss-of-control eating: Binge-eating outcomes

Author, Year Groups (Number Analyzed) Analysis Approach	Length of Time Followed Outcomes
Eisenberg et al., 2010[210]; Neumark-Sztainer et al., 2011[211]; Goldschmidt et al., 2014[212] Project EAT G1: Assessed at 5 years (N=2,516), General linear model[210] G2: Assessed at 10 years (N= 2,287) log binomial model[211] G3: LOC cohort only, (N= 232) logistic regression[212] All analyses weighted, controlling for nonresponse weights	5 years and 10 years G1: Probability of binge or LOC eating at 5-year followup, based on baseline binge or LOC eating: (adjusting for other baseline characteristics [friends dieting behavior, same sex parent's dieting, race, socioeconomic status and current BMI): Females: ($p < 0.001$) Males: ($p < 0.001$) G2: Probability of binge or LOC eating at 10-year followup, based on baseline binge or LOC eating (younger group mean age at baseline:12.8; older group mean age at baseline: 15.9): Younger females: RR = 2.21 (95% CI, 1.31 to 3.71) Younger males: RR = 0.47 (95% CI, 0.03 to 7.12) Older females: RR = 2.42 (95% CI, 1.68 to 3.47) Older males: RR = 5.27 (95% CI, 2.68 to 10.34) G3: Change between consecutive assessments (baseline to 5 years, 5 years to 10 years) Binge eating or LOC at baseline, also reported at 5-year followup: 16%; Binge eating or LOC at 5-year followup, also reported at 10-year followup: 42% G3: Odds of binge or LOC eating cessation: (adjusting for baseline value of change variables, age cohort, sex, race and ethnicity, and socioeconomic status) At 5-year followup, predictor variables, at previous time point BMI: OR, 1.10 (95% CI, 1.00 to 1.21); (p=0.06) Body satisfaction: OR, 1.00 (95% CI, 0.94 to 1.06); (p=0.88) Depression symptoms: OR, 0.96 (95% CI, 0.81 to 1.13); (p=0.58) Self-esteem: OR, 1.04 (95% CI, 0.92 to 1.18); (p=0.52) Change in BMI: OR, 0.93 (95% CI, 0.81 to 1.07); (p=0.31) Change in body satisfaction: OR, 1.01 (95% CI, 0.96 to 1.07); (p=0.68) Change in depression symptoms: OR, 0.89 (95% CI, 0.73 to 1.09); (p=0.28) Change in self-esteem: OR, 1.21 (95% CI, 1.02 to 1.44); (p=0.03) At 10-year followup, predictor variables, at previous time point BMI: OR, 0.95 (95% CI, 0.88 to 1.04); (p=0.26) Body satisfaction: OR, 1.01 (95% CI, 0.95 to 1.06); (p=0.84) Depression symptoms: OR, 0.92 (95% CI, 0.81 to 1.05); (p=0.21) Self-esteem: OR, 1.03 (95% CI, 0.91 to 1.15); (p=0.67) Change in BMI: OR, 0.98 (95% CI, 0.88 to 1.09); (p=0.70) Change in body satisfaction: OR, 1.06 (1.00 to 1.13); (p=0.05) Change in depression symptoms: OR, 0.81 (0.68 to 0.95); (p=0.009) Change in self-esteem: OR, 1.23 (1.07 to 1.41); (p=0.004)

Table 61. Course of illness studies among children with loss-of-control eating: Binge-eating outcomes (continued)

Author, Year Groups (Number Analyzed) Analysis Approach	Length of Time Followed Outcomes
Hilbert et al., 2013[215]; Hilbert and Brauhardt, 2014[216] G1: Cases (N=55, data at ≥ 3 of 5 t2-t5 assessments; N=32 t6 assessment) G2: Matched controls (N=57, data at ≥ 3 of 5 T2-T5 assessments; N=44 t6 assessment) Multilevel Modeling approach to control for nonindependence of observations and missing values	Odds of LOC eating at t2 to t5 (6 months to 2 years after baseline) (adjusting for time, child and parental BMI, age, sex, school type, and maternal education) LOC episodes at t1: OR, 3.83 (p=0.002) Odds of LOC eating at t6 (5 years post baseline) (adjusting for time, child and parental BMI, age, sex, school type, and maternal education) G1 vs. G2: OR, NR (p=0.34) Odds of LOC eating at subsequent time point t2 to t5 (6 months to 2 years postbaseline) (adjusting for time, child and parental BMI, age, sex, school type, and maternal education LOC at prior assessment: OR, 0.71 (p=0.39) G1 LOC eating pattern over 2-year followup Persistent LOC eating at all five assessments: 3.6%; recurring LOC eating at multiple time points: 41.8%; remission post baseline: 54.5%. LOC eating at 5-year followup G1: LOC at t6: 38.3%; remission postbaseline: 61.7% G2: no LOC eating at any assessment: 71.7% Odds of onset of partial or full BED by t6 G1 vs. G2: OR, 1.39, (95% CI, 0.19 to 10.17) Persistent LOC eating: OR, 11.51, (95% CI,1.28 to 103.61) Change in partial BED, over 2-year period (controlling for shape concern, baseline depression, emotional eating, weight-related teasing, age, sex, child BMI) LOC eating as predictor: OR, 1.187 (p < 0.05)

BMI = body mass index; CI = confidence interval G = group; LOC = loss of control; N=number; NR = not reported; OR = odds ratio; RR = relative risk; t = time of assessment

Binge-Eating Outcomes

Two of these three studies measured LOC and binge-eating outcomes at followup (Table 61). Both found evidence of persistent LOC eating behavior over time. In the Project EAT study, outcomes for males and females were measured separately; for both, binge or LOC eating behavior at the 5-year followup was significantly related to these behaviors at baseline. A significantly increased risk remained into young adulthood, as measured by the 10-year followup, for all but the males who had been in middle school at the time of the baseline assessment. In the German longitudinal case-control study, LOC eating cases at baseline were significantly more likely than controls to be experiencing LOC eating episodes at 6 months to 2 years of followup (OR, 3.83). The study did not find that the difference persisted at the 5-year followup. However, onset of partial BED was predicted by significantly greater LOC eating (OR, 1.19) and greater BMI at a preceding assessment (OR, 1.24) over the 2-year follow-up period.

Greater odds of cessation in LOC eating at 5 years was predicted by improved self-esteem at an earlier assessment (p=0.03) among the LOC eating cohort in the Project EAT study.[212] At 10-year followup, cessation of LOC eating was predicted by improved body satisfaction and self-esteem at the preceding assessment and was less likely among those with increased depression symptoms at the preceding assessment.

Weight Outcomes

The GUTS study and the German longitudinal case-control study reported weight outcomes (Table 62). Multivariate analyses in the GUTS study showed that earlier binge eating (compared with no overeating) predicted an increase in the odds of the onset of being overweight or obese, controlling for prior period BMI and other characteristics (OR, 1.73). In an analysis limited to girls, binge eating more than weekly (but not more than monthly) predicted the subsequent onset of being overweight. In contrast, the German study found that change in BMI over time and BMI at 2-year followup were not significantly different between cases and controls.

Table 62. Course of illness studies among children with loss-of-control eating: Weight outcomes

Author, Year Groups (Number Analyzed) Analysis Approach	Length of Time Followed Outcomes
Sonneville et al., 2013[213]; Field et al., 2013[214] GUTS Analysis 1: Boys and girls with 2 consecutive assessments (full cohort all eating classifications N=14,166) Analysis 2: Girls only with 2 consecutive assessments (full cohort all eating classifications N=8,594) Log-odds of the hazard rate using generalized estimating equations	Change between consecutive assessments Analysis 1: Odds of onset of overweight or obesity (adjusting for sex, age, prior period BMI, and prior period dieting): Binge eating prior assessment (vs. no overeating): OR, 1.73 (1.11-2.69) Overeating prior assessment (vs. no overeating): OR, 1.24 (0.70-2.21) Analysis 2: Odds of onset of overweight (adjusting for age, BMI, dieting) Binge eating ≥ weekly prior assessment (vs. nondisordered eating): OR, 1.90 (1.04–3.48) Binge eating ≥ monthly prior assessment (vs. nondisordered eating): OR, 1.35 (0.98–1.87)
Hilbert et al., 2013[215]; Hilbert and Brauhardt, 2014[216] G1: Cases (N=55, data at ≥ 3 of 5 T2-T5 assessments; N=32 T6 assessment) G2: Matched controls (N=57, data at ≥ 3 of 5 t2-t5 assessments; N=44 t6 assessment) Multilevel Modeling approach to control for nonindependence of observations and missing values	Change in BMI G1 vs G2: (p=0.193); growth pattern did not change over time BMI at t6 G1 vs. G2: (p=0.30)

BMI = body mass index; G = group; GUTS = Growing Up Today Study; N=number; OR = odds ratio; t = time of assessment; vs = versus

KQ 15: Differences in Course of Illness by Age, Sex, Race, Ethnicity, Sexual Orientation, Initial Body Mass Index, Duration of Illness, or Coexisting Conditions

We found no evidence examining differences in the course of illness among children based on differences in sociodemographic or health characteristics.

Discussion

Key Findings and Strength of Evidence

This systematic review for the Agency for Healthcare Research and Quality (AHRQ) addressed the effectiveness and comparative effectiveness of treatments for binge-eating disorder (BED) and for loss-of-control (LOC) eating in bariatric surgery patients and children. BED is characterized by recurrent episodes of binge eating, i.e., eating episodes that occur in a discrete period of time (≤2 hours) and involve the consumption of an amount of food that is definitely larger than most people would consume under similar circumstances. Other core features of BED are a sense of lack of control over eating during binge episodes, significant psychological distress (e.g., shame, guilt) about binge eating, and the absence of regular inappropriate compensatory behaviors.

In 2013, BED was labeled a distinct eating disorder in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5).[217] Previously, the DSM-IV had designated BED as a provisional diagnosis. The DSM-5 reduced the binge frequency criterion from twice per week to once per week and the duration criterion from 6 months to 3 months, bringing the criteria in line with those for bulimia nervosa (BN).

LOC eating is not a formal diagnosis. Rather, it refers to recurrent binge-like eating behavior in individuals in whom diagnosis of threshold BED is challenging, such as bariatric surgery patients and children.

Primary outcomes include episodes of binge eating or LOC eating, measures of eating-related and general psychological problems, weight and other measures of physical health, and quality of life. As a relatively new area of treatment research, potential interventions for LOC eating were unknown but anticipated to be similar to those used to treat BED or related psychological disorders in children.

We evaluated the benefits and harms of treatment approaches for individuals meeting DSM-IV or DSM-5 criteria for BED, for post-bariatric surgery patients with LOC eating, and for children with LOC eating. We restricted our search to those patients with BED who met either DSM-IV or DSM-5 criteria based on expert input on relevance to the field. Although subthreshold BED and/or broader LOC eating, in individuals other than post-bariatric surgery patients and children, are important clinical concerns, reviewing this substantial body of literature was outside the scope of this more targeted review. We also compared the relative benefits and harms of these approaches with each other. We had a secondary interest in examining whether treatment effectiveness differed in subgroups based on sex, race, ethnicity, sexual orientation, body mass index (BMI), duration of illness, or coexisting conditions. A third aim of this review was to examine the course of illness of BED and of LOC eating, especially as elements of the natural history of these disorders relate to the primary outcomes.

Overview

The evidence included 52 randomized controlled trials (RCTs), presented in 67 articles, examining treatment outcomes. Of these, 48 trials concerned treatment for patients with BED and 4 concerned treatment for children with LOC eating. We found no studies of treatment for LOC eating among bariatric surgery patients. We assembled evidence concerning course of illness from 15 studies (23 articles).

Studies of BED therapies focus on pharmacological interventions, psychological and behavioral interventions, or on combinations of two or more approaches. We found no studies meeting inclusion criteria for any complementary and alternative medicine interventions.

We sought to include evidence of differences in treatment outcomes and course of illness for subgroups of individuals with BED and LOC eating, based on the demographic or patient characteristics noted above. We found evidence (albeit limited) to address these comparisons only in relation to treatment for LOC eating in children (Key Question [KQ] 13). Therefore, the five additional KQs (KQs 3, 5, 8, 10, 15) meant to address these comparisons in other treatment populations or in relation to course of illness for all populations will not be discussed further.

We limit our discussion to summarizing the strength of evidence for benefits of interventions, comparisons, and outcomes for which we had studies of at least low or medium risk of bias. We included studies with high risk of bias in sensitivity analyses of meta-analysis findings, as evidence of harms, and as sources of information for course of illness (because of the otherwise very limited body of available evidence).

We developed strength of evidence grades from ratings on five required domains: study limitations (based on individual study risk of bias), directness of the evidence or the comparisons, consistency, precision of estimates, and reporting bias. In grading cognitive behavioral therapy (CBT) versus waitlist control, we also applied the optional domain magnitude of effect.[129,130] We did not evaluate other optional strength of evidence domains because they were not relevant to our body of evidence (i.e., confounding and dose-response relationships). Strength of evidence can have one of four grades—high, moderate, low, or insufficient. Insufficient evidence arises when we had no studies addressing the particular topic; when we had only a single small study; when available studies were sufficiently inconsistent, indirect, or imprecise as to preclude drawing any conclusions; when differences in treatments appeared to show no difference among studies that may be underpowered; or when clinical thresholds for minimal differences have not been established.

KQ 1: Effectiveness of Treatments or Combinations of Treatments for Binge-Eating Disorder

For this KQ, we sought evidence for the effectiveness of pharmacological treatments, psychological and behavioral treatments, and combinations of pharmacological and psychological and behavioral treatments on a range of clinical outcomes, including frequency of binge eating and abstinence from binge eating, measures of eating-related and general psychological problems, and weight and other measures of physical health. We found data on many different general and eating-related psychological outcomes. A few—namely binge-eating-related obsessions and compulsions; dietary and cognitive restraint; eating, shape, and weight concerns; depression; and symptoms of general psychological distress—were fairly consistently reported across studies.

For outcomes of efficacy of pharmacological treatments (treatment compared with placebo), our findings are limited to outcomes at the end of treatment, as no studies followed patients beyond treatment unless to oversee medication taper for a brief period of time. Similarly, efficacy of psychological or behavioral treatments (treatment compared with waitlist or inactive controls) followed patients only to the end of treatment. By contrast, patients enrolled in comparative effectiveness trials comparing two or more psychological or behavioral treatments or intervention formats tended to undergo assessments beyond the end of treatment, most commonly less than 1 year but in some instances 2 years or more.

Pharmacological Interventions

Table 63 summarizes the pharmacological interventions on which we had low, moderate, or high strength of evidence for clinical outcomes. We found evidence for the effectiveness of second-generation antidepressants, as a class, based on meta-analyses. We also found evidence about effectiveness for one anticonvulsant medication (topiramate) and for one medication originally formulated for attention deficit hyperactivity disorder (ADHD) (lisdexamfetamine) based on meta-analysis and qualitative synthesis. All trials measured outcomes at the end of treatment. Meta-analysis allowed us to estimate magnitude of effect, whereas qualitative synthesis allowed for describing only direction of effect. To enhance comparisons of the magnitude of outcomes across treatments, we provide some limited descriptive data on ranges of outcomes from qualitatively synthesized bodies of evidence.

Evidence concerning the efficacy of antidepressants in treating patients with BED differed by outcome. In relation to binge-eating outcomes, antidepressants were estimated to reduce the weekly frequency of binge-eating episodes by approximately two-thirds of a binge episode per week (high strength of evidence) and approximately one binge-eating day (moderate strength of evidence). Antidepressants were 1.67 times more likely than placebo to help patients achieve abstinence from binge eating (high strength of evidence). Even though patients improved, many did not achieve abstinence with antidepressants (only 41 percent of those receiving antidepressants compared with 23 percent of those receiving placebo).

We examined whether antidepressants were effective in treating psychological aspects and correlates of BED. The volume of evidence for these benefits was less than for binge-eating behavior, overall, the strength of evidence for benefit was low to moderate. Antidepressants helped reduce binge-eating-related obsessive thoughts and compulsions. That is, they provided some benefit in reducing the time that patients spend thinking about food, the degree to which they feel compelled to binge eat, the effort they exert to resist doing so, and the degree of distress associated with these mental processes. Before treatment, patients reported that their severity of obsessions and compulsions was approximately 20 on a 40-point scale. Collectively, obsessions and compulsions decreased approximately 4 points more with antidepressant treatment than placebo. We also found evidence of modest improvements in symptoms of depression as measured on the 52-point Hamilton Depression Rating Scale (HAM-D). Before treatment, patients reported relatively mild symptom levels (mean scores lower than 6 across studies). After treatment, those who received antidepressants experienced approximately a 2-point greater reduction in their HAM-D score than those who received placebo.

The range of responses in weight to antidepressant treatment was wide. Overall, overweight and obese patients treated with antidepressants did not lose significantly more weight during treatment than those who did not receive an antidepressant (low strength of evidence). Given the overall limited impact on weight and the short duration of treatment (6 to 12 weeks), finding no difference in the change in BMI at the end of treatment between those who received antidepressants and those who received placebo is not surprising.

Evidence was insufficient to demonstrate the effectiveness or comparative effectiveness of *specific* second-generation antidepressants in the treatment of BED. The main reason was that each medication (fluoxetine and sertraline) was studied in a single, small sample size trial or, at most, in two trials (of fluoxetine) that differed on key parameters such as doses or treatment duration.

Table 63. Strength of evidence for pharmacological interventions to improve outcomes in binge-eating disorder

Intervention and Comparator	Number of Studies (Sample Sizes)	Outcome and Results	Strength of Evidence
Second-generation antidepressants versus placebo	MA of 8 RCTs (N=416)	Antidepressants increased binge abstinence: RR, 1.67 (95% CI, 1.24 to 2.26, p=0.001)	High for benefit
	MA of 7 RCTs (N=331)	Antidepressants decreased the frequency of binge episodes per week: mean difference, −0.67 (95% CI, −1.26 to −0.09, p=0.024)	High for benefit
	MA of 3 RCTs (N=122)	Antidepressants decreased the frequency of binge days: mean difference, −0.90 (95% CI, −1.48 to −0.32, p=0.002)	Moderate for benefit
	MA of 3 RCTs (N=122)	Antidepressants decreased eating-related obsessions and compulsions based on mean difference in YBOCS total, −3.84 (95% CI, −6.56 to −1.12, p=0.006); YBOCS obsessions, −1.53 (95% CI, −2.69 to −0.37, p=0.010); and YBOCS compulsions, −2.31 (95% CI, −3.85 to −0.76, p=0.003)	Moderate for benefit for total, obsessions, and compulsions
	MA of 4 RCTs (N=182)	No difference in weight: mean difference in kg, -3.91 (95% CI, -10.14 to 2.32, p=0.219)	Low for no difference
	MA of 6 RCTs (N=297)	No difference in BMI: mean difference, −1.05 (95% CI, -2.64 to 0.55; p=0.198)	Low for no difference
	MA of 3 RCTs (N=142)	Antidepressants decreased symptoms of depression: mean difference, −1.98 (95% CI, −3.67 to −0.28, p=0.022)	Low for benefit
Topiramate versus placebo	2 RCTs (N=468)	Topiramate increased binge abstinence	Moderate for benefit
	2 RCTs (N=468)	Topiramate decreased the frequency of binge episodes	Moderate for benefit
	2 RCTs (N=468)	Topiramate decreased eating-related obsessions and compulsions	Moderate for benefit
	2 RCTs (N=468)	Topiramate decreased weight	Moderate for benefit
	1 RCT (N=407)	Topiramate improved general and eating-related psychological functioning indicated by increases in cognitive control of eating and decreases in symptoms of psychological distress, susceptibility to hunger, and disinhibition of control over eating	Low for benefit
	1 RCT (N=407)	Topiramate decreased impulsivity	Low for benefit
	1 RCT (N=407)	Topiramate decreased disability in family and social domains	Low for benefit
Lisdexam-fetamine versus placebo	MA of 3 RCTs (N=966)	Lisdexamfetamine increased binge abstinence: (RR, 2.61; 95% CI, 2.04 to 3.33; p=0.000)	High for benefit
	3 RCTs (N=966)	Lisdexamfetamine decreased binge episodes per week	High for benefit
	3 RCTs (N=966)	Lisdexamfetamine decreased eating-related obsessions and compulsions based on mean difference in YBOCS total	High for benefit
	3 RCTs (N=966)	Lisdexamfetamine decreased weight	High for benefit

BMI = body mass index; CI = confidence interval; GI = gastrointestinal; MA = meta-analysis; N = number; RR = risk ratio; RCT = randomized controlled trial; SNS = sympathetic nervous system; YBOCS-BE = Yale-Brown Obsessions and Compulsions Scale modified for binge eating.

The anticonvulsant topiramate reduced the frequency of binge eating by approximately 1 binge day per week more than placebo, and it helped approximately 30 percent more patients (58 percent vs. 28 percent) achieve abstinence from binge eating (moderate strength of evidence). By comparison, in a small study, 50 percent of patients treated with the anticonvulsant lamotrigine achieved abstinence, but this effect was not statistically significant because of an unusually high abstinence rate of 71 percent in patients treated with placebo (insufficient strength of evidence).[218]

In addition, topiramate helped reduce binge-eating-related obsessive thoughts and compulsions by approximately 30 percent and more general psychological distress symptoms by approximately 23 percent more than placebo (moderate strength of evidence). Among overweight and obese patients, those treated with topiramate lost, on average, approximately 10 pounds more (equivalent to ~4 percent more total body weight) than those who received placebo (moderate strength of evidence). Topiramate had additional benefits including reductions in patients' susceptibility to hunger as a trigger for binge eating and improvements in their general tendency to act less impulsively. Patients treated with topiramate also tended to experience increased sense of cognitive control over their binge eating and decreased disruptions in their social and family life compared with patients who received placebo. However, the strength of evidence for these benefits was low.

We combined evidence from three trials of lisdexamfetamine, a medication that was originally formulated to treat ADHD. Lisdexamfetamine is the only medication that has received U.S. Food and Drug Administration (FDA) approval for treating BED.[148] In one published Phase 2 trial, three separate dosage levels of lisdexamfetamine were compared with placebo (30, 50, and 70 mg/day). In two Phase 3 trials, only the two higher dosage levels were evaluated in a combined arm compared with placebo. We limited our analysis to the Phase 3 medication dosage levels. In relation to binge-eating outcomes, lisdexamfetamine was 2.61 times more likely than placebo to help patients achieve abstinence from binge eating (across studies, 40 percent in the treatment arm and 15 percent in the placebo arm) (high strength of evidence). Moreover, lisdexamfetamine patients experienced a greater reduction in binge-eating days per week (the point estimates of the differences in the two Phase 3 trials were 1.3 and 1.7 fewer days) (high strength of evidence). Lisdexamfetamine was also associated with superior eating-related psychopathology outcomes, as measured through the Yale-Brown Obsessive Compulsive Scale Modified for Binge Eating (YBOCS-BE) (high strength of evidence). Weight reduction was greater across the three studies (the point estimates of the differences in the two Phase 3 trials were 6.3 percent and 5.6 percent; virtually all the weight reduction was limited to the treatment arm) (high strength of evidence). However, data on depression and other psychological outcomes were too limited to be evaluated (insufficient strength of evidence).

Evidence was insufficient for benefits of other medications, including dietary supplements. Each medication that we identified in our literature searches was studied in only one small trial.

Psychological and Behavioral Interventions

Table 64 summarizes the psychological and behavioral interventions for which we had low, moderate, or high strength of evidence for treatment benefits. These included four forms of CBT: therapist-led CBT, partially therapist-led CBT, structured self-help CBT, and guided self-help CBT. These represent variations of therapist involvement and contact during the intervention in descending order of therapist participation. The first three forms were examined in group interventions and the fourth as individual therapy. We also evaluated evidence on the comparative effectiveness of different forms of CBT and the comparative effectiveness of CBT versus behavioral weight loss. We found evidence for all outcomes at the end of treatment and for some outcomes over periods as long as 6 years after treatment ended.

Table 64. Strength of evidence for psychological and behavioral interventions to improve outcomes in binge-eating disorder

Intervention and Comparator	Number of Studies (Sample Sizes)	Outcome and Results	Strength of Evidence
Therapist-led CBT versus waitlist	MA of 4 RCTs (N=295)	CBT increased binge abstinence: RR, 4.95 (95% CI, 3.06 to 8.00, p = 0.000)	High for benefit
	MA of 3 RCTs (N=208)	CBT decreased the frequency of binge episodes per week: mean difference −2.32 (95% CI, −4.56 to −0.09, p=0.04)	High for benefit
	5 RCTs (N=344)	CBT decreased eating-related psychopathology	High for benefit
	5 RCTs (N=344)	No difference for BMI	Moderate for no difference
	5 RCTs (N=344)	No difference for depression	Moderate for no difference
Partially therapist-led CBT versus waitlist	2 RCTs (N=162)	CBT decreased binge frequency	Low for benefit
	2 RCTs (N=162)	CBT increased binge abstinence	Low for benefit
	2 RCTs (N=162)	No difference for BMI	Low for no difference
	2 RCTs (N=162)	No difference for depression	Low for no difference
Structured self-help CBT versus waitlist	2 RCTs (N=162)	CBT decreased binge frequency	Low for benefit
	2 RCTs (N=162)	No difference for BMI	Low for no difference
	2 RCTs (N=162)	No difference for depression	Low for no difference
Guided self-help CBT versus waitlist	2 RCTs (N=122)	CBT increased binge abstinence	Low for CBT benefit
	2 RCTs (N=122)	CBT decreased binge frequency	Low for CBT benefit
	2 RCTs (N=122)	CBT decreased eating-related psychopathology	Low for CBT benefit
Therapist-led versus partially therapist-led CBT	2 RCTs (N=158)	No difference in binge frequency or abstinence	Low for no difference
	2 RCTs (N=158)	No difference in eating-related psychopathology	Low for no difference
	2 RCTs (N=158)	No difference in BMI	Low for no difference
	2 RCTs (N=158)	No difference in symptoms of depression	Low for no difference
Therapist-led versus structured self-help CBT	2 RCTs (N=158)	No difference in eating-related psychopathology	Low for no difference
	2 RCTs (N=158)	No difference in BMI	Low for no difference
	2 RCTs (N=158)	No difference in symptoms of depression	Low for no difference
Partially therapist-led versus structured self-help CBT	2 RCTs (N=164)	No difference in binge frequency or abstinence	Low for no difference
	2 RCTs (N=164)	No difference in eating-related psychopathology	Low for no difference
	2 RCTs (N=164)	No difference in BMI	Low for no difference
	2 RCTs (N=164)	No difference in symptoms of depression	Low for no difference
Therapist-led CBT versus BWL	2 RCTs (N=170)	CBT decreased binge frequency more than BWL at end of treatment and up to 12-month followup	Low for CBT benefit
	2 RCTs (N=170)	No difference in abstinence	Low for no difference
	2 RCTs (N=170)	No difference in eating-related psychopathology	Low for no difference
	2 RCTs (N=170)	BWL decreased BMI more than CBT at end of treatment	Moderate for BWL benefit
	2 RCTs (N=170)	No difference in symptoms of depression	Low for no difference

BMI = body mass index; BWL = behavioral weight loss; CBT = cognitive-behavioral therapy; N = number; RCT = randomized controlled trial.

We found strong evidence of the effectiveness of CBT in reducing binge-eating-related outcomes, measured as binge frequency and achieved abstinence, compared with waitlist. These benefits were apparent for four forms of CBT (therapist-led, high strength of evidence; partially therapist-led, structured self-help CBT, and guided self-help CBT, low strength of evidence). Evidence of the benefits of therapist-led CBT was particularly compelling; meta-analyses estimated a 4.95 increased likelihood of abstinence compared with waitlist (across studies, 59 percent in the treatment arm and 11 percent in the placebo arm) and a reduction of 2.3 binge episodes per week. For reducing general and eating-related psychological symptoms, only therapist-led CBT and guided self-help CBT were superior to waitlist. Therapist-led CBT reduced patients' susceptibility to hunger and eating concerns and improved their sense of control over eating (high strength of evidence), and guided self-help CBT helped patients reduce

global eating-related psychopathology (low strength of evidence). However, across the various forms of CBT, treatment was generally no better than waitlist for reducing weight or symptoms of depression (low strength of evidence for no difference). We found very limited data comparing pure self-help CBT (which does not involve treatment facilitators) with waitlist; thus, we cannot comment on outcomes of this intervention. Collectively, this body of evidence suggests that various forms of CBT help patients with BED improve in several key behavioral and eating-specific psychological domains.

We examined evidence of the comparative effectiveness of three different forms of CBT with each other: therapist-led CBT, partially therapist-led CBT, and structured self-help CBT. These comparisons are of interest as they provide insight about the relative importance of therapist involvement in the effectiveness of CBT. Across comparisons, we found virtually no differences in binge-eating outcomes (low strength of evidence for no difference). Likewise, non-BED-specific outcomes did not differ across comparisons: neither BMI outcomes nor depression outcomes differed across comparisons of variations in therapist involvement in CBT interventions (low strength of evidence for no difference). Despite nonsignificant differences between CBT variations, the CBT variants that were studied were generally effective both at helping patients achieve binge abstinence and reduce binge frequency, most notably at end of treatment but throughout both short (6 month) and long-term (12 month) followup. Thus, although CBT variations generally did not show a difference in their ability to improve binge-eating-related outcomes, the treatments did produce a significant effect over time such that most patients (regardless of treatment arm) improved in important outcome domains.

We compared therapist-led CBT with therapist-led behavioral weight loss (BWL) treatment on outcomes assessed at the end of treatment and, in limited studies, for up to 6 years after treatment ended. CBT was superior to BWL for decreasing binge frequency at end of treatment and up to 12-month followup (low strength of evidence). Neither trial reported a significant difference between groups in abstinence, eating-related psychopathology, or depression at end of treatment or at 12-month or 6-year followup. Notably, the benefit of BWL over CBT was clear for reducing BMI at end of treatment (moderate strength of evidence); however, those receiving BWL tended to regain the weight they had lost during treatment.

Data were very limited about the effectiveness of various other psychological and behavioral therapies for BED compared with waitlist control. These treatments include several forms of CBT, such as pure self-help, and other therapies such as interpersonal psychotherapy (IPT), dialectical behavior therapy (DBT), and dietary approaches other than BWL therapy. Comparative effectiveness trials of these treatment options against more commonly studied treatments or each other were even more limited. Finally, we found only very limited evidence about the effectiveness of cognitive and behavioral treatments that are provided as adjunct therapy to existing hospital-based inpatient treatment for BED.

The primary limitation was the availability of only single trials for specific treatments. Secondarily, similar trials reported disparate outcome measures. For example, one trial reported binge eating and the other trial of a similar type reported only binge abstinence as an outcome. Thus, we are unable to comment on outcomes of these other treatment modalities.

A particular example of this limitation is in relation to the evidence of the effectiveness of interpersonal psychotherapy (IPT), which was limited to single trials because of diverse delivery formats. The results of these trials are notable given the impressive percentage of participants who achieved abstinence, both at end of treatment and long-term followup.[80,176] At end of treatment, 64 percent of participants receiving IPT were binge abstinent;[80,176] this benefit

persisted at 2-year (67 percent abstinent)[176] and even 4-year followup (76 percent).[184] Thus, although the results of these trials were notable, we were unable to comment on the strength of evidence because of the differing ways the IPT interventions were given. Evidence for DBT, albeit promising, is even more restricted that than for IPT.

Combinations of Interventions

We searched for evidence for combinations of treatments. This exercise led us to several treatment comparisons involving combinations of medications with psychological or behavioral treatments and comparisons involving combinations of psychological or behavioral treatments with other treatments in this category. Some data on multi-component therapies (more than two treatments bundled together) were also available. However, each variation of combination therapy was evaluated in only a single study with a small sample size. These limitations rendered strength of evidence as insufficient for all outcomes. Thus, we are unable to comment on benefits of combination treatments.

Summary for KQ 1

In summary, our review suggests the following major points.

- First, second-generation antidepressants, as a class, are superior to placebo for the treatment of BED-specific and related clinical outcomes. However, the magnitudes of the benefits appear to be modest, as many patients did not achieve abstinence from binge eating and binge frequency was reduced by only two-thirds of a binge episode (~1 binge day) per week. Lacking in the available evidence is sufficient information to reach conclusions about the efficacy of any *specific* antidepressant for treating patients with BED.
- Second, topiramate is superior to placebo for improving a range of key psychological, behavioral, and physical health outcomes.
- Third, lisdexamfetamine, a medication originally formulated for ADHD, is superior to placebo for BED-specific and related clinical outcomes and weight but not depression. The magnitude of the benefit of achieved abstinence from lisdexamfetamine is similar to the benefit seen for second-generation antidepressants. Lisdexamfetamine is the only pharmacological treatment that has FDA approval for treating BED.
- Fourth, various forms of CBT (most notably therapist-led CBT, but also partially therapist-led, and structured self-help) are superior to waitlist in achieving abstinence and reducing binge frequency at end of treatment.
- Fifth, a small body of evidence suggests that both IPT and DBT may be efficacious in helping patients achieve binge abstinence and reducing binge frequency compared with waitlist. The limited evidence for IPT is compelling in terms of both binge outcomes and eating-related psychopathology; the evidence for DBT is more restricted in scope.
- Sixth, other comparative effectiveness evidence is limited or unique, generally not allowing for synthesis across studies. Although BWL helps overweight and obese patients lose weight, it is less effective than CBT for helping patients reach and maintain a lower frequency of binge eating and abstinence over the longer term.

KQ 2: Evidence for Harms Associated With Treatments for Binge-Eating Disorder

We sought evidence of the potential harms or side effects that may occur with various treatment options. We anticipated finding some concerns because those are already well known in association with antidepressants, anticonvulsants, stimulants, and other medications. We also considered any others that authors of these trials might have reported. Table 65 summarizes the interventions for which we had low, moderate, or high strength of evidence for harms outcomes.

Consistent evidence showed that symptoms of sympathetic nervous system arousal were more common among patients who received topiramate than those who received placebo (moderate strength of evidence). For example, patients who received topiramate more frequently reported sweating, dry mouth, rapid heart rate, and similar physical side effects that are associated with anticonvulsant medications than patients who received placebo. Those treated with topiramate also reported a higher number of events, some relating to physical functioning and some to psychological or cognitive functioning. For example, patients who received topiramate reported more headaches and sleep disturbances (low strength of evidence) as well as a set of other symptoms including rash, high blood pressure, confusion, and taste aversion (moderate strength of evidence for the set of other events) than patients who received placebo. While topiramate is a known teratogen linked to a higher incidence of oral clefts; none of the included studies reported this harm. Patients treated with fluvoxamine reported symptoms of GI upset and sleep disturbances more frequently than patients who received placebo.

Patients treated with lisdexamfetamine more frequently reported GI upset, sympathetic nervous system arousal (including feeling jittery, increased heart rate, agitation, and irritability) and decreased appetite (moderate strength of evidence). Based on meta-analysis results, rates of insomnia and headache were significantly higher among patients being treated with lisdexamfetamine (high strength of evidence).

Evidence was insufficient for many of the specific types of events. The main reasons were that investigators were inconsistent in how they reported specific events across studies and that they often did not report events in an itemized fashion with clear attribution to treatment or placebo. These shortcomings in the body of evidence also limited our determination of whether patients receiving medication or combination treatments were more likely than those receiving placebo to discontinue treatment because of adverse events.

Thus, we could address harms only in a descriptive manner. We provided counts across categories of events with little assurance that those counts truly represented all adverse events that occurred in the included studies. Similarly, we could only summarize and describe the discontinuations attributed to serious harms and treatment differences in serious harms because so few serious adverse events were reported (N=10).

Table 65. Strength of evidence for side effects or harms associated with treatment for binge-eating disorder

Intervention and Comparator	Number of Studies (Sample Sizes, Number for Reported Events)	Outcome and Results	Strength of Evidence
Topiramate versus placebo	2 RCTs (N=468, 94)	Topiramate and placebo, similar number of events related to gastrointestinal upset	Low for no difference
	2 RCTs (N=468, 243)	Topiramate higher number of events related to sympathetic nervous system arousal	Moderate for harm
	2 RCTs (N=468, 89)	Topiramate higher number of events related to sleep disturbance	Low for harm
	2 RCTs (N=468, 73)	Topiramate higher number of headaches	Moderate for harm
	2 RCTs (N=468, 199)	Topiramate higher number of other[a] events	Moderate for harm
Fluvoxamine versus placebo	2 RCTs (N=105, 24)	Fluvoxamine higher number of events related to gastrointestinal upset	Low for harm
	2 RCTs (N=105, 22)	Fluvoxamine higher number of events related to sympathetic nervous system arousal	Low for harm
	2 RCTs (N=105, 57)	Fluvoxamine higher number of events related to sleep disturbance	Low for harm
Lisdexam-fetamine versus placebo	3 RCTs (N=938, 119)	Lisdexamfetamine higher percentage of patients with gastrointestinal upset	Moderate for harm
	3 RCTs (N=938, 111)	Lisdexamfetamine higher percentage of patients with sympathetic nervous system arousal	Moderate for harm
	MA, 3 RCTs (N=938, 78)	Lisdexamfetamine higher percentage of patients with insomnia: (RR, 2.66; 95% CI, 1.63 to 4.31)	High for harm
	MA, 3 RCTs (N=938, 111)	Lisdexamfetamine higher percentage of patients with headache (RR, 1.63; 95% CI, 1.13 to 2.36)	High for harm
	3 RCTs (N=938, 66)	Lisdexamfetamine higher number of decreased appetite	Moderate for harm

MA = meta-analysis; N = number; RCT = randomized controlled trial; RR = risk ratio

[a] Includes bone fracture resulting from accidental injury, confusion, depression, eructation, hypertension (high blood pressure), language problems, rash or itching, respiratory illness, rhinitis, sinusitis, taste aversion, urinary hesitancy, and other problems.

KQ 4: Course of Illness Among Individuals With Binge-Eating Disorder

We sought evidence on outcomes among individuals with BED 1 year or longer following their diagnosis (KQ 4). We identified 10 studies (trials or observational studies). None of the studies included cohorts of individuals identified in the community; rather, they were limited to individuals who had earlier participated in BED treatment studies. Two studies used a case series design, comparing outcomes in a treatment population with those in matched controls identified through a registry. Because the number of available studies was limited, we included three articles (reporting on two studies) that we had rated high risk of bias.

Binge-eating outcomes were commonly reported in these studies. However, studies differed in the characteristics that investigators hypothesized might be related to better outcomes; these variables included more rapid response to treatment, improvement in eating-related psychopathology, and improvement in non-eating-related psychopathology. One study found increased odds of miscarriage among women with BED. A review article of three studies and an additional study found no evidence of increased risk of suicide among BED patients 5 years after treatment (strength of evidence was moderate for no effect.) Strength of evidence was insufficient for all other comparisons and outcomes.

KQs 6, 7, 11, and 12: Effectiveness of Treatments and Harms Associated With Treatments for Loss-of-Control Eating

We sought evidence of the effectiveness of treatments or combinations of treatment for LOC eating among bariatric surgery patients and children. We found no evidence addressing treatment for LOC eating among bariatric surgery patients (KQs 6, and 7; insufficient strength of evidence).

Evidence about treating LOC eating among children was limited to four studies (KQ 11). Three studies focused on adolescents and another on children 8 to 12 years of age. All included children were overweight or obese. Studies differed in the criteria they used for defining LOC eating. One study focused on children eating in the absence of hunger; the other three examined children who had been binge eating (past 3 months) or experiencing LOC eating (once in the past month). Studies also differed in treatment comparisons. With the exception of no difference in weight outcomes, comparing IPT and non-BED health education "attention only" control (low strength of evidence for no difference), evidence is insufficient for all outcomes. No harms from treatment were reported in these studies (KQ 12).

KQ 9: Course of Illness Among Bariatric Surgery Patients With Loss-of-Control Eating

We sought evidence on outcomes among bariatric surgery patients with LOC eating, 1 year or longer following diagnosis. The two identified studies differed in the criteria used for defining LOC eating at baseline (i.e., before surgery). Strength of evidence is insufficient across all outcomes because of a lack of clear and consistent findings in more than one study.

KQ 14: Course of Illness Among Children With Loss-of-Control Eating

We sought evidence on outcomes among children with LOC eating and identified three longitudinal cohort studies. In two of the studies, eligibility was based on responses to survey questions concerning any binge or LOC-eating behavior in the past year. The third study used a more formal clinical assessment and the evaluation period was over the past 3 months. The body of evidence indicated that early adolescent binge or LOC eating predicted similar behavior in later adolescence (low strength of evidence). Evidence of additional outcomes was limited or inconsistent across studies.

Findings in Relation to What Is Already Known

Our 2006 review, "Management of Eating Disorders,"[103,120,123] included evidence on treatment and course of illness for BED. Based on our qualitative analysis of eight RCTs, we had concluded that medications were related to improved clinical outcomes. Two subsequent meta-analyses reached a similar conclusion. Stefano et al.[100] included seven (of our eight) RCTs and focused specifically on antidepressant medications; Reas et al.[101] included six of those RCTs and two new trials of selective serotonin reuptake inhibitors (SSRIs) and focused specifically on SSRIs. Those studies estimated similar effect sizes for abstinence (risk ratio [RR] of nonabstinence from binge eating: 0.77 and 0.81), but they reached different conclusions about weight and depression outcomes.

The Reas et al. meta-analysis also estimated an effect size for nonabstinence (RR, 0.63) and weight (standardized mean difference [SMD], -4.58) of anticonvulsant medications, based on three RCTs; however, we rated one of the RCTs in their analysis[131] as high risk of bias. For the current review, we excluded two of the eight RCTs from our earlier review (one newly rated as high risk of bias and one because it used a medication no longer available in the United States). Also, we included two newer antidepressant trials[96,141] and one anticonvulsant trial[144] not included in either the 2008 or the 2009 meta-analyses.

Based on this additional evidence, we have confirmed our earlier conclusion regarding the effectiveness of second-generation antidepressants for binge abstinence and binge frequency. We have also provided new findings regarding the effectiveness of second-generation antidepressants for eating-related obsessions and compulsions, weight, and depression outcomes. In the current review, we included one additional anticonvulsant RCT but were not able to add new information regarding effect size for anticonvulsant medications because of high variability among studies.

In relation to course of illness of BED, our earlier review had identified only three studies. Although the size of the evidence base is larger for this review, the new studies provide little additional insight. They are mostly case series designs without comparisons or controls for potential confounding factors associated with outcomes, and they are limited to patients followed after treatment.

Our review is the only one that we have identified that has summarized the evidence on treatment and course of illness among individuals with LOC eating.

Implications for Clinical and Policy Decisionmaking

We had hoped to be able to comment more definitively on the effectiveness and harms of a greater number of specific pharmacological and psychological or behavioral treatments for BED and on the comparative effectiveness of specific treatments for BED. Unfortunately, the heterogeneity in approaches was such that we could not draw many firm conclusions for a variety of treatment options about implications for clinical practice or policy decisionmaking. We note here our conclusions with meaningful ramifications for either clinical applications or policymaking.

For several key outcomes, we found clear evidence of modest benefits with second-generation antidepressants; however, because of limited evidence, we could not comment on the effectiveness of any specific second-generation antidepressant. In addition, collectively, we were able to confirm previous observations of benefit with topiramate and present new evidence of benefit from lisdexamfetamine

We also found strong evidence of benefit with therapist-led CBT for several key outcomes and support for the effectiveness of two other forms of CBT (namely, partially therapist-led CBT and guided self-help CBT). Because of insufficient evidence, we could comment only briefly on the effectiveness of other psychological and behavioral treatments, such as IPT and DBT, and could not comment on any combinations of treatments for BED.

Commonly known side effects with topiramate, fluvoxamine, and lisdexamfetamine were reported, but harms of psychological and behavioral treatments were rarely reported. These three drugs have been determined by the FDA to be associated with potential risk during pregnancy; in particular, topiramate is associated with increased risk of oral clefts in newborns.[219] No pregnancy-related harms occurred in the included studies, which were over-represented by women of childbearing age.[4] Nonetheless, clinicians may want to counsel women patients of

childbearing age about the pregnancy risks of these medications in determining their long-term treatment plans.

Therefore, based on the available evidence for both benefits and harms, clinicians may find second-generation antidepressants, topiramate, lisdexamfetamine, and a few forms of CBT to be reasonable choices for the treatment of BED. Compared with placebo or waitlist controls, at the end of treatment, the likelihood that patients would achieve abstinence was 1.67 times higher in those treated with second-generation antidepressants (compared with placebo) 2.61 times higher in those treated with lisdexamfetamine (compared with placebo), and 4.2 times higher in those treated with therapist-led CBT (compared with waitlist). The percentage of patients achieving abstinence was approximately 40 percent for lisdexamfetamine and second-generation antidepressants, 58 percent for topiramate, and 59 percent for therapist-led CBT.

Although the effect size for abstinence was larger for therapist-led CBT than for lisdexamfetamine, second-generation antidepressants, and topiramate, the comparator arm differed (waitlist for CBT, placebo for medications). Therefore, the true difference in the magnitude of the effect size between the psychological intervention and the pharmacological interventions is not known. For this reason, we cannot state an empirically driven conclusion regarding first-line treatment.

The superiority of a few CBT formats was determined only in establishing efficacy but not for comparative effectiveness; outcomes from CBT interventions were assessed in comparison with no intervention at all (waitlist control). Limited data emerged on the comparative effectiveness of various formats of CBT or comparisons between CBT formats and other approaches. Although virtually none of the available evidence showed superiority of one approach over another, we caution readers not to conclude that this implies that the various behavioral and psychological interventions formats are identical in terms of clinical outcomes; rather, they are not significantly different. None of the included comparative effectiveness studies was designed to examine the equivalence or noninferiority of approaches.[220] These findings have implications for decisionmakers who may be considering the resources needed for therapist-led intervetions relative to those for other, less therapist-intensive forms of CBT or other behavioral interventions. These considerations may be particularly relevant for broader community settings, such as rural areas that may have limited availability of specialized treatment for BED or LOC eating.

Other promising treatment options, such as IPT and DBT, were limited to single trials because investigators used a wide array of delivery formats. Clinicians may want to consider these treatments for some patients. The effect of IPT on binge abstinence may be particularly durable; one study found that at 4-year followup, binge abstinence was greater in IPT than CBT patients.

Clinical decisionmaking must also consider patient preferences and goals in determining the most appropriate treatment interventions, particularly when considering weight loss as a potential focus of treatment. BWL treatment, for example, was associated with greater weight loss in the short-term (but less improvement in binge eating) than CBT. Thus, BWL may ultimately be a better treatment choice for a subgroup of patients, depending on their primary treatment goal. The variation in treatment goals and preferences across patients with BED underscores the importance of discussing a patient's primary treatment goal to determine to the best fit.

The comparative effectiveness of these and other treatments constitutes an area in need of further study. Head-to-head trials, including replication studies and equivalence trials, will help decisionmakers identify best options for first-line and adjunct treatments. Investigators should

consider trials that compare the effectiveness of different antidepressants, trials of antidepressants compared with other medications such as lisdexamfetamine, and trials of pharmacological interventions combined with CBT or other behavioral interventions. Similarly, trials of different modes of delivery of CBT are warranted. Of critical importance is whether any of the pharmacological treatments produce durable benefit without side effects that compromise adherence and quality of life. In addition, comparing different modes of delivery of CBT could be helpful to those making decisions that need to consider patient access to specialized treatment.

We wanted to comment on the potential impact of the DSM-5 change in the diagnostic criteria for BED. The binge frequency criterion has been lessened and the duration of illness has been shortened. Clinicians, patients, and policymakers might have considerable interest in knowing whether effective treatment options may differ in this newly included group of patients. Unfortunately, we found no studies that provided separate results for a patient population diagnosed according to DSM-5.

We also sought to provide useful evidence concerning effective treatments for specific populations of individuals with LOC eating. We meant to consider LOC eating among individuals who would be unlikely to meet our definition of BED because of bariatric surgery or younger age. We did not identify any RCTs of bariatric surgery patients with BED before surgery or with LOC eating before or after surgery. We included four studies of treatment in children with LOC eating but, because of differences in definitions of LOC eating, interventions, and outcomes, we were generally unable to synthesize our findings across studies.

Applicability

During our review process, we systematically abstracted key factors that may affect the applicability of the evidence base. We identified these key factors a priori; they relate generally to the PICOTS framework (population, interventions and comparators, outcomes, timeframes, and settings). We defined applicability according to AHRQ guidance: "the extent to which the effects observed in published studies are likely to reflect the expected results when a specific intervention is applied to the population of interest under real-world conditions."[221] We comment below for BED and LOC eating in terms of PICOTS; we then note briefly our conclusions about the applicability of course of illness findings.

Population

Findings about all BED treatment interventions are likely to be applicable to all adults above the age of 18 with the disorder. Patient populations were generally overweight or obese women. However, because of insufficient evidence, we cannot comment on treatment applicability as it pertains to specific subgroups of adults (even among women) or whether they extend to BED patients diagnosed based on DSM-5 criteria (which are less stringent than those for DSM-IV). Also unclear is whether our findings apply to adolescents or various minority group members with BED.

The evidence base about treatment for LOC eating in children was small and for bariatric surgery patients was nonexistent. The criteria used to define the condition varied across the studies of children and included different combinations of characteristics such as eating in the absence of hunger, objective and subjective binge episodes, and objective overeating episodes. Studies also differed in the required number of times the behavior had occurred and over what period of time Thus, although the evidence may be generally applicable, generalizing to child (or adolescent) patient populations is probably inappropriate (and is impossible for bariatric

surgery patients). As noted, we had no useable information on these patient populations differentiated by sociodemographic or health characteristics. Finally, the appropriate diagnostic criteria that clinicians might reliably use to identify LOC eating have not been established.

With respect to the course of illness of BED, we found no evidence among an untreated population; we can, however, consider several hypotheses based on the ongoing concerns within the patient samples. Untreated BED could likely become a chronic condition, which could in turn result in deleterious mental and physical health effects. Left untreated, the condition may lead to or worsen other mental health concerns, such as depression or anxiety, or physical health conditions, such as diabetes or irritable bowel syndrome. Among children with LOC eating, evidence pointed to these children being at increased risk for excessive weight gain in later adolescence.

Interventions and Comparators

We present evidence on numerous possible treatments for BED, as long as those treatments were evaluated in trials that met our inclusion criteria and were not considered high risk of bias. We present evidence on medications, psychological and behavioral treatments, and combinations of treatments. Only one of the medications in our review, lisdexamfetamine, has been approved by the FDA for treating BED. Therefore, it is the only pharmacological treatment in which potential adverse events in a patient population with BED have received FDA review.

We found many single studies of treatments. Although we included these investigations in our review, we could not comment on the efficacy of these many interventions for BED patients. These included medications from many classes that are approved for treating depression and substance dependence. Similarly, we cannot comment on the applicability of any pharmacological interventions for LOC eating in children or bariatric surgery patients. Several of the behavioral trials treating LOC eating in children tested the effectiveness of IPT but, similar to the BED literature, the evidence for effectiveness was also limited for this patient group and virtually all results were insufficient.

In addition, we had planned to include complementary and alternative medicine approaches, but we could not find any studies that met our criteria. Thus, we have no evidence regarding the effectiveness of these particular treatments for any of these conditions (BED or LOC eating).

Outcomes

We did not limit the outcomes of interest but rather took a broad view of the kinds of benefits that might occur with treatments. Our primary focus was on reductions in commonly noted BED symptomatology, including binge frequency, eating-related obsessions and compulsions, restraint, shape and weight concerns, weight, and depression. As noted above, however, investigators used a considerable array of different measures or instruments to assess outcomes, constraining our ability to generalize findings across all of these outcome categories of interest. Also, we sought but did not find sufficient information to draw any conclusions about treatment effectiveness for more global measures such as quality of life or lost productivity. Finally, we found no evidence about treatment effectiveness as it relates to final health outcomes such as, for example, diabetes, gastric reflux, and irritable bowel syndrome.

Given the scarcity of information about LOC eating, we cannot conclude anything about applicability of these trials with respect to proposed or potential outcomes of treatment among bariatric surgery patients and little about treatment outcomes among children.

Timeframes

Studies varied in their length of followup periods. All trials of medications measured outcomes at the end of treatment (but many of these trials were relatively short); only two trials[195,222] reported longer-term followup beyond the end of treatment. Similar studies examining the efficacy of psychological and behavioral interventions measured outcomes at the end of treatment. Only comparative effectiveness studies comparing different psychological or behavioral interventions or different intervention formats were more likely to include both short- and long-term followup; one trial extended to 6 years after the end of treatment. Generally, the applicability of these studies for understanding the long-term impacts of treatment (benefits or harms) is relatively limited because the long-term efficacy of the individual treatments has not been established; the applicability of these studies (especially the pharmacological trials) for short-term benefits may be somewhat stronger.

Settings

The evidence base for both BED and LOC eating (in children) was largely outpatient care, which would be the standard of care in the United States. We found limited evidence about inpatient therapies; the patient populations in these studies, conducted in Italy, would unlikely be eligible to receive inpatient care in the United States. Of all the trials we included for either BED or LOC, most were conducted in clinical settings in North America (United States mainly, or Canada); evidence was also obtained from studies conducted in Scandinavia or elsewhere in Europe. Generally (apart from considerations relating to health systems and insurance for the few investigations done outside North America), results are applicable to US patient populations.

However, most studies were conducted in supervised settings generally associated with academic research and medical centers. In such settings, medication treatment was likely managed by a psychiatrist and psychological and behavioral treatments likely delivered by highly trained personnel, many specifically trained in treating individuals with binge-eating disorder. Whether our findings apply to the "real-world" settings in which individuals seek and receive treatment in their local community through contact with their primary care physician or other community-based providers who do not have specific expertise in BED treatment remains unclear.

Limitations of the Review Process

For this review, we excluded non–English-language studies based largely on limitations of time and resources. However, we examined English language abstracts of non-English language studies to assess the potential size of the literature that would be missed through this approach. We conducted this exercise by repeating our same literature searches but limiting it to non-English language studies.

We identified 358 records of non-English language studies matching our searches and reviewed the English language abstracts. Of those, only nine references had any potential to be useful for our review; however, several provided only vague abstracts, which made it hard to determine any details about the article. One specific article was a systematic review of exercise as a treatment for BED,[223] so it might have provided useful information for the review. All in all, we believe that limiting our review to English-language studies had little, if any, effect.

Limitations of the Evidence Base

For nearly all medications (the exceptions being lisdexamfetamine, fluoxetine, and topiramate), many psychological and behavioral studies, and all combination treatment studies, the evidence base for treatment efficacy comprised only single studies. In particular, for the meta-analyses we performed, the evidence base was limited for certain outcomes for various reasons: (1) authors of different studies did not always report the same outcomes; (2) authors reported statistical outcomes but did not provide descriptive data either in text or to us directly despite our outreach efforts; or (3) too few studies were available. The evidence base was extremely limited in scope and volume for treatment of LOC eating in children and nonexistent for bariatric surgery patients after surgery. The evidence for harms was limited because adverse events, serious adverse events, and study discontinuations clearly attributable to adverse events were not uniformly collected or reported in studies.

We also encountered a nontrivial number of trials or other studies with substantial drawbacks in methods. We used standard techniques for assessing risk of bias for trials or observational studies (documented in Appendix D). Among the problems seen (even in studies with medium or low risk of bias overall) were issues of conduct or nonreporting of randomization and allocation concealment, masking of outcomes assessors, nonequivalent treatment and control groups at baseline, issues with attrition (or differential attrition), or questionable analytic techniques (e.g., no intention-to-treat analyses). Yet other issues in the overall evidence base included small sample sizes (and thus lack of power for determining intended effects), lack of clarity in defining the conditions (or not reporting data separately for DSM-IV and DSM-5 patients), short studies (e.g., outcomes measured only at end of treatment, which could be just a matter of weeks), lack of information on statistical methods (or data on confidence intervals or similar information on statistical tests).

Research Gaps

Gaps in Subgroups Studied

We found no studies that addressed differences in treatment outcomes among important subgroups defined by age, sex, race, and other relevant patient characteristics. Observational and cross-sectional studies have shown that binge eating may be more common among certain racial minorities, for example, yet treatment studies have failed to address whether outcomes differ between groups defined by race. These gaps limit applicability to these important groups.

Secondary analyses of data from treatment studies have shed some light on factors that may be important for future consideration, including age and sex. Nevertheless, the specific analyses that were conducted did not address whether treatment effectiveness was the same, or different, in these subgroups. For instance, as in our earlier systematic review of eating disorders, we identified very little information about the impact of treatments on either men or boys.

Moreover, despite the high comorbidity between BED and depression and between BED and obesity, no studies specifically compared outcomes in groups of patients defined either by baseline level of depression or by baseline weight status. Based on our review, second-generation antidepressants have a small but significant impact on symptoms of depression in BED patients with low levels of depressive symptoms. Whether the small benefit of second-generation antidepressants is meaningful, or perhaps amplified, in BED patients with higher levels of depression warrants further study.

In light of growing awareness of LOC eating in children and concerns that LOC eating has negative health effects and predisposes to BED later in life, treatment studies focusing on children are needed. Similarly, lessons learned in BED treatment groups are likely to be hypothesis generating for bariatric surgery patients, but these individuals require treatment studies of their additional eating-related limitations and requirements following surgery.

Gaps in Outcomes Measured (Benefits or Harms)

The evidence base was deficient for outcomes related to social and occupational functioning (or quality of life more generally). It was similarly poor in relation to final health outcomes such as glucose intolerance or dysregulation that may predispose patients to diabetes and other chronic conditions. Also lacking is evidence of harms associated with psychological and behavioral treatments. A third critical gap exists in longer-term benefits and harms; this gap is especially evident for pharmacological treatments and combination treatments.

Gaps in Interventions

We found strong evidence that CBT is beneficial for patients with BED; however, that conclusion was related largely to therapist-led group CBT and to a lesser extent CBT conducted in other group formats. Much of the comparative effectiveness body of evidence for CBT constitutes a collection of disparate studies testing variations in format; furthermore, the rationale for comparing different formats is not consistently grounded in an a priori mechanism of action.

The number of therapists with expertise in CBT for BED is limited. This limitation poses a challenge for implementation of our findings. One useful step might be to compare directly (in adequately powered head-to-head trials) whether therapist-led CBT is equivalent to other CBT formats. If modified versions that require less therapist involvement can be shown to be equally effective as therapist-led CBT through equivalence or noninferiority trials, such information could help make CBT more scalable than it has been to this point. Findings might then guide the next generation of studies that are needed to move the field closer to an individualized approach to treatment. Those future studies should consider other psychological and behavioral interventions that have shown promise (IPT; DBT). In addition, they should be adequately powered to test for differences (or similarities, if appropriate) in outcomes across key subgroups (i.e., patient groups defined by age, sex, race, and weight status) for which a dearth of information still exists.

Second-generation antidepressants were beneficial in reducing symptoms of depression, and topiramate was beneficial for reducing symptoms of impulsivity. A head-to-head comparison of the effectiveness of these two treatment options on mood and impulse regulation outcomes might help clinicians and patients make first-line pharmacotherapy treatment choices based on individual patients' needs and preferences. Further examination of lamotrigine may also be warranted despite the negative findings for abstinence in one small trial; in that trial, the lamotrigine response rate (50 percent) was similar to that of topiramate (58 percent) but the placebo response rate was extremely high (71 percent). Further examination of lamotrigine may also be justified because, owing to its unique biochemical structure and function relative to topiramate, it may also be associated with fewer sympathetic nervous system and other side effects.[224,225]

Head-to-head comparisons involving pharmacological treatment, psychological treatment, and combination treatments are also needed to determine whether, as one study suggests,[140] gains persist longer following psychological (CBT) or combination (CBT+fluoxetine) treatment than

for pharmacological (fluoxetine) treatment alone. This information would help patients and providers optimize their plans to address both short- and long-term goals of treatment.

In addition, the CBT comparative effectiveness evidence has focused on whether less specialized care can be as effective as more intensive services (e.g., those with substantial involvement of therapists). More studies of these comparisons are needed. In addition, studies of stepped-care models can elucidate whether and when combination treatments or (a shift to) higher levels of care (e.g., intensive outpatient, partial hospitalization, residential treatment, or inpatient) are warranted for patients who are not responding adequately to conventional outpatient treatment.

Despite current interest in complementary and alternative medicine, neutraceuticals, and mindfulness-based interventions for regulating appetite, eating behavior, and weight, the literature is deficient regarding these types of interventions for BED. We searched clinical trial registries to determine whether additional evidence was available from newly completed, but as-yet unpublished, studies. We also checked for evidence of studies that were selectively withheld from publication because of unfavorable outcomes (possible publication bias). Based on these activities, we did not determine that reporting bias was a concern in this evidence base.

We included evidence of the effectiveness of outcomes with lisdexamfetamine (Vyvanse®), a central nervous system stimulant that was originally formulated to treat patients with ADHD. The evidence from one Phase 2 trial and two Phase 3 trials was conducted by the same research team and combined in our analysis. Only information on the conduct and results of the Phase 2 trial was available through a peer-reviewed publication; we obtained data on the Phase 3 trials through the gray literature. Peer-reviewed publication of the Phase 3 trials would add to our confidence about the conduct and outcomes of these studies. In addition, the mechanism of action in lisdexamfetamine for treating BED is unknown. We do not know, therefore, whether similar results would emerge for other stimulants or other medications that are currently being used to treat patients with ADHD (aside from similar results from one small trial of the ADHD drug atomoxetine).

Deficiencies in Methods

Our 2006 review, "Management of Eating Disorders,"[103,120,123] identified several methodological issues within the BED treatment literature and recommended changes for future studies. Some but not all of the deficiencies we noted in 2006 persist; problems still include inadequate reporting of randomization and allocation concealment and insufficient attention to treatment group differences in the use of co-interventions. These and other factors led us to reconsider our risk of bias ratings for some studies; newer ratings, in turn, reduced the strength of the evidence for the current review.

In our 2006 review, we also highlighted several critical needs for advancing the field. These suggestions included conducting replication studies, doing longer-term followup studies, and streamlining and standardizing the outcome measures to eliminate reporting of false discoveries. Unfortunately, with few exceptions,[70,71,99,143] replication studies do not exist; thus, the evidence base remains insufficient to address whether gains achieved during short-term treatment persist after treatment ends. This gap is especially critical for pharmacological treatments, as patients and their providers seek to understand the need for on-going medical management to maintain treatment gains.

The field would benefit from the development of universally accepted definitions of remission and recovery.[226] To reach this goal requires longer-term followup periods with

periodic re-evaluation of a core set of psychological, behavioral, and physiological outcomes. Standard definitions of remission and recovery should consider a continuum approach rather than focus on just a fixed point in time. Toward this goal, we make two recommendations.

First, studies should implement a minimum 1-year followup period. Even longer periods of followup may be warranted to capture the remissions and improvements in illness that can occur over a longer period of time. Similarly, longer trials might help clarify what treatments are "better" for patients who do not fully recover but live with a chronic illness.

Second, future studies should include a reasonably limited set of eating-specific instruments (such as the Eating Disorder Examination questionnaire, the Three-Factor Eating Questionnaire, or the YBOCS-BE) and general psychological symptom (depression, anxiety, negative body image) self-report instruments. Binge-eating-specific adaptations of existing reliable and valid instruments[96] may help to move the field closer to an understanding of the core determinants of recovery and relapse, but such adaptations should be used only if they are clearly described so that others can replicate their use. Such descriptions should include basic information on the reliability, validity, and reproducibility of these newer instruments.

Additionally, considering the perspective of the patient in defining remission and recovery is crucial. Using such preferences or values in developing consistent definitions of these types of patient-centered outcomes would be a major advance in this clinical area. Interweaving this information with reliable, validated measures will allow researchers and clinicians to generate a comprehensive set of parameters by which remission and recovery could be measured. Consistent and thorough reporting of these outcomes (e.g., fully descriptive data at each major assessment point) will help improve calibration of these instruments against each other, which is ultimately needed for future efforts to use meta-analysis to evaluate treatment effect size.

Further, several etiological and treatment considerations merit further study to better elucidate the onset, maintenance, and treatment of BED. For example, given the prevalence of underlying metabolic disorders (e.g., diabetes mellitus, polycystic ovarian syndrome) in patients with BED, more fully examining the role of these disorders in the development and maintenance of BED would be useful. For treatment, evaluating treatment interventions originally developed for post-traumatic stress disorder (PTSD), given the incidence of BED in those with trauma histories, may yield helpful clinical insights.

Finally, we recommend that studies continue to measure and report binge frequency as both discrete binge episodes and binge days per week. More data are needed to resolve whether one or the other is the better choice for assessing treatment effects.

Conclusions

Overall, the body of evidence was uneven across treatment types and comparisons or, in some areas of interest, nonexistent. Nevertheless, we can conclude that antidepressant medications, topiramate, lisdexamfetamine, and CBT effectively address major characteristics of binge eating, including increasing abstinence, decreasing the frequency of binge eating, and reducing eating-related obsessions. By contrast, we were able to draw few conclusions regarding the comparative effectiveness of interventions or combinations of interventions. Moreover, harms tended to be measured only in pharmacotherapeutic treatments, but the number of serious adverse events was low. The small size of the body of evidence is not altogether surprising (in light of the timing of this report so soon after publication of the DSM-5); the body of evidence may reasonably be expected to grow over the next few years.

Our meta-analyses provided strong evidence that second-generation antidepressants, lisdexamfetamine, and therapist-led CBT increased the likelihood of achieving abstinence. Our qualitative assessments provided support for topiramate for treating BED patients as well.

Additional, adequately powered, multisite RCTs are needed to replicate encouraging findings observed to date only in single trials. Investigators should increase their sample sizes upon which they base conclusions about treatment effectiveness; in designing comparative effectiveness studies, they should also consider whether the goal is to determine whether treatment options are equivalent or superior. This foundation is absolutely essential before the field can move on to addressing other important questions such as whether and when combination treatments or a higher level of care is warranted for those not responding adequately to conventional outpatient treatment.

The possible course of illness of LOC eating in children has been studied in three well-designed cohort studies that followed children through adolescence and into adulthood. Of particular concern in these studies is examining the important clinical and policy aspects of the role of early LOC eating on future risk of obesity and BED. The strength of conclusions that we could draw were, however, limited by the fact that the definition of LOC eating differed across studies. In particular, studies differed in the length of time that the adolescent or preadolescent respondents needed manifest the behavior; these included in the past year, at least once in the past 3 months, or at least weekly during the past year. Further complicating our understanding of this condition in children, the definitions of LOC eating used in treatment studies differed from each other and from the definitions used in the longitudinal cohort studies.

Several studies considered the relative role and importance of objective binge episodes (eating unusually large amounts of food while experiencing a subjective sense of loss of control) and subjective binge episodes (experiencing a sense of loss of control while eating small or normal amounts of food). Distinguishing between these two constructs may be an important step for improving clinical understanding of the course of illness, in part because the frequency of subjective binge-eating behavior can be highly distressing for bariatric surgery and other patients. Furthermore, developing a common core of outcomes and a convention for reporting and analyzing those outcomes would greatly improve the capacity to compile aggregate data, compare findings across trials, and combine data from different treatment trials. These enhancements would in turn improve the ability of clinical and policy decisionmakers to understand risk factors more clearly and to develop treatment guidelines in these patient populations.

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Appendix A. Search Strategy

#2	Search "Binge-Eating Disorder"[Mesh]	344
#4	Search "Binge-Eating Disorder" OR binge eating	9281
#5	Search loss-of-control eating OR "loss of control" eating	212
#6	Search (#2 OR #4 OR #5) All our terms – both MeSH and keywords	9341
#7	Search (#2 OR #4 OR #5) Filters: Humans	8577
#8	Search (#2 OR #4 OR #5) Filters: Humans; English Limits	7704
#13	Search ((("Randomized Controlled Trial" [Publication Type] OR "Randomized Controlled Trials as Topic"[Mesh]) OR "Single-Blind Method"[Mesh]) OR "Double-Blind Method"[Mesh]) OR "Random Allocation"[Mesh] Filters: Humans; English RTCs	434368
#14	Search (#8 AND #13) Filters: Humans; English Our terms and RCTs	625
#16	Search "Therapeutics"[Mesh] OR "therapy" [Subheading] OR treatment OR intervention Filters: Humans; English Therapy terms	4863637
#17	Search (#8 AND #16) Filters: Humans; English	4222
#18	Search (#17 NOT #14) Filters: Humans; English Our terms and therapy This group is too large so we're going to take out the Anorexia studies	3647
#22	Search ("Anorexia"[Mesh] OR "Anorexia Nervosa"[Mesh]) Filters: Humans; English Anorexia terms	10142
#25	Search #18 NOT #22 Filters: Humans; English Our therapy group without Anorexia	1280
#28	Search "Bariatric Surgery"[Mesh] Filters: Humans; English	11449
#29	Search (#25 AND #28) Filters: Humans; English Identifying the bariatric surgery studies in particular	74
#32	Search (("Outcome Assessment (Health Care)"[Mesh]) OR ("Outcome and Process Assessment (Health Care)"[Mesh] OR "Fatal Outcome"[Mesh])) OR "Treatment Outcome"[Mesh] Filters: Humans; English Outcomes terms	613362
#33	Search (#8 AND #32) Filters: Humans; English Our eating terms and outcomes	736
#34	Search (#33 NOT #14) Filters: Humans; English Taking out things already seen	505
#35	Search (#34 NOT #22) Filters: Humans; English Taking out things already seen	344
#36	Search (#35 NOT #25) Filters: Humans; English Taking out things already seen	8
#37	Search (#2 OR #4 OR #5) Filters: Systematic Reviews; Humans; English	182

Bariatric Surgery BED Expansion

This is the very same process with the very same terms, limiting to Bariatric Surgery

#1	Search "Binge-Eating Disorder"[Mesh]	353
#2	Search "Binge-Eating Disorder" OR binge eating	9333
#3	Search loss-of-control eating OR "loss of control" eating	217
#4	Search (#1 OR #2 OR #3)	9392
#5	Search (#1 OR #2 OR #3) Filters: Humans	8606
#6	Search (#1 OR #2 OR #3) Filters: Humans; English	7730
#7	Search ((("Randomized Controlled Trial" [Publication Type] OR "Randomized Controlled Trials as Topic"[Mesh]) OR "Single-Blind Method"[Mesh]) OR "Double-Blind Method"[Mesh]) OR "Random Allocation"[Mesh] Filters: Humans; English	436682
#8	Search (#6 AND #7) Filters: Humans; English	628
#9	Search "Therapeutics"[Mesh] OR "therapy" [Subheading] OR treatment OR intervention Filters: Humans; English	4883946
#10	Search (#6 AND #9) Filters: Humans; English	4236
#11	Search (("Outcome Assessment (Health Care)"[Mesh]) OR ("Outcome and Process Assessment (Health Care)"[Mesh] OR "Fatal Outcome"[Mesh])) OR "Treatment Outcome"[Mesh Filters: Humans; English	617617
#12	Search (#6 AND #11) Filters: Humans; English	741
#13	Search (#8 OR #10 OR #12) Filters: Humans; English	4301
#14	Search "Bariatric Surgery"[Mesh] Filters: Humans; English	11558
#15	Search (#13 AND #14) Filters: Humans; English	150
#16	Search "Bariatric Surgery"[Mesh] Filters: Systematic Reviews; Humans; English	414
#17	Search (#6 AND #16) Filters: Humans; English	7
#18	Search (#17 OR #15) Filters: Humans; English	150

Cost Focus

#1	Search "Binge-Eating Disorder"[Mesh]	353
#2	Search "Binge-Eating Disorder" OR binge eating	9333
#3	Search loss-of-control eating OR "loss of control" eating	217
#4	Search (#1 OR #2 OR #3)	9392
#5	Search (#1 OR #2 OR #3) Filters: Humans	8606
#6	Search (#1 OR #2 OR #3) Filters: Humans; English All our eating terms limited to humans/English	7730
#20	Search "Costs and Cost Analysis"[Mesh] OR "Economics"[Mesh] OR "economics" [Subheading] OR "Cost-Benefit Analysis"[Mesh] Filters: Humans; English Cost terms	350044
#21	Search (#6 AND #20) Filters: Humans; English terms and costs	68

Total Unduplicated PubMed = 2260 All those different searches in one database

Cochrane
- Reviews = 2 = 0 new
- Other Reviews = 6 = 3 new
- Methods Studies = 2 = 0 new
- Economic Evaluations = 1 = 0 new

EMBASE = 344 = 316 new

Academic OneFile = 141 = 92 new

Total = 2631 All searches all databases
2006 forward total= 1446 Limiting to 2006 forward

BED Costs= 68 = 2006 Forward = 39
Bariatric Surgery = 150 = 2006 forward = 96

1. BED treatment = 1968 = 2006 forward = 1028

2. BED outcomes = 517 = 2006 forward = 275

3. loss-of-control eating treatment = 99= 2006 forward = 61

4. loss-of-control eating outcomes = 18 = 2006 forward = 10

Updated Search, July 2014

#1	Search "Binge-Eating Disorder"[Mesh]	431
#2	Search "Binge-Eating Disorder" OR binge eating	9736
#3	Search loss-of-control eating OR "loss of control" eating	241
#4	Search (#1 OR #2 OR #3)	9798
#5	Search (#1 OR #2 OR #3) Filters: Humans	8919
#6	Search (#1 OR #2 OR #3) Filters: Humans; English	8018
#7	Search (#6) AND ("2013"[Date - Entrez] : "3000"[Date - Entrez]) Filters:Humans; English	334
#10	Search ((("Randomized Controlled Trial" [Publication Type] OR "Randomized Controlled Trials as Topic"[Mesh]) OR "Single-Blind Method"[Mesh]) OR "Double-Blind Method"[Mesh]) OR "Random Allocation"[Mesh]	540164
#12	Search (#7 AND #10)	31
#14	Search "Therapeutics"[Mesh] OR "therapy" [Subheading] OR treatment OR intervention	8346518
#16	Search (#7 AND #14)	188
#18	Search ("Anorexia"[Mesh] OR "Anorexia Nervosa"[Mesh])	14466
#20	Search (#16 NOT #18)	145
#22	Search "Bariatric Surgery"[Mesh]	14252
#24	Search (#7 AND #22)	7
#26	Search (("Outcome Assessment (Health Care)"[Mesh]) OR ("Outcome and Process Assessment (Health Care)"[Mesh] OR "Fatal Outcome"[Mesh])) OR "Treatment Outcome"[Mesh]	756755
#28	Search (#7 AND #26)	51
#30	Search (#6) AND ("2013"[Date - Entrez] : "3000"[Date - Entrez]) Filters:Systematic Reviews; Humans; English	20
#32	Search (#30 OR #28 OR #24 OR #20 OR #16 OR #12)	198

Bariatric Surgery Focus

#1	Search "Binge-Eating Disorder"[Mesh]	431
#2	Search "Binge-Eating Disorder" OR binge eating	9736
#3	Search loss-of-control eating OR "loss of control" eating	241
#4	Search (#1 OR #2 OR #3)	9798
#5	Search (#1 OR #2 OR #3) Filters: Humans	8919
#6	Search (#1 OR #2 OR #3) Filters: Humans; English	8018
#7	Search (#6) AND ("2013"[Date - Entrez] : "3000"[Date - Entrez]) Filters:Humans; English	334
#10	Search ((("Randomized Controlled Trial" [Publication Type] OR "Randomized Controlled Trials as Topic"[Mesh]) OR "Single-Blind Method"[Mesh]) OR "Double-Blind Method"[Mesh]) OR "Random Allocation"[Mesh]	540164
#14	Search "Therapeutics"[Mesh] OR "therapy" [Subheading] OR treatment OR intervention	8346518
#16	Search (#7 AND #14)	188
#18	Search ("Anorexia"[Mesh] OR "Anorexia Nervosa"[Mesh])	14466
#22	Search "Bariatric Surgery"[Mesh]	14252
#26	Search (("Outcome Assessment (Health Care)"[Mesh]) OR ("Outcome and Process Assessment (Health Care)"[Mesh] OR "Fatal Outcome"[Mesh])) OR "Treatment Outcome"[Mesh]	756755
#27	Search (#26 OR #14 OR #10)	8475783
#28	Search (#7 AND #27)	190
#29	Search (#28 AND #22)	7
#30	Search (#7 AND #22)	7
#31	Search (#7 AND #22) Filters: Systematic Reviews	0

Costs

#1	Search "Binge-Eating Disorder"[Mesh]	431
#2	Search "Binge-Eating Disorder" OR binge eating	9736
#3	Search loss-of-control eating OR "loss of control" eating	241
#4	Search (#1 OR #2 OR #3)	9798
#5	Search (#1 OR #2 OR #3) Filters: Humans	8919
#6	Search (#1 OR #2 OR #3) Filters: Humans; English	8018
#7	Search (#6) AND ("2013"[Date - Entrez] : "3000"[Date - Entrez]) Filters:Humans; English	334
#8	Search ("Costs and Cost Analysis"[Mesh] OR "Economics"[Mesh] OR "economics" [Subheading] OR "Cost-Benefit Analysis"[Mesh])	589046
#9	Search (#7 AND #8)	3

PubMed Total Unduplicated = 198

Checked against existing database = 150 NEW

In the other databases, I used the same kinds of terms, altering as the database offered similar terms. I took results from each database and compared them to the existing database from PubMed, and added only new things.

Cochrane = search = binge eating
- Reviews = 2 = 0 new
- Other Reviews = 8 = 4 new
- Methods Studies = 2 = 0 new
- Economic Evaluations = 1 = 0 new

EMBASE = 128 = 113 new

Academic OneFile = 31 = 13 new

Total = 280 New

Course of Illness Add-On

#1	Search "Binge-Eating Disorder"[Mesh]	431
#2	Search "Binge-Eating Disorder" OR binge eating	9736
#3	Search loss-of-control eating OR "loss of control" eating	241
#4	Search (#1 OR #2 OR #3)	9798
#5	Search (#1 OR #2 OR #3) Filters: Humans	8919
#6	Search (#1 OR #2 OR #3) Filters: Humans; English	8018
#10	Search ("Disease Progression"[Mesh]) OR "Cross-Sectional Studies"[Mesh] OR "course of illness"	287875
#11	Search (#6 AND #10) Filters: Humans; English	518

PubMed = 518 = 360 NEW

Mental Disorder Abstract Update, Sept. 2014

601 new (out of 1727 citations) for English citations, and 78 non-English citations.

#1	Search "Binge-Eating Disorder"[Mesh]	452
#2	Search "Binge-Eating Disorder" OR binge eating	9853
#3	Search loss-of-control eating OR "loss of control" eating	247
#4	Search (#1 OR #2 OR #3)	9916
#5	Search (#1 OR #2 OR #3) Filters: Humans	8995
#9	Search "Mental Disorders/epidemiology"[Mesh]	133791
#10	Search (#5 AND #9) Filters: Humans	1727
#13	Search ((("Randomized Controlled Trial" [Publication Type] OR "Randomized Controlled Trials as Topic"[Mesh]) OR "Single-Blind Method"[Mesh]) OR "Double-Blind Method"[Mesh]) OR "Random Allocation"[Mesh]	544978
#14	Search (#10 NOT #13) Filters: Humans	1666
#17	Search "Therapeutics"[Mesh] OR "therapy" [Subheading] OR treatment OR intervention	8417604
#18	Search (#14 NOT #17)	903
#19	Search "Bariatric Surgery"[Mesh]	14447
#20	Search (#18 NOT #19)	903
#21	Search (("Outcome Assessment (Health Care)"[Mesh]) OR ("Outcome and Process Assessment (Health Care)"[Mesh] OR "Fatal Outcome"[Mesh])) OR "Treatment Outcome"[Mesh]	766676
#22	Search (#20 NOT #21)	899
#23	Search (#1 OR #2 OR #3) Filters: Systematic Reviews; Humans	205
#24	Search (#22 NOT #23)	879
#25	Search ("Costs and Cost Analysis"[Mesh] OR "Economics"[Mesh] OR "economics" [Subheading] OR "Cost-Benefit Analysis"[Mesh])	592777
#26	Search (#24 NOT #25)	872
#27	Search ("Disease Progression"[Mesh]) OR "Cross-Sectional Studies"[Mesh] OR "course of illness"	292189
#28	Search (#26 NOT #27)	712
#29	Search (#26 NOT #27) Filters: English	634
#41	Search (#28 NOT #29)	78
#42	Search (#9 OR #13 OR #17 OR #19 OR #21 OR #23 OR #25 OR #27)	9113661
#43	Search (#5 NOT #42)	2866
#44	Search (#5 NOT #42) Filters: Humans	2866
#45	Search (#5 NOT #42) Filters: Humans; English	2603
#49	Search ("Letter" [Publication Type]) OR ("Comment" [Publication Type] OR "Editorial" [Publication Type])	1343643
#50	Search (#45 NOT #49) Filters: Humans; English	2442
#51	Search (#45 NOT #49)	2442
#52	Search (#45 NOT #49) Filters: Humans; English; Core clinical journals	213

Clinical Trials Search
Clinicaltrials.gov= 98 results
European Union Clinical trials= 7 results
National Library of Medicine trials= 6 results

Non-English Search, July 2014

#1	Search "Binge-Eating Disorder"[Mesh]	434
#2	Search "Binge-Eating Disorder" OR binge eating	9769
#3	Search loss-of-control eating OR "loss of control" eating	242
#4	Search (#1 OR #2 OR #3)	9831
#5	Search (#1 OR #2 OR #3) Filters: Humans	8933
#6	Search (#1 OR #2 OR #3) Filters: Humans; English	8030
#7	Search (#5 NOT #6)	903
#8	Search (#5 NOT #6) Filters: Abstract	699
#10	Search ((("Randomized Controlled Trial" [Publication Type] OR "Randomized Controlled Trials as Topic"[Mesh]) OR "Single-Blind Method"[Mesh]) OR "Double-Blind Method"[Mesh]) OR "Random Allocation"[Mesh]	541558
#11	Search (#8 AND #10)	16
#12	Search "Therapeutics"[Mesh] OR "therapy" [Subheading] OR treatment OR intervention	8365325
#13	Search (#12 AND #8)	420
#14	Search ("Anorexia"[Mesh] OR "Anorexia Nervosa"[Mesh])	14484
#15	Search (#13 NOT #14)	207
#16	Search "Bariatric Surgery"[Mesh]	14318
#17	Search (#8 AND #16)	11
#18	Search (("Outcome Assessment (Health Care)"[Mesh]) OR ("Outcome and Process Assessment (Health Care)"[Mesh] OR "Fatal Outcome"[Mesh])) OR "Treatment Outcome"[Mesh]	759452
#19	Search (#8 AND #18)	63
#20	Search ("Costs and Cost Analysis"[Mesh] OR "Economics"[Mesh] OR "economics" [Subheading] OR "Cost-Benefit Analysis"[Mesh])	589995
#21	Search (#8 AND #20)	3
#22	Search ("Disease Progression"[Mesh]) OR "Cross-Sectional Studies"[Mesh] OR "course of illness"	289073
#23	Search (#8 AND #22)	35
#24	Search (#23 OR #21 OR #19 OR #17 OR #15 OR #11)	273
#25	Search (#5 NOT #6) Filters: Systematic Reviews	21
#26	Search (#5 NOT #6) Filters: Systematic Reviews; Abstract	20
#28	Search (#24 OR #26)	282

282 total records.

January 19, 2015, Updates

#1	**Search "Binge-Eating Disorder"[Mesh]**	**503**
#2	Search "Binge-Eating Disorder" OR binge eating	10059
#3	Search loss-of-control eating OR "loss of control" eating	266
#4	Search (#1 OR #2 OR #3)	10133
#5	Search (#1 OR #2 OR #3) Filters: Humans	9181
#6	Search (#1 OR #2 OR #3) Filters: Publication date from 2014/01/01; Humans	261
#7	Search (#1 OR #2 OR #3) Filters: Publication date from 2014/01/01; Humans; English	245
#9	Search ((("Randomized Controlled Trial" [Publication Type] OR "Randomized Controlled Trials as Topic"[Mesh]) OR "Single-Blind Method"[Mesh]) OR "Double-Blind Method"[Mesh]) OR "Random Allocation"[Mesh]	557663
#10	Search (#7 AND #9) Filters: Publication date from 2014/01/01; Humans; English	19
#13	Search "Therapeutics"[Mesh] OR "therapy" [Subheading] OR treatment OR intervention	8575043
#14	Search (#7 AND #13) Filters: Publication date from 2014/01/01; Humans; English	132
#17	Search "Bariatric Surgery"[Mesh]	15036
#18	Search (#7 AND #17) Filters: Publication date from 2014/01/01; Humans; English	8
#21	Search (("Outcome Assessment (Health Care)"[Mesh]) OR ("Outcome and Process Assessment (Health Care)"[Mesh] OR "Fatal Outcome"[Mesh])) OR "Treatment Outcome"[Mesh]	790504
#22	Search (#7 AND #21) Filters: Publication date from 2014/01/01; Humans; English	28
#24	Search (#1 OR #2 OR #3) Filters: Systematic Reviews; Publication date from 2014/01/01; Humans; English	10
#25	Search (#10 OR #14 OR #18 OR #22 OR #24) Filters: Systematic Reviews; Publication date from 2014/01/01; Humans; English	10
#27	Search (#10 OR #14 OR #18 OR #22 OR #24) Filters: Publication date from 2014/01/01; Humans; English	139
#29	Search (("Costs and Cost Analysis"[Mesh] OR "Economics"[Mesh] OR "economics" [Subheading] OR "Cost-Benefit Analysis"[Mesh]))	601098
#30	Search (#7 AND #29) Filters: Publication date from 2014/01/01; Humans; English	0
#31	Search (#7 AND #29) Schema: all Filters: Publication date from 2014/01/01; Humans; English	0
#32	Search (#7 AND #29)	0
#33	Search (#7 AND #29) Schema: all	0
#34	Search (#5 AND #29)	77
#35	Search (#5 AND #29) Filters: Humans	77
#36	Search (#5 AND #29) Filters: Publication date from 2014/01/01; Humans	0
#37	Search (#5 AND #29) Schema: all Filters: Publication date from 2014/01/01; Humans	0
#38	Search (#6 NOT #7)	16
#39	Search ("Disease Progression"[Mesh]) OR "Cross-Sectional Studies"[Mesh] OR "course of illness"	302948
#40	Search (#7 AND #39)	21
#41	Search "Mental Disorders/epidemiology"[Mesh]	137151
#42	Search (#6 AND #41)	54
#43	Search (#42 NOT #27)	30
#44	Search (#42 NOT #27) Filters: English	27
#45	Search (#43 NOT #44)	3

PubMed = 173 = 75 new

Cochrane = 0
- Reviews = 0 new
- Other Reviews = 1 =0 new
- Methods Studies =0 new
- Economic Evaluations =0 new

EMBASE = 127= 64 new
Academic OneFile = 47 = 25 new
Total = 164 New

Appendix B. Criteria for Exclusion at the Full Text Review Stage

Include or Exclude Question (If yes or cannot tell, continue to next question. If not, see exclusion code to the right)	Exclusion Code	Reason for Exclusion	Explanation of Reason for Exclusion
1. Was the article published in English?	X1	Not published in English	Study not published in English
2. Does the study report on individuals of any race, ethnicity, and cultural group in one of three subpopulations: (1) BED, based on DSM-IV or DSM-5 criteria; (2) postbariatric surgery patients with LOC eating; or (3) children with LOC eating. Studies measuring BED may do so according to either of the DSM criteria without naming it as such. Because LOC eating has no commonly accepted definition, studies included in the review may define LOC eating using different diagnostic criteria.	X2	Wrong population	Not BED or LOC that can be separately measured: * outcome measures ONLY for a combined group of individuals that has one of our eating disorders of interest and individuals that have a different eating disorder (e.g., a group that includes individuals with BED or BN) *outcome measures ONLY for a group of individuals that has one of our eating disorders of interest and another eating disorder (e.g., BN and BED) Children younger than 6 years of age
3. Was the study conducted using the correct study design?	X3	Wrong study design	Nonsystematic review Studies of tx benefits without a control or comparison group, such as case series or case reports
4. Is the sample size correct?	X4	Wrong sample size	Study design: *RCTs with fewer than 10 participants *Nonrandomized studies with fewer than 50 participants.
5. For treatment studies only, does the study include an intervention of interest?	X5	Not an intervention or comparison of interest	Interventions should be pharmacological, behavioral, psychological, or CAM treatments or combinations as included in the PICOTS criteria presented in the protocol. Control interventions include any active intervention described in the PICOTS criteria presented in the protocol, placebo, or usual care. Exclude if intervention is a pharmacological intervention not marketed in the US-- these include: Sibutramine, Rimonabant, d-fenfluramine
6. Is the timing of the outcome measurement appropriate?	X6	Wrong timing	Exclude treatment studies with no outcome measurement at treatment completion or later. Exclude course-of-illness studies with no outcome measurement at 1 year or more post-study entry.
7. Is the outcome appropriate?	X7	Wrong or no outcome	Outcomes include intermediate and final health outcomes, treatment harms, and costs (e.g., health care cost and use, lost work days) as defined in the protocol. Intermediate health outcomes will include biomarkers that can be linked directly to final physical health outcomes, such that an accumulation or worsening over time in that biomarker would result in the final health outcome.

8. If a systematic review, does the article provide original research information?	X8	Systematic review only used for hand search	Exclude the systematic review if the study does not provide additional original research. The systematic review should be hand searched for included studies.

Appendix C. Excluded Studies

X1 Not published in English
X2 Wrong population
X3 Wrong study design
X4 Wrong sample size
X5 Not an intervention or comparison of interest
X6 Wrong timing
X7 Wrong or not outcomes
X8 Systematic review only used to hand search studies
X9 Full-text article not retrievable

1. Bodell LP, Joiner TE, Keel PK. Comorbidity-independent risk for suicidality increases with bulimia nervosa but not with anorexia nervosa. J Psychiatr Res. 2013 May;47(5):617-21. PMID: 23384941. Exclusion Code: X2.

2. Lampard AM, Tasca GA, Balfour L, et al. An evaluation of the transdiagnostic cognitive-behavioural model of eating disorders. Eur Eat Disord Rev. 2013 Mar;21(2):99-107. PMID: 23203942. Exclusion Code: X2.

3. de Zwaan M, Herpertz S, Zipfel S, et al. INTERBED: internet-based guided self-help for overweight and obese patients with full or subsyndromal binge eating disorder. A multicenter randomized controlled trial. Trials. 2012;13:220. PMID: 23171536. Exclusion Code: X7.

4. Pataky Z, Gasteyger C, Ziegler O, et al. Efficacy of rimonabant in obese patients with binge eating disorder. Exp Clin Endocrinol Diabetes. 2013 Jan;121(1):20-6. PMID: 23147209. Exclusion Code: X5.

5. Mazzeo SE, Kelly NR, Stern M, et al. LIBER8 design and methods: an integrative intervention for loss of control eating among African American and White adolescent girls. Contemp Clin Trials. 2013 Jan;34(1):174-85. PMID: 23142669. Exclusion Code: X3.

6. Corwin RL, Boan J, Peters KF, et al. Baclofen reduces binge eating in a double-blind, placebo-controlled, crossover study. Behav Pharmacol. 2012 Sep;23(5-6):616-25. PMID: 22854310. Exclusion Code: X2.

7. Chamberlain SR, Mogg K, Bradley BP, et al. Effects of mu opioid receptor antagonism on cognition in obese binge-eating individuals. Psychopharmacology (Berl). 2012 Dec;224(4):501-9. PMID: 22752384. Exclusion Code: X2.

8. Iacovino JM, Gredysa DM, Altman M, et al. Psychological treatments for binge eating disorder. Curr Psychiatry Rep. 2012 Aug;14(4):432-46. PMID: 22707016. Exclusion Code: X3.

9. Hay PJ, Buettner P, Mond J, et al. A community-based study of enduring eating features in young women. Nutrients. 2012 May;4(5):413-24. PMID: 22690324. Exclusion Code: X2.

10. Kong A, Beresford SA, Imayama I, et al. Adoption of diet-related self-monitoring behaviors varies by race/ethnicity, education, and baseline binge eating score among overweight-to-obese postmenopausal women in a 12-month dietary weight loss intervention. Nutr Res. 2012 Apr;32(4):260-5. PMID: 22575038. Exclusion Code: X2.

11. Bauer S, Okon E, Meermann R, et al. Technology-enhanced maintenance of treatment gains in eating disorders: efficacy of an intervention delivered via text messaging. J Consult Clin Psychol. 2012 Aug;80(4):700-6. PMID: 22545736. Exclusion Code: X2.

12. Carrard I, Van der Linden M, Golay A. Comparison of obese and nonobese individuals with binge eating disorder: delicate boundary between binge eating disorder and non-purging bulimia nervosa. Eur Eat Disord Rev. 2012 Sep;20(5):350-4. PMID: 22492565. Exclusion Code: X3.

13. Bodell LP, Joiner TE, Ialongo NS. Longitudinal association between childhood impulsivity and bulimic symptoms in African American adolescent girls. J Consult Clin Psychol. 2012 Apr;80(2):313-6. PMID: 22289129. Exclusion Code: X2.

14. Jacobi C, Volker U, Trockel MT, et al. Effects of an Internet-based intervention for subthreshold eating disorders: a randomized controlled trial. Behav Res Ther. 2012 Feb;50(2):93-9. PMID: 22137366. Exclusion Code: X2.

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Appendix D. Risk of Bias Tables

Risk of Bias Assessment Questions for Treatment Studies

Questions 1-10 Response options include: high, low, Unclear, NA

Questions 11, 12, 14-16 required a free response

1. Was randomization adequate?
2. Was allocation concealment adequate?
3. Were groups similar at baseline (at randomization)?
4. Were care providers masked?
5. Were patients masked? Were outcome assessors masked?
6. Are outcome data reasonably complete? Note if variation by specific measures and/or time of measurement.
7. Are the proportions of participants and the reasons for missing data similar across study arms? Note if variation in judgment by specific measures and/or time of measurement.
8. Did the study use ITT analyses for benefit outcomes?
9. Were critical cointerventions balanced across intervention groups?
10. Was implementation failure minor? OR if there was more than minor failure, were adjustment techniques used that would likely correct for these issues?
11. Other bias?
12. Explain each categorical high risk of bias rating; Explain Unclear risk of bias ratings where determination was not straight forward
13. Summary overall RISK OF BIAS (High, Medium, Low)
14. Summary explanation of overall high risk of bias ratings
15. Could selective reporting of outcomes or manner of reporting outcomes in this study appear to cause it to be at risk of reporting bias? Do not include your answer to this question in your overall risk of bias rating.
16. Describe any reporting bias concerns.

Risk of Bias Assessment Questions for Course of Illness Studies

1. Do the inclusion/exclusion criteria vary across the comparison groups of the study?
    a. yes
    b. partially
    c. no
    d. cannot determine
    e. not applicable
2. Explanation if concern
3. Does the strategy for recruiting participants into the study differ across groups?
    a. yes, differs
    b. no, does not differ
    c. cannot determine
    d. not applicable
4. Explanation if concern
5. Is the selection of the comparison group inappropriate, after taking into account feasibility and ethical considerations?
    a. yes, inappropriate
    b. no, not inappropriate
    c. cannot determine or no description
    d. not applicable
6. Explanation if concern
7. Was the outcome assessor not blinded to the intervention or exposure status of participants?
    a. yes, not blinded
    b. no, blinded
    c. not applicable
8. Explanation if concern
9. Were valid and reliable measures, implemented consistently across all study participants used to assess inclusion/exclusion criteria, intervention/exposure outcomes, participant health benefits and harms, and confounding?
    a. no, valid and reliable measures not used
    b. yes, valid and reliable measures used
    c. cannot determine or NR
10. Explanation if concern
11. Was the length of follow-up different across study groups?
    a. yes, different or cannot determine
    b. no, not different or remedied through analysis

    c. not applicable
12. Explanation if concern
13. In cases of high loss to follow-up (or differential loss to follow-up), was the impact assessed (e.g., through sensitivity analysis or other adjustment method)?
    a. no, impact not assessed
    b. yes, impact assessed
    c. cannot determine
    d. not applicable
14. Explanation if concern
15. Did the authors use an appropriate analysis method that adjusted for all the critically important confounding domains (e.g., through matching, stratification, interaction terms, multivariate analysis, or other statistical adjustment such as instrumental variables)?
    a. no, not accounted for or not identified
    b. partially
    c. yes: taken into account
    d. cannot determine
16. Explanation if concern
17. Summary overall RISK OF BIAS
    a. High
    b. Medium
    c. Low
18. Explanation if high

Risk of Bias Assessment Questions for Systematic Reviews

Response options for questions 1-11: yes, no, Unclear, NR

1. Was there duplicate study selection and data extraction?
   There should be at least two independent data extractors and a consensus procedure for disagreements should be in place.
2. Was a comprehensive literature search performed?
   At least two electronic sources should be searched. The report must include years and databases used (e.g., Central, EMBASE, and MEDLINE). Key words and/or MESH terms must be stated and where feasible the search strategy should be provided. All searches should be supplemented by consulting current contents, reviews, textbooks, specialized registers, or experts in the particular field of study, and by reviewing the references in the studies found.
3. Was the scientific quality of the included studies assessed and documented?
   A priori' methods of assessment should be provided (e.g., for effectiveness studies if the author(s) chose to include only randomized, double-blind, placebo controlled studies, or allocation concealment as inclusion criteria); for other types of studies alternative items will be relevant. Note: Can include use of a quality scoring tool or checklist, e.g., Jadad scale, risk of bias, sensitivity analysis, etc., or a description of quality items, with some kind of result for EACH study (“low” or “high” is fine, as long as it is clear which studies scored “low” and which scored “high”; a summary score/range for all studies is not acceptable).
4. Was an 'a priori' design provided?
   The research question and inclusion criteria should be established before the conduct of the review. Note: Need to refer to a protocol, ethics approval, or pre-determined/a priori published research objectives to score a “yes.”
5. Was the status of publication (i.e. grey literature) used as an inclusion criterion?
   The authors should state that they searched for reports regardless of their publication type. The authors should state whether or not they excluded any reports (from the systematic review), based on their publication status, language etc.
6. Was a list of studies (included and excluded) provided?
   A list of included and excluded studies should be provided.
7. Were the characteristics of the included studies provided?
   In an aggregated form such as a table, data from the original studies should be provided on the participants, interventions and outcomes. The ranges of characteristics in all the studies analyzed e.g., age, race, sex, relevant socioeconomic data, disease status, duration, severity, or other diseases should be reported.
8. Was the scientific quality of the included studies used appropriately in formulating conclusions?
   The results of the methodological rigor and scientific quality should be considered in the analysis and the conclusions of the review, and explicitly stated in formulating recommendations. Note: Might say something such as “the results should be interpreted with caution due to poor quality of included studies.” Cannot score “yes” for this question if scored “no” for question 7.
9. Were the methods used to combine the findings of studies appropriate?

For the pooled results, a test should be done to ensure the studies were combinable, to assess their homogeneity (i.e., Chi-squared test for homogeneity, I2). If heterogeneity exists a random effects model should be used and/or the clinical appropriateness of combining should be taken into consideration (i.e., is it sensible to combine?). Note: Indicate "yes" if they mention or describe heterogeneity, i.e., if they explain that they cannot pool because of heterogeneity/variability between interventions.

10. Was the likelihood of publication bias assessed?
    An assessment of publication bias should include a combination of graphical aids (e.g., funnel plot, other available tests) and/or statistical tests (e.g., Egger regression test, Hedges-Olken). Note: If no test values or funnel plot included, score "no". Score "yes" if mentions that publication bias could not be assessed because there were fewer than 10 included studies.
11. Was the conflict of interest included?
    Potential sources of support should be clearly acknowledged in both the systematic review and the included studies. Note: To get a "yes," must indicate source of funding or support for the systematic review AND for each of the included studies.
12. RISK OF BIAS
    Response options: high, medium, low
13. Notes; explain high risk of bias ratings

Table D1. BED drug treatment – part 1

Author, Year	Was randomization adequate?	Was allocation concealment adequate?	Were groups similar at baseline (at randomization)?	Were care providers masked?	Were patients masked?	Were outcome assessors masked?
Arnold et al., 2002[1]	Unclear	Unclear	Low	Low	Low	Unclear
Brownley et al., 2013[2]	Unclear	Unclear	Low	Low	Low	Unclear
Guerdjikova et al., 2008[3]	Low	Low	Low	Low	Low	Unclear
Guerdjikova et al., 2009[4]	Low	Low	Low	Low	Low	Unclear
Guerdjikova et al., 2012[5]	Low	Low	Low	Low	Low	Unclear
Hudson et al., 1998[6]	Unclear	Unclear	Low	Low	Low	Unclear
Leombruni et al., 2008[7]	Low	Unclear	Low	Unclear	Low	Unclear
McElroy et al., 2000[8]	Unclear	Unclear	Low	Low	Low	Unclear
McElroy et al., 2003[9]	Unclear	Unclear	Low	Low	Low	Low
McElroy et al., 2003[10]	Unclear	Unclear	Low	Low	Low	Unclear
McElroy et al., 2006[11]	Low	Low	Low	Low	Low	Unclear
McElroy et al., 2007[12]	Low	Unclear	Low	Low	Low	Low
McElroy et al., 2007[13]	Low	Unclear	Low	Low	Low	Unclear
McElroy et al., 2011[14]	Low	Low	Low	Low	Low	Unclear
McElroy et al., 2013[15]	Unclear	Unclear	Low	Low	Low	Unclear
McElroy et al., 2015 [16]	Low	Low	Unclear	Low	Low	Unclear
Pearlstein et al., 2003[17]	Unclear	Unclear	Low	Low	Low	Low
Shire, 2014[18,19]	Unclear	Unclear	Low	Low	Low	Unclear
Shire, 2014[19,20]	Unclear	Unclear	Low	Low	Low	Unclear
White et al., 2013[21]	Unclear	Low	Low	Low	Low	Unclear

Table D2. BED drug treatment – part 2

Author, Year	Are outcome data reasonably complete? Note if variation by specific measures and/or time of measurement.	Are the proportions of participants and the reasons for missing data similar across study arms? Note if variation in judgment by specific measures and/or time of measurement.	Did the study use ITT analyses for benefit outcomes?	Were critical cointerventions balanced across intervention groups?	Was implementation failure minor? OR if there was more than minor failure, were adjustment techniques used that would likely correct for these issues?	Explain each categorical high risk of bias rating; Explain Unclear risk of bias ratings where determination was not straight forward
Arnold et al., 2002[1]	High	Low	Low	N/A	Low	40% overall attrition
Brownley et al., 2013[2]	High	Unclear	Unclear	N/A	Low	"20% overall attrition No info given on differential except at 3 month All Unclear data not reported"
Guerdjikova et al., 2008[3]	Low	Low	Low	Low	Low	NA
Guerdjikova et al., 2009[4]	High	High	Low	Unclear	Unclear	NA
Guerdjikova et al., 2012[5]	High	low	Low	Low	Low	NA
Hudson et al., 1998[6]	High	High	Low	N/A	High	Overall attrition = 21% Differential = 19% (fluv > placebo) Only fidelity was patient self-report diaries re: number of capsules taken

Table D2. BED drug treatment – part 2 (continued)

Author, Year	Are outcome data reasonably complete? Note if variation by specific measures and/or time of measurement.	Are the proportions of participants and the reasons for missing data similar across study arms? Note if variation in judgment by specific measures and/or time of measurement.	Did the study use ITT analyses for benefit outcomes?	Were critical cointerventions balanced across intervention groups?	Was implementation failure minor? OR if there was more than minor failure, were adjustment techniques used that would likely correct for these issues?	Explain each categorical high risk of bias rating; Explain Unclear risk of bias ratings where determination was not straight forward
Leombruni et al., 2008[7]	High	Low	High	Unclear	Unclear	The study psychiatrist who did med safety checks also provided support; not clear if he/she was blinded; this could introduce unbalanced bias; also note, the number excluded from the number recruited does not equal the number randomized - off N=4; RMANOVA not ITT
McElroy et al., 2000[8]	High	Low	Low	Low	Unclear	NA
McElroy et al., 2003[9]	Low	Low	Low	NA	Low	NA
McElroy et al., 2003[10]	High	Low	Low	NA	Low	All "Unclear" data is not reported 42% overall attrition
McElroy et al., 2006[11]	High	High	Low	Low	Unclear	drop out = 60% v. 40%, drug v. placebo
McElroy et al., 2007[12]	High	High	Low	Low	Unclear	drop out = 30% v. 45%, drug v. placebo
McElroy et al., 2007[13]	High	Low	Low	Low	Unclear	NA
McElroy et al., 2011[14]	High	Low	Low	Low	Unclear	dropout 38%

Table D2. BED drug treatment – part 2 (continued)

McElroy et al., 2013[15]	**High**	**Low**	**Low**	**NA**	**Low**	**46.2% overall attrition**
McElroy et al., 2015[16]	Low	Low	Low	NA	Low	NA
Pearlstein et al., 2003[17]	High	Unclear	Unclear	NA	Unclear	NA
Shire, 2014[18,19]	Low	Low	Low	NA	Low	NA
Shire, 2014[19,20]	Low	Low	Low	NA	Low	NA
White et al., 2013[21]	Low	Low	Low	Low	Unclear	NA

Table D3. BED drug treatment – part 3

Author, Year	Summary overall RISK OF BIAS (High, Medium, Low)	Summary explanation of overall high risk of bias ratings	Could selective reporting of outcomes or manner of reporting outcomes in this study appear to cause it to be at risk of reporting bias? Do not include your answer to this question in your overall RoB rating.	Describe any reporting bias concerns.
Arnold et al., 2002[1]	Medium	NA	Low	NA
Brownley et al., 2013[2]	Medium	NA	NA	NA
Guerdjikova et al., 2008[3]	Low	NA	NA	NA
Guerdjikova et al., 2009[4]	Medium	NA	NA	NA
Guerdjikova et al., 2012[5]	Low	NA	NA	NA
Hudson et al., 1998[6]	Medium	NA	Low	NA
Leombruni et al., 2008[7]	Medium	Uncertainties about randomization and blinding procedures and high (25% or greater) dropout w/o ITT analysis	NA	NA
McElroy et al., 2000[8]	Medium	NA	NA	NA
McElroy et al., 2003[9]	Low	NA	NA	NA
McElroy et al., 2003[10]	Medium	NA	Low	NA
McElroy et al., 2006[11]	High	High drop out and high differential dropout rate	NA	NA
McElroy et al., 2007[12]	Medium	High dropout and high differential dropout rate	Recorded but did not report compliance by pill count	NA
McElroy et al., 2007[13]	Medium	NA	NA	NA
McElroy et al., 2011[14]	Medium	NA	NA	NA
McElroy et al., 2013[15]	Medium	NA	NA	NA
McElroy et al., 2015 [16]	Medium	NA	Yes	BMI not reported as an outcome
Pearlstein et al., 2003[17]	High	25% attrition + unsure whether ITT analyses were used; all other data is too Unclear to make determination	NA	NA
Shire, 2014[18,19]	Medium	NA	No	NA
Shire, 2014[19,20]	Medium	NA	No	NA
White et al., 2013[21]	Low	NA	NA	NA

Table D4. BED combination treatment – part 1

Author, Year	Was randomization adequate?	Was allocation concealment adequate?	Were groups similar at baseline (at randomization)?	Were care providers masked?	Were patients masked?	Were outcome assessors masked?
Agras et al., 1994[22]	Unclear	Unclear	Low	NA	NA	Low
Brambilla et al., 2009[23]	Unclear	Unclear	High: wgt	na	na	Unclear
Claudino et al., 2007[24]	Low	Low	Low	Low	Low	Unclear
Devlin et al., 2005[25]	Unclear	Unclear	Unclear	low	low	Unclear
Devlin et al., 2007[26]	Unclear	Unclear	Unclear	low	low	Unclear
Golay et al., 2005[27]	Low	Low	Low	Low	Low	Unclear
Grilo et al., 2005[28]	Low	Low	Low	Low	Low	Low
Grilo et al., 2005[29] Grilo et al., 2006[30] Grilo et al., 2012[31] Grilo et al., 2012[32]	Low	Low	Low	Low	Low	Unclear
Grilo et al., 2013[33]	Low	Low	Low	Low	Low	Low
Laederach-Hofmann et al., 1999[34]	Unclear	Low	High	Low	Low	Low
Lanzarone et al., 2014[35]	Unclear	Unclear	Unclear	Unclear	Unclear	NA
Molinari et al., 2005[36]	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear
Ricca et al., 2001[37]	High	Unclear	Low	High	High	High
Ricca et al., 2009[38]	Unclear	Unclear	Low	Unclear	high	high

Table D5. BED combination treatment – part 2

Author, Year	Are outcome data reasonably complete? Note if variation by specific measures and/or time of measurement.	Are the proportions of participants and the reasons for missing data similar across study arms? Note if variation in judgment by specific measures and/or time of measurement.	Did the study use ITT analyses for benefit outcomes?	Were critical cointerventions balanced across intervention groups?	Was implementation failure minor? OR if there was more than minor failure, were adjustment techniques used that would likely correct for these issues?	Explain each categorical high risk of bias rating; Explain Unclear risk of bias ratings where determination was not straight forward
Agras et al., 1994[22]	High	Low	High	Low	Unclear	NA
Brambilla et al., 2009[23]	Low	Low	High	Unclear	Low	ITT not used
Claudino et al., 2007[24]	Low	Low	Low	Low	Unclear	NA
Devlin et al., 2005[25]	High	Low	Low	Low	Unclear	NA
Devlin et al., 2007[26]	High	Low	Low	high	Unclear	NA
Golay et al., 2005[27]	Low	Low	Low	Low	Low	dropout at about 20%
Grilo et al., 2005[28]	Low	Low	Low	Low	Unclear	NA
Grilo et al., 2005[29] Grilo et al., 2006[30] Grilo et al., 2012[31] Grilo et al., 2012[32]	Low	Low	Low	N/A	Low	NR
Grilo et al., 2013 [33]	High	Low	Low	Low	Low	22% dropout
Laederach-Hofmann et al., 1999[34]	Low	Low	High	Low	Low	NA
Lanzarone et al., 2014 [35]	Unclear	Unclear	Unclear	NA	Unclear	All Unclear data is NR
Molinari et al., 2005[36]	Low	Low	Unclear	Unclear	High	did not control for monitor compliance
Ricca et al., 2001[37]	Low	Low	Unclear	Unclear	Unclear	randomized based on day of week the patient presented to the clinic; open label study; ITT used for analyses at end-tx but completer analyses for 1 year f/up; Unclear if patients could be receiving concomitant treatments; no mention of compliance
Ricca et al., 2009[38]	High	High	Low	Low	NA	NA

Table D6. BED combination treatment – part 3

Author, Year	Summary overall RISK OF BIAS (High, Medium, Low)	Summary explanation of overall high risk of bias ratings	Could selective reporting of outcomes or manner of reporting outcomes in this study appear to cause it to be at risk of reporting bias? Do not include your answer to this question in your overall RoB rating.	Describe any reporting bias concerns.
Agras et al., 1994[22]	High	Groups were different at baseline suggesting that eating related psychopathology outcomes might be biased; randomization Unclear	NA	NA
Brambilla et al., 2009[23]	High	Diff in one of the key baseline measures (wgt) not controlled for in the findings, while attrition was only 14%, ITT analysis was not used. Also not clear whether the outcome assessor was masked	NA	NA
Claudino et al., 2007[24]	Medium	NA	NA	NA
Devlin et al., 2005[25]	Medium	NA	NA	NA
Devlin et al., 2007[26]	High	Problems in the study included a large loss to f/u, many participants receiving other treatments that are not adjusted for in the analysis as well as uncontrolled for cross-over	NA	NA
Golay et al., 2005[27]	Low	NA	NA	NA
Grilo et al., 2005[28]	Low	NA	No	NA
Grilo et al., 2005[29] Grilo et al., 2006[30] Grilo et al., 2012[31] Grilo et al., 2012[32]	Low	NA	NA	NA
Grilo et al., 2013 [33]	Low	NA	NA	NA
Laederach-Hofmann et al., 1999[34]	Medium	NA	NA	NA
Lanzarone et al., 2014 [35]	High	Lack of data, not clear if placebo pill used to blind medication assignment; not clear if any dropout; conclusions stated in abstract are not supported by data reported in the Results section	NA	NA
Molinari et al., 2005[36]	High		NA	NA
Ricca et al., 2001[37]	High	randomized based on day of week the patient presented to the clinic; open label study; ITT used for analyses at end-tx but completer analyses for 1 year f/up; Unclear if patients could be receiving concomittant treatments; no mention of compliance	NA	NA
Ricca et al., 2009[38]	High	Open trial without assessor blinding unknown.	NA	NA

Table D7. BED behavior treatment – part 1

Author, Year	Was randomization adequate?	Was allocation concealment adequate?	Were groups similar at baseline (at randomization)?	Were care providers masked?	Were patients masked?	Were outcome assessors masked?
Agras et al., 1995[39]	Unclear	Unclear	Unclear	NA	NA	Unclear
Allen et al., 1999[40]	Unclear	Unclear	Low	NA	NA	Low
Carrard et al., 2011[41]	Low	High	Low	NA	NA	NA
Carter et al., 1998[42]	Low	Low	Low	NA	NA	Low
Cassin et al., 2008[43]	Unclear	Unclear	Low	NA	NA	Unclear
Castelnuovo et al., 2011[44] Castelnuovo et al., 2011[45]	Low	Unclear	Low	NA	NA	NA
Cesa et al., 2013[46]	Low	Unclear	High	NA	NA	Unclear
Compare, 2013[47]	High	High	High	NA	NA	Unclear
De Zwaan, et al., 2005[48]	Unclear	Unclear	Low	NA	NA	Unclear
Dingemans et al., 2007[49]	Unclear	Low	Low	NA	NA	Low
Eldredge et al., 1997[50]	Unclear	Unclear	Low	NA	NA	Unclear
Gorin et al., 2003[51]	Unclear	Unclear	High	NA	NA	Unclear
Grilo et al., 2013[52]	Low	Low	Low	NA	NA	Low
Grilo et al., 2014[53]	Low	Low	Low	Low	Low	Unclear
Grilo et al., 2011[54] Grilo et al., 2012[55]	Low	Unclear	Low	NA	NA	Unclear
Grilo et al., 2005[56] Masheb et al., 2007[57]	Low	Low	Low	N/A	N/A	Unclear
Hilbert et al., 2004[58]	Unclear	Unclear	Low	NA	NA	Low
Le Grange et al., 2002[59]	Unclear	Unclear	Low	NA	NA	Unclear
Masheb et al., 2011[60]	Low	Low	Low	NA	NA	Unclear
Masson et al., 2013 [61]	Low	Low	Low	NA	NA	Low
Munsch et al., 2007[62] Munsch et al., 2012[63]	Unclear	Unclear	Unclear	NA	NA	High
Pendleton et al., 2002 [64]	Unclear	Unclear	Low	NA	NA	NA
Peterson et al., 1998[65] Peterson et al., 2001[66]	Unclear	Unclear	High	NA	NA	Unclear
Peterson et al., 2009[67]	Low	Low	Low	NA	NA	Low
Ricca et al., 2010[68]	Low	Low	Low	NA	NA	Low
Riva et al., 2002[69]	Unclear	Unclear	Low	NA	NA	Low
Riva et al., 2003[70]	Unclear	Unclear	Unclear	NA	NA	Unclear

Table D7. BED behavior treatment – part 1 (continued)

Author, Year	Was randomization adequate?	Was allocation concealment adequate?	Were groups similar at baseline (at randomization)?	Were care providers masked?	Were patients masked?	Were outcome assessors masked?
Safer et al., 2010[71] Safer et al., 2011[72] Robinson et al., 2012[73]	Unclear	Unclear	Low	NA	NA	Unclear
Schlup et al., 2009[74]	Unclear	Unclear	Unclear	NA	NA	High
Schlup et al., 2010[75]	NA	NA	Low	NA	NA	Unclear
Sysko et al., 2010[76] Wilson et al., 2010[77]	Low	Unclear	Unclear	NA	NA	Low
Tasca et al., 2012[78] Tasca et al., 2006[79]	Unclear	Unclear	Low	NA	NA	Unclear
Telch et al., 2001[80]	Unclear	Unclear	Low	NA	NA	Unclear
Wilfley et al., 2002[81] Hilbert et al., 2012[82]	Unclear	Unclear	Low	NA	NA	Low

Table D8. BED behavior treatment – part 2

Author, Year	Are outcome data reasonably complete? Note if variation by specific measures and/or time of measurement.	Are the proportions of participants and the reasons for missing data similar across study arms? Note if variation in judgment by specific measures and/or time of measurement.	Did the study use ITT analyses for benefit outcomes?	Were critical cointerventions balanced across intervention groups?	Was implementation failure minor? OR if there was more than minor failure, were adjustment techniques used that would likely correct for these issues?	Explain each categorical high risk of bias rating; Explain Unclear risk of bias ratings where determination was not straight forward
Agras et al., 1995[39]	Unclear	Unclear	Low	Low	Unclear	NA
Allen et al., 1999[40]	High	Low	High	Unclear	Unclear	NA
Carrard et al., 2011[41]	High	Low	Low	Unclear	NA	Overall dropout > 20%; Unclear if antidepressant use was same in both groups
Carter et al., 1998[42]	Low	High	Low	N/A	High	High differential attrition: 1/24 in WL group and 8 of 24 in GSH No supervision or fidelity as it was a controlled effectiveness study
Cassin et al., 2008[43]	Low	Low	Unclear	High	Low	NA
Castelnuovo et al., 2011[44] Castelnuovo et al., 2011[45]	Low	Low	Unclear	Unclear	Low	NA
Cesa et al., 2013[46]	High	Low	Low	NA	Unclear	Higher % of patients in IP group were married (versus ECT and CBT) 33.4% overall attrition
Compare, 2013[47]	Low	High	Low	Low	Unclear	NA
De Zwaan, et al., 2005[48]	Low	Low	Low	Low	Unclear	NA

Table D8. BED behavior treatment – part 2 (continued)

Author, Year	Are outcome data reasonably complete? Note if variation by specific measures and/or time of measurement.	Are the proportions of participants and the reasons for missing data similar across study arms? Note if variation in judgment by specific measures and/or time of measurement.	Did the study use ITT analyses for benefit outcomes?	Were critical cointerventions balanced across intervention groups?	Was implementation failure minor? OR if there was more than minor failure, were adjustment techniques used that would likely correct for these issues?	Explain each categorical high risk of bias rating; Explain Unclear risk of bias ratings where determination was not straight forward
Dingemans et al., 2007[49]	Low	Low	High	Unclear	Unclear	No ITT (mixed model, however); randomization scheme Unclear but done independently; Unclear if allowed psychotropic meds.
Eldredge et al., 1997[50]	Low	Low	High	Low	Unclear	ANOVA - subjects with missing data dropped - essentially a completer analyses
Gorin et al., 2003[51]	High	Low	Low	NA	Low	NA
Grilo et al., 2013[52]	Low	Low	Low	NA	NA	NA
Grilo et al., 2014[53]	High	High	Low	Low	Unclear	26% overall dropout Differential dropout as high as 44%
Grilo et al., 2011[54] Grilo et al., 2012[55]	High	Low	Low	NA	Low	Overall attrition was NR CBT (34%) BWL (31%) CBT+BWL (40%)
Grilo et al., 2005[56] Masheb et al., 2007[57]	High	High	Low	N/A	Low	Assessors - no info given Overall dropout = 22% Control dropout = 13%, BWLgsh dropout = 34%; CBTgsh dropout = 13%
Hilbert et al., 2004[58]	Low	Low	Low	NA	Low	NA

Table 8. BED behavior treatment – part 2 (continued)

Author, Year	Are outcome data reasonably complete? Note if variation by specific measures and/or time of measurement.	Are the proportions of participants and the reasons for missing data similar across study arms? Note if variation in judgment by specific measures and/or time of measurement.	Did the study use ITT analyses for benefit outcomes?	Were critical cointerventions balanced across intervention groups?	Was implementation failure minor? OR if there was more than minor failure, were adjustment techniques used that would likely correct for these issues?	Explain each categorical high risk of bias rating; Explain Unclear risk of bias ratings where determination was not straight forward
Le Grange et al., 2002[59]	High	Unclear	Low	NA	Low	CBT+EMA (37%) attrition CBT (28%) attrition
Masheb et al., 2011[60]	Low	Low	Low	NA	Low	NA
Masson et al., 2013 [61]	Low	High	Low	NA	NA	High differential dropout = 30% in treatment and 10% in control
Munsch et al., 2007[62] Munsch et al., 2012[63]	High	Low	Low	Low	Low	overall dropout > 25%
Pendleton et al., 2002 [64]	High	High	High	NA	Unclear	NR
Peterson et al., 1998[65] Peterson et al., 2001[66]	Low	High	Low	Low	Unclear	All Unclear data not reported
Peterson et al., 2009[67]	High	High	Low	Low	Low	NA
Ricca et al., 2010[68]	Low	Low	Low	NA	Low	NA
Riva et al., 2002[69]	Low	Low	Unclear	NA	Low	NA
Riva et al., 2003[70]	Low	Low	Unclear	NA	Unclear	NA
Safer et al., 2010[71] Safer et al., 2011[72] Robinson et al., 2012[73]	Low	high	Low	Low	Low	NA
Schlup et al., 2009[74]	Low	Unclear	Low	Low	Low	NA
Schlup et al., 2010[75]	High	High	High	Low	Low	Overall d/out 25% and differential 21%

Table 8. BED behavior treatment – part 2 (continued)

Author, Year	Are outcome data reasonably complete? Note if variation by specific measures and/or time of measurement.	Are the proportions of participants and the reasons for missing data similar across study arms? Note if variation in judgment by specific measures and/or time of measurement.	Did the study use ITT analyses for benefit outcomes?	Were critical cointerventions balanced across intervention groups?	Was implementation failure minor? OR if there was more than minor failure, were adjustment techniques used that would likely correct for these issues?	Explain each categorical high risk of bias rating; Explain Unclear risk of bias ratings where determination was not straight forward
Sysko et al., 2010[76] Wilson et al., 2010[77]	Low	High	Low	Unclear	Low	Differential dropout rate (7%, 28%, 30%); no statement verifying that baseline values not different across groups; no mention of concealment; Unclear if antidepressant medication use consistent across groups
Tasca et al., 2012[78] Tasca et al., 2006[79]	High (21% overall)	Low	Low	NA	Low	NA
Telch et al., 2001[80]	High	Low	High	Low	Unclear	NA
Wilfley et al., 2002[81] Hilbert et al., 2012[82]	Low	Low	Low	Low	Low	NA

Table D9. BED behavior treatment – part 3

Author, Year	Summary overall RISK OF BIAS (High, Medium, Low)	Summary explanation of overall high risk of bias ratings	Could selective reporting of outcomes or manner of reporting outcomes in this study appear to cause it to be at risk of reporting bias? Do not include your answer to this question in your overall RoB rating.	Describe any reporting bias concerns.
Agras et al., 1995[39]	High	Virtually all of the information needed to make a RoB assessment is missing from the study	NA	NA
Allen et al., 1999[40]	High	High attrition and no ITT; lots of Unclear data including randomization and allocation concealment	NA	NA
Carrard et al., 2011[41]	Medium	NA	NA	Not reporting antidepressant use by group could be major bias
Carter et al., 1998[42]	Medium	NA	Low	NA
Cassin et al., 2008[43]	High	Co-interventions were different; can't compare 2 tx arms meaningfully	NA	NA
Castelnuovo et al., 2011[44] Castelnuovo et al., 2011[45]	Low	NA	NA	NA
Cesa et al., 2013[46]	Medium	NA	NA	NA
Compare, 2013[47]	High	Non-randomized, differences at baseline, and differential dropout	NA	NA
De Zwaan, et al., 2005[48]	Medium	NA	NA	NA
Dingemans et al., 2007[49]	Medium	NA	NA	NA
Eldredge et al., 1997[50]	Medium	Completer analyses with differential group d/out; lack of information regarding randomization and tx fidelity and compliance	NA	NA
Gorin et al., 2003[51]	High	Differences in baseline were significant and not controlled for in analyses	NA	NA

Table D9. BED behavior treatment – part 3 (continued)

Author, Year	Summary overall RISK OF BIAS (High, Medium, Low)	Summary explanation of overall high risk of bias ratings	Could selective reporting of outcomes or manner of reporting outcomes in this study appear to cause it to be at risk of reporting bias? Do not include your answer to this question in your overall RoB rating.	Describe any reporting bias concerns.
Grilo et al., 2013[52]	Low	NA	NA	NA
Grilo et al., 2014[53]	High	Differential dropout was very high - and it was between the 2 treatment arms we're keeping from this study	NA	NA
Grilo et al., 2011[54] Grilo et al., 2012[55]	Medium	NA	NA	NA
Grilo et al., 2005[56] Masheb et al., 2007[57]	Medium	NA	Low	NA
Hilbert et al., 2004[58]	Low	NA	NA	NA
Le Grange et al., 2002[59]	Medium	NA	NA	NA
Masheb et al., 2011[60]	Low	NA	NA	NA
Masson et al., 2013 [61]	Medium	NA	NA	NA
Munsch et al., 2007[62] Munsch et al., 2012[63]	Medium	NA	NA	NA
Pendleton et al., 2002 [64]	High	High differential dropout and no ITT; poor reporting as much is Unclear	NA	NA
Peterson et al., 1998[65] Peterson et al., 2001[66]	Medium	NA	Low	NA
Peterson et al., 2009[67]	Medium	NA	NA	NA
Ricca et al., 2010[68]	Low	NA	NA	NA
Riva et al., 2002[69]	Medium	NA	NA	NA
Riva et al., 2003[70]	High	Too much Unclear data, particularly the baseline characteristics and the statistical analyses without mention of ITT	NA	NA
Safer et al., 2010[71] Safer et al., 2011[72] Robinson et al., 2012[73]	Medium	NA	NA	NA
Schlup et al., 2009[74]	High	Do not know if baseline data are the same in both groups. Outcome assessors are not masked, randomization and allocation concealment Unclear	NA	NA

Table D9. BED behavior treatment – part 3 (continued)

Author, Year	Summary overall RISK OF BIAS (High, Medium, Low)	Summary explanation of overall high risk of bias ratings	Could selective reporting of outcomes or manner of reporting outcomes in this study appear to cause it to be at risk of reporting bias? Do not include your answer to this question in your overall RoB rating.	Describe any reporting bias concerns.
Schlup et al., 2010[75]	High	Nonrandomized with high overall and differential droupout.	NA	NA
Sysko et al., 2010[76] Wilson et al., 2010[77]	Medium	Downgraded from low overall b/c of lack of reporting of baseline differences; especially use of medications; also high overall and differential dropout rate	NA	NA
Tasca et al., 2012[78] Tasca et al., 2006[79]	Medium	NA	NA	NA
Telch et al., 2001[80]	High	No ITT; completer only; over 40% drop out	NA	NA
Wilfley et al., 2002[81] Hilbert et al., 2012[82]	Low	NA	NA	NA

Table D10. LOC children treatment – part 1

Author, Year	Was randomization adequate?	Was allocation concealment adequate?	Were groups similar at baseline (at randomization)?	Were care providers masked?	Were patients masked?	Were outcome assessors masked?
Boutelle et al., 2011[83]	Low	Unclear	Unclear	NA	NA	Low
Jones et al., 2008[84]	Low	Unclear	Low	Unclear	NA	Unclear
Tanofsky-Kraff et al., 2010[85]	Low	Unclear	Low	NA	NA	Unclear
Tanofsky-Kraff et al., 2014[86]	Low	Unclear	High	NA	NA	Unclear

Table D11. LOC children treatment – part 2

Author, Year	Are outcome data reasonably complete? Note if variation by specific measures and/or time of measurement.	Are the proportions of participants and the reasons for missing data similar across study arms? Note if variation in judgment by specific measures and/or time of measurement.	Did the study use ITT analyses for benefit outcomes?	Were critical cointerventions balanced across intervention groups?	Was implementation failure minor? OR if there was more than minor failure, were adjustment techniques used that would likely correct for these issues?	Explain each categorical high risk of bias rating; Explain Unclear risk of bias ratings where determination was not straight forward
Boutelle et al., 2011[83]	Low	Low	Low	NA	Low	NA
Jones et al., 2008[84]	Low	Low	Low	NA	NA	NA
Tanofsky-Kraff et al., 2010[85]	Low	Low	NA	Unclear	Low	NA
Tanofsky-Kraff et al., 2014[86]	Low	Low	Low	NA	Low	Groups differed at baseline on age (but not clinically significant), LOC eating episodes, and binge episodes; however I don't see where they controlled for those baseline differences in the analyses

Table D12. LOC children treatment – part 3

Author, Year	Summary overall RISK OF BIAS (High, Medium, Low)	Summary explanation of overall high risk of bias ratings	Could selective reporting of outcomes or manner of reporting outcomes in this study appear to cause it to be at risk of reporting bias? Do not include your answer to this question in your overall RoB rating.	Describe any reporting bias concerns.
Boutelle et al., 2011[83]	Medium	NA	NA	NA
Jones et al., 2008[84]	Medium	NA	NA	NA
Tanofsky-Kraff et al., 2010[85]	Medium	NA	NA	NA
Tanofsky-Kraff et al., 2014[86]	Medium	NA	No	NA

Table D13. Course of illness – part 1

Author, Year	Do the inclusion/exclusion criteria vary across the comparison groups of the study?	Explanation if concern	Does the strategy for recruiting participants into the study differ across groups?	Explain if concern	Is the selection of the comparison group inappropriate, after taking into account feasibility and ethical considerations?	Explanation if concern
Agras et al., 1997[87]	Not applicable	One group	Not applicable	One group	Not applicable	One group
Busetto et al., 2005[88]	No	NA	No, does not differ	NA	No, not inappropriate	NA
Castellini et al., 2012[89]	Not applicable	One group	Not applicable	One group	Not applicable	NA
Eisenberg et al., 2010[90]; Neumark-Sztainer et al., 2011[91]; Goldschmidt et al., 2014[92]	Not applicable	One group	Not applicable	One group	Not applicable	One group
Fichter et al., 1993;[93] Fichter et al., 1998;[94]	Not applicable	One group	Not applicable	One group	Not applicable	One group
Fichter et al., 2003;[95] Fichter et al., 2008[96]	One group	Not applicable	One group	Not applicable	One group	NA
Hilbert et al., 2013[97]; Hilbert & Brauhardt, 2014[98]	No	NA	No, does not differ	NA	No, not inappropriate	NA
Linna et al., 2013[99]	No	NA	Yes, differs	Clinic pop v pop registry match	No, not inappropriate	NA
Maxwell et al., 2014[100]	Not applicable	NA	Not applicable	NA	Not applicable	NA
Sonneville et al., 2013[101]; Field et al., 2013[102]	Not applicable	One group	Not applicable	One group	Not applicable	One group
Suokas et al., 2014[103]	No	NA	No, does not differ	NA	No, not inappropriate	NA

Table D13. Course of illness – part 1 (continued)

Author, Year	Do the inclusion/exclusion criteria vary across the comparison groups of the study?	Explanation if concern	Does the strategy for recruiting participants into the study differ across groups?	Explain if concern	Is the selection of the comparison group inappropriate, after taking into account feasibility and ethical considerations?	Explanation if concern
White et al., 2010[104]	No	NA	No, does not differ	NA	No, not inappropriate	NA
Wilfley et al., 2000[105]	Not applicable	NA	Not applicable	NA	Not applicable	NA

Table D14. Course of illness– part 2

Author, Year	Was the outcome assessor not blinded to the intervention or exposure status of participants?	Explanation if concern	Were valid and reliable measures, implemented consistently across all study participants used to assess inclusion/exclusion criteria, intervention/exposure outcomes, participant health benefits and harms, and confounding?	Explanation if concern	Was the length of follow-up different across study groups?	Explanation if concern
Agras et al., 1997[87]	Not applicable	Unknown if assessor was blinded but just one group	Cannot determine or NR	Insufficient info in studies to determine	Not applicable	One group
Busetto et al., 2005[88]	Yes, not blinded	Not stated in article	Yes, valid and reliable measures used	NA	No, not different or remedied through analysis	NA
Castellini et al., 2012[89]	Yes, not blinded	NA	Yes, valid and reliable measures used	NA	not applicable	NA
Eisenberg et al., 2010[90]; Neumark-Sztainer et al., 2011[91]; Goldschmidt et al., 2014[92]	Not applicable	Self-report	No, valid and reliable measures not used	Self-report	Not applicable	May be some variation within the group based on when they received the surveys
Fichter et al., 1993;[93] Fichter et al., 1998;[94]	Not applicable	Self-report	No, valid and reliable measures not used	Self-report	Not applicable	One group
Fichter et al., 2003;[95] Fichter et al., 2008[96]	Not applicable	Self-report	Yes, valid and reliable measures used	Manualized assessment measures	Not applicable	One group

Table D14. Course of illness– part 2 (continued)

Author, Year	Was the outcome assessor not blinded to the intervention or exposure status of participants?	Explanation if concern	Were valid and reliable measures, implemented consistently across all study participants used to assess inclusion/exclusion criteria, intervention/exposure outcomes, participant health benefits and harms, and confounding?	Explanation if concern	Was the length of follow-up different across study groups?	Explanation if concern
Hilbert et al., 2013[97]; Hilbert & Brauhardt, 2014[98]	Yes, not blinded	Not stated	Yes, valid and reliable measures used	NA	No, not different or remedied through analysis	NA
Linna et al., 2013[99]	Not applicable	NA	Yes, valid and reliable measures used	NA	No, not different or remedied through analysis	NA
Maxwell et al., 2014[100]	No, blinded	NA	Yes, valid and reliable measures used	NA	Not applicable	NA
Sonneville et al., 2013[101]; Field et al., 2013[102]	Not applicable	Self-report	No, valid and reliable measures not used	Self-report	Not applicable	One group
Suokas et al., 2014[103]	Yes, not blinded	NA	Cannot determine or NR	Diagnosis was at the time of clinic admission, may have been crossover	No, not different or remedied through analysis	NA
White et al., 2010[104]	Yes, not blinded	Blinding unknown	Yes, valid and reliable measures used	NA	No, not different or remedied through analysis	NA
Wilfley et al., 2000[105]	Not applicable	NA	Yes, valid and reliable measures used	NA	Not applicable	NA

Table D15. Course of illness– part 3

Author, Year	In cases of high loss to follow-up (or differential loss to follow-up), was the impact assessed (e.g., through sensitivity analysis or other adjustment method)?	Explanation if concern	Did the authors use an appropriate analysis method that adjusted for all the critically important confounding domains (e.g., through matching, stratification, interaction terms, multivariate analysis, or other statistical adjustment such as instrumental variables)?	Explanation if concern	Summary overall RISK OF BIAS (High, Medium, Low)	Explanation if high risk of bias
Agras et al., 1997[87]	Yes, impact assessed	Missing data was imputed	No, not accounted for or not identified	No control for confounding	High	NR
Busetto et al., 2005[88]	Cannot determine	NA	No, not accounted for or not identified	Groups are similar at baseline	Medium	NA
Castellini et al., 2012[89]	No, impact not assessed	NA	Yes: taken into account	NA	Medium	NA
Eisenberg et al., 2010[90]; Neumark-Sztainer et al., 2011[91]; Goldschmidt et al., 2014[92]	Yes, impact assessed	Conducted weighted analysis	Yes: taken into account	Regression controlled for a number of key confounders	Medium	NA
Fichter et al., 1993;[93] Fichter et al., 1998;[94]	No, impact not assessed	No accounting for loss	No, not accounted for or not identified	No control for confounding	High	NR
Fichter et al., 2003;[95] Fichter et al., 2008[96]	No, impact not assessed	No accounting for loss	Yes: taken into account	SEM modeling	Medium	NA
Hilbert et al., 2013[97]; Hilbert & Brauhardt, 2014[98]	Not applicable	Case control study	Yes: taken into account	NA	Low	NA

Table D15. Course of illness– part 3 (continued)

Author, Year	In cases of high loss to follow-up (or differential loss to follow-up), was the impact assessed (e.g., through sensitivity analysis or other adjustment method)?	Explanation if concern	Did the authors use an appropriate analysis method that adjusted for all the critically important confounding domains (e.g., through matching, stratification, interaction terms, multivariate analysis, or other statistical adjustment such as instrumental variables)?	Explanation if concern	Summary overall RISK OF BIAS (High, Medium, Low)	Explanation if high risk of bias
Linna et al., 2013[99]	Not applicable	Case control study	Yes: taken into account	NA	Low	NA
Maxwell et al., 2014[100]	No, impact not assessed	NA	Partially	NA	Medium	NA
Sonneville et al., 2013[101]; Field et al., 2013[102]	No, impact not assessed	Used a structure of obtaining data when 2 consecutive questionnaires but measurement may be at different times across participants	Yes: taken into account	Controlled for multiple critical confounders	Medium	NA
Suokas et al., 2014[103]	Not applicable	NA	Yes: taken into account	NA	Medium	NA
White et al., 2010[104]	No, impact not assessed	NA	partially	NA	Medium	NA
Wilfley et al., 2000[105]	Cannot determine	NA	partially	NA	Medium	NA

Table D16. Course of illness review studies – part 1

Author, Year	Was there duplicate study selection and data extraction?	Was a comprehensive literature search performed?	Was the scientific quality of the included studies assessed and documented?	Was an 'a priori' design provided?	Was the status of publication (i.e. grey literature) used as an inclusion criterion?	Was a list of studies (included and excluded) provided?
Preti et al., 2011[106]	NR	Yes	Yes	Yes	Yes	No

Table D17. Course of illness review studies – part 2

Author, Year	Were the characteristics of the included studies provided?	Was the scientific quality of the included studies used appropriately in formulating conclusions?	Were the methods used to combine the findings of studies appropriate?	Was the likelihood of publication bias assessed?	Was the conflict of interest included?	Risk of Bias
Preti et al., 2011[106]	yes	No	Yes	Nr	No	Medium

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Appendix E. Evidence Tables

Evidence Table E1. Loss of control of eating: Children - part 1

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Boutelle, 2011[1] To examine 2 treatments targeted at reducing eating in the absence of hunger in overweight and obese children NR but likely US Academic	randomized controlled trial NR NR 14 months	36 matched pairs of children and 1 parent	G1: Volcravo G2: CAAT	Randomized: G1: 18 pairs G2: 18 pairs Analyzed at posttreatment: G1: 16 G2: 16 Analyzed at 6m: G1: 16 G2: 16 Analyzed at 12m: G1: 13 G2: 12	NR	NR	outpatient	University of Minnesota Faculty Development Grant
Jones, 2008[2] To examine the efficacy of an Internet-facilitated intervention for weight maintenance and binge eating in adolescents United States Government	randomized controlled trial assessor NR 16-week intervention, follow up assessment at 9 months	105	G1: StudentBodies2-BED) (SB2-BED) G2: Wait List Control	Randomized: G1: 52 G2: 53 Analyzed (post-treatment): G1: 46 G2: 47 Analyzed (follow-up) G1: 44 G2: 43	2	Boise, Idaho Hayward, California	Outpatient	National Institute of Diabetes and Digestive and Kidney Diseases (grant DK065757)

Evidence Table E1. Loss of control of eating: Children - part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Tanofsky-Kraff, 2010[3] NA To compare the ability of IPT with that of standard-of-care health education to stabilize or reduce excessive weight gain in adolescent girls at risk of inappropriate gain based on current BMI US Government	randomized controlled trial NR Began January 2006, but end of enrollment period NR 12 months	20	G1: IPT-WG G2: Standard-of-care health education (HE)	Girls with baseline LOC eating only Randomized: G1: 11 G2: 9 Analyzed at 6m (ITT): G1: 11 G2: 9 Analyzed at 6m (completers): G1: NR G2: NR Analyzed at 12m (ITT): G1: 11 G2: 9 Analyzed at 12m (completers): G1: NR G2: NR	1	Bethesda, MD	Outpatient	NOTE: N randomized and group sample sizes reflect ONLY girls who reported baseline LOC eating. The remaining girls in the sample are not eligible for our review because they did not present with LOC eating or BED.

Evidence Table 1. Loss of Control of Eating: Kids - part 1

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Tanofsky-Kraff, 2014[4] To determine whether an adapted interpersonal psychotherapy prevention program is more efficacious for reducing excess weight gain and worsening disordered eating than health education in adolescent girls at high risk of obesity and eating disorders US Government	randomized controlled trial assessor September 2008 through January 2013 12 months from program initiation	113	G1: Interpersonal Psychotherapy Prevention Program G2: Health Education Program	Randomized: 116 G1: 56 G2: 60 Initiated treatment: 113 G1: 54 G2: 58 Analyzed at 12m post initiation of tx: 98 G1: 49 G2: 49	2	Bethesda, MD	University-based laboratory and a federal research hospital	NIDDK: R01DK080906 Uniformed Services University of the Health Sciences (grant R072IC) NICHHD ZIA-HO-00641 NIMH K24MH070446

Evidence Table E2. Loss of control of eating: Children - part 2

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Boutelle, 2011[1]	Eating in the absence of hunger: measure described by Birch & Fisher 2000 and Fisher & Birch 2002. Children who reported eating more than 10% of their daily caloric intake in the free access paradigm. Each child ate pizza with his/her parent and rated satiety post-meal. 10 minutes after the meal the child tasted and rated small samples of 11 sweet and savory snack foods, and was then left in a room for 10 minutes with the snack foods and toys and the amount of snacks consumed was measured. Participation in a weight loss program Medication that could influence weight and eating Food allergies or dietary restrictions Psychiatric disorder or physical disease for which physician supervision of diet and exercise prescription were needed	Overweight and obese children 8-12 years old who met criteria for eating in the absence of hunger, enrolled in pairs with one parent Children Overall: 10.3 years (SD 1.3) G1: 10.3 (SD 1.4) G2: 10.3 (SD 1.3) Parents Overall: 41.2 (SD 7.0) G1: 39.8 (SD 7.8) G2: 42.5 (SD 5.9)	Children Overall: 58% G1: 66.7% G2: 50.0% Parents Overall: 86% G1: 88.9% G2: 83.3% Children Overall: NR G1: 61.1% G2: 58.8% Parents Overall: NR G1: 35.3% G2: 33.3% NR	BMI %ile ≥85, parent reported child eating in the absence of hunger	NR	Parents % currently married G1: 66.7% G2: 83.3% Parents' education (% college graduates) G1: 50.0% G2: 61.1% None	EAH measure described in: Birch LL, Fisher JO. Mothers' child-feeding practices influence daughters' eating and weight. American Journal of Clinical Nutrition. 2000; 71: 1054-1061. Fisher JO, Birch LL. Eating in the absence of hunger and overweight in girls from 5 to 7 years of age. American Journal of Clinical Nutrition. 2002; 76: 226-231.

Evidence Table E2. Loss of control of eating: Children - part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Jones, 2008[2]	binge eating or overeating behaviors at a frequency of 1 times per week in the previous 3 months NR	Adolescent male and female public high school students at risk for overweight, mean age: 15.1 1.0 years (reported as Mean, SD) Overall: 15.1 +/-1 G1: 15.0 +/-1 G2: 15.2 +/-1.1 p = NS	Overall: 69.5% G1: 73.1% G2: 66% p = NS Overall: 35% G1: 32.7% G2: 39.6% p = NS Measure/scale: BMI, mean +/- SD Overall: 30.61 +/- 5.44 G1: 3.58 +/- 4.59 G2: 30.64 +/- 5.97 p = NS	(1) 85th percentile for age-adjusted BMI, (2) access to a computer and the Internet, (3) not currently enrolled in a formal binge eating or weight loss program (eg, Weight Watchers), (4) absence of any medical condition in which the actual condition or treatment affects weight and/or appetite (ie, cancer, endocrine diseases, or certain medications), and (5) absence of anorexia nervosa and bulimia nervosa.	Measure/scale: Depressed Mood (CES-D Score), mean +/- SD Overall: 14.94 +/- 9.43 G1: 14.26 +/- 9.43 G2: 15.63 +/- 10.33 p = NR	Measure/scale: mother's education (more than high school), % Overall: 53.33% G1: 50% G2: 56.6% p = NS Measure/scale: father's education (more than high school), % Overall: 51.42% G1:46.15% G2: 56.6% p = NS None	NA

Evidence Table 2. Loss of control of eating: Kids - part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Tanofsky-Kraff, 2010[3]	LOC eating: episodes of eating during which loss of control is experienced, regardless of amount of food consumed Not meeting BMI percentile within eligible range	Female children 12-17 with LOC eating and BMI in 75th-97th percentile range Entire sample Overall: NR (12-17) G1: 14.7 (1.2) G2: 15.4 (0.2) p = NR LOC sample only Overall: NR G1: NR G2: NR p = NS	Entire sample Overall: 100 G1: 100 G2: 100 p = NA Non-white: Entire sample Overall: NR G1: 63 G2: 63 p = NA LOC sample only Overall: NR G1: NR G2: NR p = NS Black: Entire sample Overall: NR G1: 42 G2: 53 p = NR LOC sample only	Girls with BMI scores between 75th and 97th percentile	NR	NR No	Definition of LOC eating in this study: "the sense of being unable to stop eating once started" (see Ref 30)

Evidence Table 2. Loss of control of eating: Kids - part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Tanofsky-Kraff, 2010[3] (continued)			Overall: NR G1: NR G2: NR p = NS Asian: Entire sample Overall: NR G1: 16 G2: 5 p = NR LOC sample only Overall: NR G1: NR G2: NR p = NS Hispanic: Entire sample Overall: NR G1: 5 G2: 5 p = NA LOC sample only Overall: NR G1: NR G2: NR p = NS				

Evidence Table 2. Loss of control of eating: Kids - part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Tanofsky-Kraff, 2010[3] (continued)			Mean BMI (SD) (kg/m^2): Entire sample Overall: NR G1: 25.1 (2.8) G2: 25.6 (3.1) p = NR LOC sample only Overall: NR G1: NR G2: NR p = NS Mean BMI z-score (SD): Entire sample Overall: NR G1: 1.3 (0.4) G2: 1.3 (0.4) p = NR				

Evidence Table 2. Loss of control of eating: Kids - part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Tanofsky-Kraff, 2010[3] (continued)			LOC sample only Overall: NR G1: NR G2: NR p = NS Mean BMI percentile (SD): Entire sample Overall: NR G1: 88 (12.0) G2: 88 (10) p = NR LOC sample only Overall: NR G1: NR G2: NR p = NS				

Evidence Table 2. Loss of control of eating: Kids - part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Tanofsky-Kraff, 2014[4]	Report of at least 1 episode of LOC eating in the past 1 month per EDE having a major medical condition (eg, diabetes), a current or lifetime diagnosis of a Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision or Diagnostic and Statistical Manual, 5th Edition eating disorder (other than binge-eating disorder) any current Axis I or Axis II psychiatric condition (eg, major depressive disorder or psychosis) were simultaneously participating in a structured weight-loss program or psychotherapy, or were taking medications (eg, selective serotonin reuptake inhibitors, neuroleptics, tricyclics, or stimulants) known to affect body weight or appetite.	Adolescent girls deemed at high risk for adult obesity and eating disorders because of 75-97% BMI and at least 1 episode of LOC eating Overall: 14.5 (SD 1.7) G1: 14.2 (SD 1.5) G2: 14.8 (SD 1.7) p=0.05	Overall: 100% G1: 100% G2: 100% Overall: 43.4% G1: 47.3% G2: 39.7% p=0.84 BMI Overall 27.0 (SD 2.5) G1: 26.9 (SD 2.6) G2: 27.1 (SD 2.4) p=0.63	BMI between 75th and 97th percentiles Healthy adolescent girls aged 12–17 y	Depressive symptoms Overall: 10.6 (SD 6.6) G1: 10.1 (SD 6.9) G2: 11.2 (SD 6.3) p=0.36 Anxiety symptoms Overall: 34.1 (SD 6.8) G1: 33.3 (SD 7.1) G2: 34.9 (SD 6.3) p=0.20	SES (median) Overall: 2.0 G1: 2.0 G2: 2.0 p=0.80 Social adjustment Overall: 2.5 (SD 0.8) G1: 2.4 (SD 0.8) G2: 2.6 (SD 0.8) p=0.21 Yes--racial-ethnic groups	

Evidence Table 2. Loss of control of eating: Kids - part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Tanofsky-Kraff, 2014[4] (continued)	Girls who were taking oral contraceptives were included provided that the contraceptive had been used at least 2 mo before participating in the prevention groups. Pregnant girls and those who had lost .5% of their body weight in the 3 mo before assessment were also excluded						

Evidence Table E3. Loss of control of eating: Children – Part 3

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Boutelle, 2011[1]	Weekly treatment for 8 weeks, in separate but simultaneous parent and child groups of 8-10 members for approximately 45 minutes, and both parents and children were given study-specific workbooks and handouts. Content was similar for children and parents except that child materials were presented in the form of games and discussion in an age-appropriate manner. Following the separate groups, parents and children participated in an experiential exercise for an additional 30 minutes at each session. Both treatment taught the same coping skills (behavioral and cognitive), parenting skills (use of praise, motivation systems, daily meetings, self-monitoring, modeling, shaping behaviors, logical consequences). If a family missed a meeting, they were	Volcravo: Used cue exposure treatment in session to reduce the strength of the association between the subjective and physiological experiences ("cravings") when exposed to food cues. Children were provided a toolbox of coping skills to "ride the craving wave." Participants were provided information about basic learning theory and how physiological responses to food cues can be broken. Sessions focused on recognizing cravings, identifying antecedents of cravings, and learning strategies to ride out craving waves until urges diminished. Children were asked to ride out cravings only when they were not physically hungry. Parents and children self-monitored their cravings outside of sessions. Experiential exercises were conducted in group format, and parent-child dyads were used to implement cue exposure treatment. Session 1: parents and children identified 7 high-craving foods for the parent and child. Sessions 2-8: parents and children brought a high-craving food and completed a cue exposure treatment exercise, in which they rated their cravings on	CAAT (Children's appetite awareness training): Focused on hunger and used hunger monitoring to increase sensitivity to hunger and satiety as well as coping skills to manage the urge to eat when not hungry. Adapted from Craighead&Allen 1995, which was designed for adults. Goal is to increase child's perceptions of internal states of hunger and satiety to guide amounts of food consumption. ALl sessions focused on improving awareness of hunger and satiety and learning how to monitor these cutes (using a 1-5 scale to rate hunger). Parents and children also learned about potential overeating situations in which they might not listen to their body's hunger signals and different coping skills to manage these situations. Parents and children self-monitored their hunger outside of class.	NA	NA	NA

Evidence Table E3. Loss of control of eating: Children – Part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Boutelle, 2011[1] (continued)	called and mailed the missed materials. All groups were led by doctoral-level psychologists and assisted by master's-level cotherapists and several undergraduate volunteers. All therapists attended a 1-day training regarding the treatments and attended weekly supervision with the first author.	a 1-5 scale while looking at the food, holding, smelling, and taking 2 bites, and then rated their cravings at 30s-intervals for 15 minutes. After cravings were reduced to a 2 or lower, families disposed of the food without eating it.	Experiential exercises were conducted in a group format and used parent-child dyads to practice monitoring hunger during meals. During sessions 2-8, parents and children brought dinner and monitored hunger during this meal with prompts from the staff. Hunger was monitored at the start, middle, and end of the meal by parents and children. In addition, participants were prompted to monitor hunger levels 10- and 20-minutes post-completion of the meal.			

Evidence Table 3. Loss of control of eating: Kids – Part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Jones, 2008[2]	NA	Student Bodies 2, 16 week online healthy weight maintanence program intervention that incorporates cognitive-behavioral principles from the self-help manual for binge eating disorder by Fairburn, the adolescent weight loss intervention, Healthy Habits, described by Saelens et al, and hunger and satiety awareness skills; combines psychoeducation and behavioral interventions such as self-monitoring, goal-setting, stimulus control, and appetite awareness and introduces emotion regulation skills. New topic introducted each week, previous week's content could be accessed any time.	Waitlist Control (WLC); WLC participants were informed at the start of the study that they would be offered the program at the 9-month follow-up assessment, in either online or printed format	NA	NA	NA

Evidence Table 3. Loss of control of eating: Kids – Part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Tanofsky-Kraff, 2010[3]	NR	Group IPT-WG (IPT for the prevention of excessive weight gain) based on IPT-Adolescent Skills Training (IPT-AST) and IPT for BED treatment; 12 weekly sessions of 75-90 minutes plus one 90-minute individual pregroup meeting to introduce group format and participation	"Attention-only" comparison: group didactic health education (HE) class based on "Hey-Durham" health program for high school students and covering topics like alcohol, drug, and tobacco use avoidance, identifying signs of depression and suicide, nonviolent conflict resolution, sun safety, domestic violence, and very basic advice about nutritional, body image, and exercise; 12 weekly sessions of unspecified length	NA	NA	NA
Tanofsky-Kraff, 2014[4]	none	Interpersonal Psychotherapy Prevention Program: Adapted from IPT-Adolescent Skills Training for the prevention of depression (Young 2006) and group IPT for BED (Wilfley 2000) Individual 1.5h meeting followed by 12 consecutive weekly 90m group sessions. Each group was cofacilitated by a PhD-level clinical psychologist and a graduate student in clinical psychology.	Health Education Program: Based on the HEY-Durham manual for high school students (Bravender 2005) Individual 1.5h meeting followed by 12 consecutive weekly 90m group sessions. Each group was cofacilitated by a PhD-level clinical psychologist and a graduate student in clinical psychology.			

Evidence Table E4. Loss of control of eating: Children – Part 4

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Boutelle, 2011[1]	NR	CAAT adapted from intervention described in: Craighead LW, Allen HN. Appetite awareness training: A cognitive behavioral intervention for binge eating. Cognitive and Behavioral Practice. 1995; 2:249-270.	EAH (eating in the absence of hunger, expressed as a percent of daily caloric needs): measure described by Birch&Fisher 2000 and Fisher&Birch 2002. Each child ate pizza with his/her parent and rated satiety post-meal. 10 minutes after the meal the child tasted and rated small samples of 11 sweet and savory snack foods, and was then left in a room for 10 minutes with the snack foods and toys and the amount of snacks consumed was measured. Caloric intake: assessed with 3 24h dietary recalls at each assessment point on 3 nonconsecutive days. Using the multiple-pass system of the NDS-R interview methodology, a trained interviewer conducted one 24h recall in person at the assessment visit, along with 2 subsequent phone recalls within the following 2 weeks. During the in-person interview, children used both food models and a food amounts booklet to help them estimate quantities of foods and drinks consumed; the booklet alone was used for phone. Parents were consulted to verify aspects of the food. The 3 recalls were averaged to generate caloric intake. EDE version adapted for children (chEDE, Bryant-Waugh JR, Cooper JP, Taylor CL, Lask BD. The use of the Eating Disorder Examination with children: A pilot study. International Journal of Eating Disorders. 1996; 19: 391-397.) Treatment acceptability assessed at post-treatment only Note: outcomes were reported for parents as well, but did not abstract those outcomes. Parents were not required to meet any eligibility criteria for BED so assumed their data are not included in the review.

Evidence Table 4. Loss of control of eating: Children – Part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Jones, 2008[2]	Adherence was calculated as the mean number of content screens accessed per week over the 16 weeks. Examples of data collected include the mean number of food journal entries and number of messages posted to the discussion group.	Note for results tab: Results shown are for Completers, not ITT population. Authors state that: "Only results from the completer analysis are included, because there were no differences between the completer and intention-to-treat analyses." However, Table 5 in the article reports ITT results. In Table 5, the results at Follow-up for Weight and shape concerns, is not statistically significant, whereas in Table 4, the results are statistically significant.	The baseline questionnaire asked students to report their gender, date of birth, height, weight, grade in school, and contact information. Students were contacted by telephone to complete a more-comprehensive telephone screening questionnaire. Eligible participants were scheduled for an appointment at their respective schools, during which they completed several self-report questionnaires and a semi-structured diagnostic interview (Eating Behaviors Inventory [EBI]) and had their heights and weights measured. Participants completed the same assessment by telephone at the posttreatment assessment and provided self-reported height and weight. Participants were contacted 9 months after the baseline assessment for in-person measurements of height and weight and completion of the telephone selfreport questionnaire and semi-structured interview. Assessments were performed by the study coordinator and trained research assistants, who were supervised by a licensed psychologist and psychiatrist.
Tanofsky-Kraff, 2010[3]	NR	Refs #33 and 34 provide more information about IPT-AST and IPT for BED interventions that were basis for G1's IPT-WG program Ref #35 provides more information about "Hey-Durham" health program that was basis for G2 (HE group) program	Occurrence of LOC episodes evaluated with EDE (follow-up: 6 months) BMI scores and growth evaluated using measured heights and weights, as described in ref 30 (follow-up: 6 months and 12 months)

Evidence Table 4. Loss of control of eating: Kids – Part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Tanofsky-Kraff, 2014[4]	Blinded raters assessed fidelity to conditions. Independent ratings of randomly selected G1 and G2 sessions indicated excellent adherence to the respective program (all ps <0.01)	Young JF, Mufson L, Davies M. Efficacy of Interpersonal Psychotherapy-Adolescent Skills Training: an indicated preventive intervention for depression. J Child Psychol Psychiatry 2006;47:1254–62. Wilfley DE, MacKenzie KR, Welch RR, Ayres VE, Weissman MM. Interpersonal psychotherapy for group. New York, NY: Basic Books, 2000. Bravender T. Health, education, and youth in Durham: HEY-Durham curricular guide. 2nd ed. Durham, NC: Duke University, 2005.	Outcomes measured at baseline, after the intervention (12wk), and at 6m and 12m follow-up. Time to f/u was measured from initiation of the study.

Evidence Table E5. Loss of control of eating: Children – Part 5

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Boutelle, 2011[1]	EAH (eating in the absence of hunger, expressed as a percent of daily caloric needs) chEDE -SBE (subjective bulimic episode) -OBE (objective bulimic episode) -OOE (objective overeating episode) LOC eating: "based on the combination of OBEs and SBEs", "number of OBEs + SBEs" (no other description provided) Overeating episodes: "based on the combination of OBEs and OOEs", "number of OBEs + OOEs" (no other description provided) Caloric intake	EAH (eating in the absence of hunger, expressed as a percent of daily caloric needs) G1: 21% (9%) G2: 19% (8%) SBE (subjective bulimic episode) G1: 3.33 (SD 6.10) G2: 1.33 (SD 2.87) OBE (objective bulimic episode) G1: 1.22 (SD 4.25) G2: 0.89 (SD 3.53) OOE (objective overeating episode) G1: 0.39 (SD 1.04) G2: 0.06 (SD 0.24) LOC eating G1: 4.56 (SD 8.05) G2: 2.22 (SD 4.68) Overeating episodes G1: 1.61 (SD 4.27) G2: 0.94 (SD 3.52) Caloric intake G1: 1822 (SD 706) G2: 1784 (SD 544)	Observed means Post-treatment EAH G1: 12% (SD 8%) G2: 20% (SD 9%) Statistically significant between-group difference on change from baseline: 10% reduction in EAH in G1 relative to G2 t=3.59 p<0.001 Observed means 6m EAH G1: 16% (SD 9%) G2: 19% (SD 8%) p=G1 statistically significant within-group difference on change from baseline Observed means 12m EAH G1: 17% (SD 10%) G2: 16% (SD 15%) p=NR, NS EAH model: "For the model that included calories eaten at dinner as a covariate, we used a compound symmetry covariance matrix, resulting in a significant time effect for G1 (F=5.81, p=0.001) and not for G2 (F=1.81, p=0.152), and a significant time by condition interaction (F=4.91, p=0.003)." Observed means Post-treatment SBE G1: 1.19 (SD 1.91) G2: 0.56 (SD 1.09) G1 and G2 statistically significant within-group differences on change from baseline: G1: 2.21 decrease from BL (t=3.28, p=0.006) G2: 0.78 decrease from BL (t=3.55, p=0.001) Observed means 6m SBE G1: 0.31 (SD 0.79) G2: 0.44 (SD 1.50) G1 and G2 statistically significant within-group differences on change from baseline: G1: 3.04 decrease from BL (t=2.82, p=0.0173) G2: 0.90 decrease from BL (t=2.52, p=0.026)

Evidence Table E5. Loss of control of eating: Children – Part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Boutelle, 2011[1] (continued)			Observed means 12m SBE G1: 0.07 (SD 0.28) G2: 0.09 (SD 0.30) G1 and G2 statistically significant within-group differences on change from baseline: G1: 3.24 decrease from BL (t=5.76, p<0.001) G2: 1.23 decrease from BL (t=2.47, p=0.026) SBE model: "When we used an unstructured covariance matrix with SBE as an outcome, there was a significant time main effect for G1 (F=45.19, p<0.001) and G2 (F=10.40, p<0.001), but not a significant time-by-condition interaction (F=1.69, p=0.176)." Observed means Post-treatment OBE G1: 0.06 (SD 0.25) G2: 0.06 (SD 0.25) p=NR, NS Observed means 6m OBE G1: 0.00 (SD 0.00) G2: 0.44 (SD 1.75) G1 statistically significant within-group difference on change from baseline: G1 decrease from BL to 6m: 1.22 (t=11.07, p<0.001) Statistically significant between-group difference on change from baseline: 0.77 reduction in OBE in G1 relative to G2 (t=6.36, p<0.001) Observed means 12m OBE G1: 0.00 (SD 0.00) G2: 0.00 (SD 0.00) G1 decrease from BL to 12m: 1.22 (t=9.31, p<0.001) G2 decrease from BL to 12m: 0.89 (t=2.72, p=0.035) G1 and G2 statistically significant within-group difference on change from baseline OBE model: "When we used a Toeplitz covariance structure with OBEs as an outcome, there was a significant time main effect for G1 (F=135.82, p<0.001), and for G2 (F=22.53, p<0.001), and a significant time-by-condition interaction (F=17.14, p<0.001)."

Evidence Table 5. Loss of control of eating: Kids – Part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Boutelle, 2011[1] (continued)			Observed means Post-treatment OOE G1: 0.00 (SD 0.00) G2: 0.00 (SD 0.00) p=NR, NS Observed means 6m OOE G1: 0.13 (SD 0.34) G2: 0.00 (SD 0.00) p=NR, NS Observed means 12m OOE G1: 0.00 (SD 0.00) G2: 0.09 (SD 0.30) p=nR, NS Observed means Post-treatment LOC eating G1: 1.25 (SD 1.91) G2: 0.63 (SD 1.20) G1 statistically significant within-group difference on change from baseline: G1: significant decrease of 3.36 from BL (t=2.97, p=0.004) Observed means 6m LOC eating G1: 0.31 (SD 0.79) G2: 0.88 (SD 3.24) G1 statistically significant within-group difference on change from baseline: G1: significant decrease of 4.26 from BL (t=3.17, p=0.002) Observed means 12m LOC eating G1: 0.08 (SD 0.28) G2: 0.09 (SD 0.30) G1 statistically significant within-group difference on change from baseline: G1: significant decrease of 4.44 from BL (t=5.80, p<0.001) LOC model: "When a Toeplitz covariance matrix was used, there was a significant time main effect for G1 (F=12.20, p<0.001) but not for G2 (F=2.62, p<0.057); nor was there a significant time by condition interaction (F=1.04, p=0.380)."

Evidence Table 5. Loss of control of eating: Kids – Part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Boutelle, 2011[1] (continued)			Observed means Post-treatment Overeating episodes G1: 0.06 (SD 0.25) G2: 0.06 (SD 0.25) G1 statistically significant within-group difference on change from baseline: G1: significant decrease of 1.55 from BL (t=2.68, p=0.031) Observed means 6m Overeating episodes G1: 0.13 (SD 0.34) G2: 0.44 (SD 1.75) G1 statistically significant within-group difference on change from baseline: G1: significant decrease of 1.48 from BL (t=2.62, p=0.031) Observed means 12m Overeating episodes G1: 0.00 (SD 0.00) G2: 0.09 (SD 0.30) G1 statistically significant within-group difference on change from baseline: G1: significant decrease of 1.61 from BL (t=11.61, p<0.001) Statistically significant between-group difference on change from baseline: G1 had a 0.77 reduction in overeating episodes from BL relative to G2 (t=4.13, p<0.001) Overeating episode model: "When a Toeplitz covariance matrix was used, there was a significant time main effect for G1 (F=49.78, p<0.001) but not G2 (F=1.75, p<0.164), and a significant time-by-condition interaction (F=6.83, p<0.001)." Observed means Post-treatment Caloric intake G1: 1536 (SD 474) G2: 1554 (SD 368) p=NR, NS Observed means 6m Caloric intake G1: 1474 (SD 466) G2: 1609 (SD 318) p=NR, NS Observed means 12m Caloric intake G1: 1644 (SD 412) G2: 1559 (SD 316) p=NR, NS

Evidence Table 5. Loss of control of eating: Kids – Part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Boutelle, 2011[1] (continued)			Caloric intake model: "When we used an unstructured covariance matrix with caloric intake as an outcome, there was no significant time effect for G1 (F=2.06, p=0.124) or G2 (F=1.74, p=0.178), nor was there a significant group-by-condition interaction (F=0.65, p=0.586).
Jones, 2008[2]	OBE = Binge days/3 months (based on EBI, adapted from the EDE)	Binge Eating, # of episodes, mean +/- SD OBEs and SBEs G1: 15.16 +/- 20.78 G2: 8.42 +/- 18.74 OOEs G1: 7.89 +/- 14.28 G2: 7.53 +/- 14.28	Binge Eating, # of episodes, mean +/- SD OBEs and SBEs (Post Treatment) G1: 0.95 +/- 3.88 G2: 6.98 +/- 17.55 p, NR OOEs (Post Treatment) G1: 2.05 +/- 6.98 G2: 2.34 +/- 5.25 p, NR Binge Eating, # of episodes, mean +/- SD OBEs and SBEs (Follow-up) G1: 2.29 +/- 7.67 G2: 2.74+/- 8.60 p < .05, compared with the WLC group OOEs (Follow-up) G1: 2.16 +/- 9.33 G2: 1.07 +/- 2.80 p, NR

Evidence Table 5. Loss of control of eating: Kids – Part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Tanofsky-Kraff, 2010[3]	Reduction in per-person frequency of LOC eating episodes ("the sense of being unable to stop eating once started", see Ref 30) between baseline and 6 month follow-up NOTE: Measurements of presence or absence of LOC eating based on the month prior to assessment at each timepoint (e.g., baseline assessment based on month prior to baseline visit).	NOTE: Data reported for girls with baseline LOC eating only N of LOC episodes: Mean (SD) (measured with EDE version 12OD/C.2) G1: 3.5 (5.4) G2: 1.2 (1.9) p = 0.09 Effect size (partial η^2) = 0.08	NOTE: Data reported for girls with baseline LOC eating only 6m N of LOC episodes, ITT analysis: Mean (SD) (measured with EDE version 12OD/C.2) G1: NR G2: NR p = NR 6m Reduction in frequency of LOC episodes, ITT analysis: Mean (SD) (measured with EDE version 12OD/C.2) G1: 0.53 (0.9) G2: 0.21 (0.5) p = 0.036 Effect size (partial η^2) = 0.12
Tanofsky-Kraff, 2014[4]	Number of LOC episodes per EDE (geometric mean of log-transformed scores, 95% CI) Presence of LOC eating Presence of frequent LOC eating (at least 1 per week for 3m) Number of binge eating episodes Presence of binge eating (at least 1 per week for 3m) Development of eating disorder per EDE	Number of LOC episodes per EDE G1: 4.7 (4.1, 5.4) G2: 8.0 (6.9, 9.2) p=0.01 Presence or absence of frequent LOC eating (at least 1 per week for 3m) G1: NR G2: NR Number of binge eating episodes G1: 0.4 (0.3, 0.5) G2: 0.8 (0.6, 1.1) p=0.05 % Presence of binge eating (at least 1 per week for 3m) G1: 25.5% G2: 37.9% p=0.17	Number of LOC episodes per EDE G1: NR G2: NR No group-by-interval effect was found: F=1.10, p=0.35 12m Presence of LOC eating G1: 47.3% G2: 41.4% No effect of group on likelihood of having any LOC eating at 12m: p=0.65, including when BL LOC eating was controlled for, p=0.43 12m Presence of frequent LOC eating (at least 1 per week for 3m) G1: 1.8% G2: 10.3% p=0.11 Change in reported binge eating (time period not clear) G1: NR G2: NR

Evidence Table 5. Loss of control of eating: Kids – Part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Tanofsky-Kraff, 2014[4] (continued)			No group-by-interval effect on reported binge eating, p=0.26 12m Binge eating episodes, controlling for # of episodes at post-tx, because # differed at baseline G1: 0.04, 0.00-0.09) G2: 0.16 (0.14, 0.23) p=0.03 Other follow-up intervals objective Binge eating episodes G1:NR G2: NR all measurements: p≥ 0.18 No group-by-interval effect on reported binge eating, p=0.26 12m Presence of binge eating G1: NR G2: NR G2 girls were >7 times more likely to endorse binge eating at 12m than G1 girls; OR=7.32; 95% CI 1.57, 34.18, p=0.01 12m % Presence of frequent binge eating (at least 1 per week for 3m), controlling for baseline G1: 0% G2: 3.4% p=0.99 12m development of eating disorder, excluding those with BED at baseline OR=4.27, 95% CI 0.46, 39.60, p=0.20

Evidence Table E6. Loss of control of eating: Children – Part 6

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Boutelle, 2011[1]	NR	NR	NR	NR
Jones, 2008[2]	EBI (adapted from EDE) -compensatory behaviors -weight concerns -shape concerns PACE+ -Dietary Fat and Sugar intake	Weight and shape concerns, mean +/- SD, score Baseline G1: 1.3 +/- 0.80 G2: 1.35 +/- 0.92 Dietary Fat Intake, mean +/- SD, PACE DFS score Baseline G1: 24.54 +/- 8.63 G2: 22.06 +/- 10.73	Weight and shape concerns, mean +/- SD, score Posttreatment G1: 1.05 +/- 0.64 G2: 1.27 +/- 0.78 Follow-up G1: 0.81 +/- 0.67 G2: 1.14 +/- 0.72 p < .05, compared with WLC group Dietary Fat Intake, mean +/- SD, PACE DFS score Posttreatment G1: 18.88 +/- 6.56 G2: 20.05 +/- 7.49 Follow-up G1: 18.25 +/- 6.95 G2: 17.33 +/- 7.57	NA
Tanofsky-Kraff, 2010[3]	NR	NR	NR	NR
Tanofsky-Kraff, 2014[4]	None	None	None	None

Evidence Table E7. Loss of control of eating: Children – Part 7

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes	Psychopathology Outcomes Continued
Boutelle, 2011[1]	NR	NR	NR	NR
Jones, 2008[2]	Center for Epidemiologic Studies Depression Scale -Depressed Mood	Depressed mood, mean +/- SD, CES-D score Baseline G1: 14.26 +/- 9.43 G2: 15.63 +/- 10.33	Depressed mood, mean +/- SD, CES-D score Posttreatment G1: 9.63 +/- 8.30 G2: 12.57 +/- 10.10 Follow-up G1: 12.42 +/- 11.59 G2: 10.49 +/- 11.21	NA
Tanofsky-Kraff, 2010[3]	NR	NR	NR	NR
Tanofsky-Kraff, 2014[4]	Social adjustment scale BDI STAI for children-A Trait Version (anxiety)	Social adjustment scale G1: NR G2: NR BDI G1: NR G2: NR STAI for children-A Trait Version G1: NR G2: NR	Social adjustment scale G1: NR G2: NR G2 reported more social problems across all time points than G1, F=4.34, p=0.04 BDI G1: NR G2: NR No group-by-interval effect, p>0.23 STAI for children-A Trait Version G1: NR G2: NR No group-by-interval effect, p>0.10	NA

Evidence Table E8. Loss of control of eating: Children – Part 8

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Boutelle, 2011[1]	BMI	BMI G1: 26.17 (SD 3.21) G2: 28.60 (SD 4.57)	Observed meansPost-treatment BMI G1: 26.12 (SD 2.95) G2: 28.98 (SD 4.69) G2 statistically significant within-group difference on change from baseline: BMI increased 0.34 from BL (t=2.17, p=0.037) Observed means6m BMI G1: 26.55 (SD 3.08) G2: 29.44 (SD 4.79) G2 statistically significant within-group difference on change from baseline: BMI increased 0.79 from BL (t=3.42, p=0.005) Observed means12m BMI G1: 28.09 (SD 4.50) G2: 30.65 (SD 5.07) G2 statistically significant within-group difference on change from baseline: BMI increased 1.30 from BL (t=2.86, p=0.014)	NR	NR	NR

Evidence Table E8. Loss of control of eating: Children – Part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Boutelle, 2011[1] (continued)			BMI model: "When we used an unstructured covariance matrix with BMI as an outcome, there was a significant time main effect for G2 (F=6.19, p=0.002) but not for G1 (F=2.65, p=0.065), and there was no significant time-by-condition interaction (F=0.64, p=0.595)." "When we used an unstructured covariance matrix with BMI z-score as an outcome, there was not a significant time effect for G1 (F=0.87, p=0.466) or for G2 (F=1.00, p=0.405), nor was there a significant time-by-condition interaction (F=0.56, p=0.644)."			

Evidence Table 8. Loss of control of eating: Kids – Part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Jones, 2008[2]	-BMI, mean +/- SD, kg/m2 -BMI z score, mean +/- SD	BMI, mean +/- SD, kg/m2 Baseline G1: 30.58 +/- 4.9 G2: 30.64 +/- 5.97 BMI z score, mean +/- SD Baseline G1: 1.81 +/- 0.47 G2: 1.79 +/- 0.51	BMI, mean +/- SD, kg/m2 Posttreatment G1: 28.76 +/- 4.72 G2: 29.99 +/- 5.92 Follow-up G1: 29.76 +/- 5.34 G2: 31.17 +/- 6.33 P< .001, compared with WLC group BMI z score, mean +/- SD Postreatmetn G1: 1.56 +/- 0.59 G2: 1.68 +/- 0.54 Follow-up G1: 1.60 +/- 0.62 G2: 1.76 +/- 0.57 P< .001, compared with WLC group	NR	NR	NR

Evidence Table 8. Loss of control of eating: Kids – Part 8

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Tanofsky-Kraff, 2010[3]	BMI (all of the below reported at 1 year follow-up only for girls with baseline LOC eating) - Score (kg/m^2) - Z-score - Percentile - Percentage with growth ≤ expected, as measured using BMI (between baseline and 1 year follow-up)	Baseline data for all three BMI outcomes for girls with baseline LOC eating	Mean BMI (SD) (kg/m^2): G1: NR G2: NR p = NS Mean BMI z-score (SD): G1: NR G2: NR p = NS Mean BMI percentile (SD): G1: NR G2: NR p = NS BMI growth ≤ expected: G1: NR G2: NR p = NS	NR	NR	NR

Evidence Table 8. Loss of control of eating: Kids – Part 8

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Tanofsky-Kraff, 2014[4]	BMI gain BMI z-score BMI %ile % nonobese at BL and nonobese at 12m % obese at BL and nonobese at 12m % obese at BL and obese at 12m % nonobese at BL and obese at 12m Decrease in % of adiposity	BMI G1: 26.9 (SD 2.6) G2: 27.1 (SD 2.4) p=0.63	BMI gain G1: NR G2: NR Girls in both groups gained less-than-expected BMI throughout the study, F=10.70, p<0.001 G2 had 1.59x (95% CI 0.67, 3.79) greater odds of gaining more-than-expected BMI at 12m relative to G1, p=0.30 BMI z-score G1: NR G2: NR Group-by-interval effect p=0.49 BMI %ile G1: NR G2: NR % nonobese at BL and nonobese at 12m G1: 54.5% G2: 53.4% p=1.00 % obese at BL and nonobese at 12m G1: 9.1% G2: 8.6% p=1.00 % obese at BL and obese at 12m G1: 34.5% G2: 27.6% p=0.54	NA	NA	NA

Evidence Table 8. Loss of control of eating: Kids – Part 8

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Tanofsky-Kraff, 2014[4] (continued)			% nonobese at BL and obese at 12m G1: 1.8% G2: 10.3% p=0.11 12m Decrease in % of adiposity G1: NR G2: NR No significant group-by-interval effect, F=0.03, p=0.85			
Boutelle, 2011[1]	NR	NR	NR	NR	NR	NR
Jones, 2008[2]	NR	NR	NR	NR	NR	NR
Tanofsky-Kraff, 2010[3]	NR	NR	NR	NR	NR	NR
Tanofsky-Kraff, 2014[4]	NA	NA	NA	NA	NA	NA

Evidence Table E9. Loss of control of eating: Children – Part 9

First Author's Last Name Year	Definition of Quality of Life	Quality Of Life Baseline	Quality of Life Outcomes	Definition of Functional Capacity	Functional Capacity Baseline	Functional Capacity Outcomes
Boutelle, 2011[1]	NR	NR	NR	NR	NR	NR
Jones, 2008[2]	NR	NR	NR	NR	NR	NR
Tanofsky-Kraff, 2010[3]	NR	NR	NR	NR	NR	NR
Tanofsky-Kraff, 2014[4]	NA	NA	NA	NA	NA	NA

Evidence Table E10. Loss of control of eating: Children – Part 10

First Author's Last Name Year	Definition of Other	Other Baseline	Other Outcomes
Boutelle, 2011[1]	Treatment Acceptability -liked the program "a lot" or "loved it" (5-point likert scale from 1=didn't like, to 5=loved it) -"very true" that they felt more in control of their eating because of the program (scale NR) -thought other kids would like the program (scale NR)	N/A	Post-treatment: Liked the program "a lot" or "loved it" G1: 56% G2: 75% Post-treatment: "very true" that they felt more in control of their eating because of the program G1: 69% G2: 81% Post-treatment: thought other kids would like the program G1: 94% G2: 69%
Jones, 2008[2]	NR	NR	NR
Tanofsky-Kraff, 2010[3]	NR	NR	NR
Tanofsky-Kraff, 2014[4]	NA	NA	NA

Evidence Table E11. Loss of control of eating: Children – Part 11

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Boutelle, 2011[1]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Jones, 2008[2]	G1: 15 G2: 16 Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Tanofsky-Kraff, 2010[3]	6 months G1: 0 G2: 0 p = NA 12 months G1: 1 G2: 2 p = NR	None at 6 or 12 months	None at 6 or 12 months	NR	NR	NR
Tanofsky-Kraff, 2014[4]	G1: 7 G2: 11 Mean Between-group difference (95% CI): NR p = NR	G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table E12. Loss of control of eating: Children – Part 12

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
Boutelle, 2011[1]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Jones, 2008[2]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Tanofsky-Kraff, 2010[3]	NR	NR	NR	NR	NR	NR
Tanofsky-Kraff, 2014[4]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table E13. Loss of control of eating: Children – Part 13

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
Boutelle, 2011[1]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NR
Jones, 2008[2]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Tanofsky-Kraff, 2010[3]	NR	NR	NR	NR	NR	NR
Tanofsky-Kraff, 2014[4]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA

Evidence Table E14. Loss of control of eating: Children – Part 14

First Author's Last Name Year	Describe Subpopulation	Subpopulation Definition of Eating Related Measure(s)	Subpopulation Outcomes	Subpopulation Outcomes for Eating-Related Measures Continued	Subpopulation Definition of Psychological/ Psychiatric Measure(s)	Subpopulation Outcomes
Boutelle, 2011[1]	None	NA	NA	NA	NA	
Jones, 2008[2]	NA	NA	NA	NA	NA	
Tanofsky-Kraff, 2010[3]	NA	NA	NA	NA	NA	
Tanofsky-Kraff, 2014[4]	Racial-ethnic groups -Racial-ethnic minorities -non-Hispanic whites	LOC episodes Binge episodes	12m LOC episodes, geometric mean (SE) G1/[minority]: 0.74 (SE 0.46, 1.08) G1/[white]: 0.74 (SE 0.46, 1.08) G2/[minority]: 1.39 (SE 0.99, 1.87) G2/[white]: 0.90 (SE 0.61, 1.23) Mean Between-group difference (95% CI): p = NR Binge episodes, geometric mean (SE) G1/[minority]: NR G1/[white]: NR G2/[minority]: NR G2/[white]: NR Mean Between-group difference (95% CI): Race did not serve as a moderator of group effect, p = 0.46			

Evidence Table E15. Loss of control of eating: Children – Part 15

First Author's Last Name Year	Subpopulation Definition of Weight Related Measure(s)	Subpopulation Outcomes	Subpopulation Definition of Biomarker Outcomes Other Than Weight	Subpopulation Outcomes	Subpopulation Quality Of Life	Subpopulation Functional Capacity
Boutelle, 2011[1]	NA	NA	NA	NA	NA	NA
Jones, 2008[2]	NA	NA	NA	NA	NA	NA
Tanofsky-Kraff, 2010[3]	NA	NA	NA	NA	NA	NA
Tanofsky-Kraff, 2014[4]	NA	NA	NA	NA	NA	NA

Evidence Table E16. Loss of control of eating: Children – Part 16

First Author's Last Name Year	Subpopulation Overall Discontinuation From Study	Subpopulation Discontinuation Due to AEs	Subpopulation Discontinuation Due to Lack of Efficacy	Subpopulation Serious AEs (Define in Addition to Reporting Rates)	Subpopulation Any AE	Subpopulation Diarrhea
Boutelle, 2011[1]	NA	NA	NA	NA	NA	NA
Jones, 2008[2]	NA	NA	NA	NA	NA	NA
Tanofsky-Kraff, 2010[3]	NA	NA	NA	NA	NA	NA
Tanofsky-Kraff, 2014[4]	NA	NA	NA	NA	NA	NA

Evidence Table E17. Loss of control of eating: Children – Part 17

First Author's Last Name Year	Subpopulation Dizziness	Subpopulation Headache	Subpopulation Insomnia	Subpopulation Nausea	Subpopulation Sexual Dysfunction	Subpopulation Cognitive Functioning
Boutelle, 2011[1]	NA	NA	NA	NA	NA	NA
Jones, 2008[2]	NA	NA	NA	NA	NA	NA
Tanofsky-Kraff, 2010[3]	NA	NA	NA	NA	NA	NA
Tanofsky-Kraff, 2014[4]	NA	NA	NA	NA	NA	NA

Evidence Table E18. Loss of control of eating: Children – Part 18

First Author's Last Name Year	Subpopulation Somnolence	Subpopulation Vomiting	Subpopulation Drug Interactions	Subpopulation Other
Boutelle, 2011[1]	NA	NA	NA	NA
Jones, 2008[2]	NA	NA	NA	NA
Tanofsky-Kraff, 2010[3]	NA	NA	NA	NA
Tanofsky-Kraff, 2014[4]	NA	NA	NA	NA

Evidence Table E19. Binge eating disorder behavioral treatment – part 1

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Agras, 1995[5] NA Among overweight patients with BED who did not stop binge eating after 12 weeks of CBT, examine the effectiveness of group interpersonal therapy (IPT) NR Government	randomized controlled trial NR NR 12 weeks (Although the study included 24wk outcomes, they are not included in the review due to loss of original randomization after 12 weeks.)	Overall: 50 G1: 39 G2: 11	G1: CBT G2: Waiting list control	Randomized Overall: 50 G1: 39 G2: 11 Analyzed Overall: 42 G1: 31 G2: 11	NR	NR	NR	NIMH grant 38637 Note: Although the study included 24wk outcomes, they are not included in the review due to loss of original randomization after 12 weeks. Although this study is very similar to 601_Eldredge, it was determined by Kim Brownlee and Catherine Grodensky based on the interventions and samples that the two studies are separate.

Evidence Table E19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Allen, 1999[6] NA To evaluate whether Appetite Awareness Training would be more effective in reducing binge eating than no treatment and, specifically, to determine whether training to respond to appetite cues would decrease the specific behaviors (getting very hungry and eating past moderate satiety) targeted by the intervention US NR	randomized controlled trial NR 3 consecutive semesters 8 weeks	29	G1: Appetite awareness training G2: Waitlist control	Randomized G1: 15 G2: 14 Analyzed G1: 11 G2: 9	2	Chapel Hill NC, Boulder CO	Outpatient	NA

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Carrard, 2011[7] NA Evaluate the efficacy of an Internet guided self-help treatment programme, based on CBT, for adults with threshold and subthreshold BED Switzerland Foundation/non-profit	randomized controlled trial none Enrollment began in 2008 but end date NR 12 months	74	G1: Internet group G2: Control group	Randomized: G1: 37 G2: 37 Analyzed: G1: 37 G2: 37	Participants were recruited from the community and completed study requirements at "the University Hospitals of Geneva"; unclear whether this refers to one or multiple sites	Geneva	Intervention was delivered via internet. Study visits were completed at hospital but unclear what specialty clinic.	Hans Wilsdorf Foundation, Marie Curie Research Training Network INTACT (Individually tailored stepped care for women with eating disorders; MRTN-CT-2006-035988)

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Carter, 1998[8] NA To evaluate the effectiveness of 2 methods of administering a cognitive-behavioral self-help program for BED England Foundation/non-profit	randomized controlled trial assessor NR 9 months (12-week intervention period followed by 6 months of follow-up)	72	G1: Pure self-help G2: Guided self-help G3: Waiting list	Randomized: G1: NR (pg 616: "24 participants per condition were required to detect a 50% reduction in the frequency of binge eating..." G2: NR G3: NR Analyzed: G1: 35 (includes those randomized to G1 at baseline and those from G3 who were randomized to G1 after waiting period) G2: 34 (includes those randomized to G2 at baseline and those from G3 who were randomized to G2 after waiting period) G3: 24	The study was advertised to women as an "Oxford University Study", but location and number of sites is not specified	The study was advertised to women as an "Oxford University Study", but location and number of sites is not specified	Outpatient	Wellcome Trust (Wellcome Prize Studentship, Wellcome Principal Fellowship)

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Cassin, 2008[9] NA Determine if a single session of adapted motivational interviewing (AMI) plus a self-help handbook will reduce binge-eating symptoms to a greater extent than would the handbook alone Canada Academic	randomized controlled trial Assessor Oct 2004 - July 2005 16 weeks	108	G1: AMI + Self-Help Handbook G2: Self-Help Handbook	Randomized G1: 54 G2: 54 4-week fu G1: 53 G2: 50 8-wk fu G1: 52 G2: 49 16-wk fu G1: 48 G2: 46	1	Calgary, AB	Outpatient	(1) Social Sciences and Humanities Research Council, (2) APA Society for a Science of Clinical Psychology, (3) University of Calgary

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Castelnuovo, 2011[10] Castelnuovo, 2011[11] STRATOB (Systematic and STRATegic psychotherapy for Obesity) To compare brief strategic therapy (BST) with the gold standard CBT for the inpatient and telephone-based outpatient treatment of obese people with BED seeking treatment for weight reduction Italy Foundation/non-profit	randomized controlled trial NR NR 7 months (1 month inpatient treatment and 6 months of outpatient treatment)	60	G1: CBT G2: brief strategic therapy (BST)	Randomized: G1: 30 G2: 30 Analyzed: G1: 30 G2: 30	1	Verbania	outpatient and inpatient, hospital	Compagnia di San Paolo private foundation

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Cesa, 2013[12] NA To test the brief and long-term clinical efficacy of an enhanced CBT including a virtual reality protocol aimed at unlocking the negative memory of the body (ECT) in morbidly obese patients with BED, compared with standard CBT and inpatient multimodal treatment (IP, control) Italy Government	randomized controlled trial patient NR 6 weeks of inpatient treatment (during which either CBT or VR-enhanced CBT was administered over 5 weeks) + 12 months follow-up	90	G1: Virtual reality enhanced CBT (ECT) G2: CBT G3: Integrated Multimodal Medically Managed Inpatient Program (IP, control)	Randomized: 90 G1: 31 G2: 30 G3: 29 Analyzed (received allocated treatment): 66 G1: 27 G2: 20 G3: 19 Analyzed at 12m: G1: 18 G2: 14 G3: 12	1	Verbania	inpatient eating disorder unit	Commission of the European Communities (CEC) through its IST program (Project VEPSY Updated and Project INTREPID) and by the Italian MIUR FIRB program

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Compare, 2013[13] NA To evaluate the effect of emotion-focused therapy (EFT), dietary counseling (DC), and combined treatment (CT) to reduce the consumption of energy-dense food in treatment-seeking patients with BED and obesity Italy NR	non-randomized trial NR NR 5 months treatment period + 6 months follow-up after end of treatment	126	G1: dietary counseling (DC) G2: emotion-focused therapy (EFT) G3: combined treatment (CT)	Randomized: G1: 63 G2: 63 ("half of the participants in the EFT program"--assume this is half of 126 but doesn't report explicitly) G3: 63 ("half of the participants in the EFT program"--assume this is half of 126 but doesn't report explicitly) Analyzed: ITT G1: 63 G2: 63 G3: 63	1	NR	"outpatient department"	Note on group assignment: "Participants were assigned to treatment (without any restriction) by a clinical psychologist; assignment was based on the results of psychometric tests, on clinical interview and partly on the patients' preferences."

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
De Zwaan, 2005[14] NA To compare the short- and long-term ability of a very-low calorie diet (VLCD) alone and in combination with CBT targeting binge eating behavior to improve attrition and attendance rates, weight loss, change in binge eating frequency, and eating-related and general psychopathology US NR	randomized controlled trial NR NR 12 months	71	G1: Very-low calorie diet (VLCD) plus CBT G2: VLCD	Randomized:71 G1: 36 G2: 35 Analyzed at 12 weeks (ITT) : 71 G1: 36 G2: 35 Analyzed at 18 weeks (ITT) : 71 G1: 36 G2: 35 Analyzed at 24 weeks (ITT) : 71 G1: 36 G2: 35 Analyzed at 28 weeks (1m follow-up) (completers): G1: 20-30 G2: 25 Analyzed at 48 weeks (6m follow-up) (completers): G1: 28 G2: 32 Analyzed at 72 weeks (12m follow-up) (completers): G1: 31 G2: 31	1	Minnesota	Outpatient	NA

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Dingemans, 2007[15] NA To explore the effectiveness and identify possible predictors and mediators of CBT for patients with BED Netherlands NR	randomized controlled trial assessor NR 20 weeks of treatment + 1 year follow-up after treatment	52	G1: CBT G2: Waitlist control group	Randomized G1: 30 G2: 22 Analyzed at end of treatment G1: 28 G2: 22	3 participating clinics recruited patients; treatment sites NR	Rotterdam, Oegstgeest	outpatient	NA

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Eldredge, 1997[16] NA Among overweight patients with BED who did not stop binge eating after 12 weeks of CBT, determine whether extending group CBT would enhance outcome NR Government	randomized controlled trial NR NR 12 weeks (Although the study included 24wk outcomes, they are not included in the review due to loss of original randomization after 12 weeks.)	Overall: 46 G1: 36 G2: 10	G1: CBT G2: Waiting list control	Randomized Overall: 46 G1: 36 G2: 10 Analyzed Overall: NR G1: NR G2: NR	NR	NR	NR	NIMH grant 38637 Note: Although the study included 24wk outcomes, they are not included in the review due to loss of original randomization after 12 weeks. Although this study is very similar to 320_Agras, it was determined by Kim Brownley and Catherine Grodensky based on the interventions and samples that the two studies are separate.

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Gorin, 2003[17] Effectiveness of Spouse Involvement in Cognitive Behavior Therapy for Binge Eating Disorder To evaluate effects of spouse involvement (SI) in group CBT for BED and replicate previous literature on effectiveness of CBT for BED. USA Academic	randomized controlled trial NR NM 12 wks + 6m follow up	n=896 responded to advertisement; n=399 completed brief telephone screen; n=109 invited for baseline assessment;n=94 randomized	G1: Standard CBT G2: CBT-Spousal Involvement G3: Wait-list control group	Randomized: G1: 32 G2: 31 G3: 31 Analyzed: NM	1	Providence, RI	Outpatient primary care (eg general practice)	

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Grilo, 2013[18] NA To evaluate the effectiveness of self-help CBT as a potential first-step, primary care intervention among a diverse sample of patients with BED US Government	randomized controlled trial assessor NR 16 weeks	48	G1: Self-help CBT G2: Usual care	Randomized: 48 G1: 24 G2: 24 Analyzed at 4 weeks (ITT): 48 G1: 24 G2: 24 Analyzed at 8 weeks (ITT): 48 G1: 24 G2: 24 Analyzed at 12 weeks (ITT): 48 G1: 24 G2: 24 Analyzed at 16 weeks (ITT): 48 G1: 24 G2: 24	NR	NR	Outpatient	NA

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Grilo, 2014[19] NA To determine whether treatments with demonstrated efficacy for BED in specialist treatment centers can be delivered effectively in primary care settings to racially / ethnically diverse obese patients with BED US Government	randomized controlled trial assessor NR 4 months treatment + 12-month follow up after end of treatment	52 (only 2 groups from the trial are abstracted here; full study sample was 104)	G1: Self-help cognitive behavioral therapy (shCBT) G2: Placebo (study included 2 other arms that are not abstracted here)	G1: 25 G2: 27	NR	NR	Primary care settings in a large university-based medical health care center in an urban setting	R01 DK073542, K24 DK070052, K23 DK092279

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Grilo, 2011[20] Grilo, 2011[21] NA 53_Grilo: To test the relative efficacy of CBT and BWL for BED and the durability of the outcomes over a 12-month follow-up period 49_Grilo: To examine rapid response in obese patients with BED in a clinical trial testing CBT and BWL NR Government	randomized controlled trial NR NR 12 months	53_Grilo: 125 49_Grilo: 90	G1: CBT G2: BWL G3: CBT+ BWL Trial included all 3 groups; only 2 groups analyzed in 49_Grilo	53_Grilo: Randomized: G1: 45 G2: 45 G3: 35 Analyzed 6m: G1: 37 G2: 39 G3: 30 Analyzed 12m: G1: 37 G2: 37 G3: 25 49_Grilo: Randomized: G1: 45 G2: 45 Analyzed 6m: G1: 45 G2: 45 Analyzed 12m: G1: 45 G2: 45	NR	NR	outpatient	NIH grant R01 DK49587, K24 DK070052

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Grilo, 2005[22] Masheb, 2007[23] NA Grilo and Masheb, 2005,[22]: Test the relative efficacy of guided self-help CBT and behavioral weight loss treatments for BED Masheb and Grilo, 2007[23]: To examine the occurrence and characteristics of rapid responders in the Grilo and Masheb, 2005,[22] trial and to determine whether rapid response in prospectively predicting treatment outcome and, if so, whether it has different prognostic significance by treatment arm US Foundation/non-profit	randomized controlled trial assessor NR 12 weeks	90	G1: CBT via guided self-help G2: Behavioral weight loss intervention via guided self-help G3: Control condition with no guided self-help	Randomized: 90 G1: 37 G2: 38 G3: 15 Grilo and Masheb, 2005,[22]: Analyzed: 90 G1: 37 G2: 38 G3: 15 Masheb and Grilo, 2007[23]: Analyzed: 75 G1: 37 G2: 38 G3: 0 (not included in study)	NR	NR but researchers are located in New Haven, CT	Medical school	Donaghue Medical Research Foundation

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Hilbert, 2004[24] NA Compare CBT along with exposure (CBT-E) and CBT along with cognitive interventions for tx of body image disturbance (CBT-C). Germany Government	randomized controlled trial assessor NR 5 months (19 weekly sessions)	N = 28	G1: CBT-E G2: CBT-C	Randomized:28 G1: 14 G2: 14 Analyzed:24 G1:12 G2:12	1	Marburg, Germany	Outpatient primary care (eg general practice)	Site - University, outpatient psychotherapeutic unit Randomization occurred after 3, 1 hour preperation therapy sessions. Funding agency - Deutsche Forschungsgemeinschaft (DFG)
Le Grange, 2002[25] NA To compare short-term ability of standardized group CBT to group CBT with EMA in reducing frequency of binge eating episodes US Foundation/non-profit	randomized controlled trial NR NR 12 months	41	G1: Group CBT with EMA (Ecological Momentary Assessment) G2: Group CBT	NOTE: No completers analyses conducted Randomized: 41 G1: 19 G2: 22 Analyzed at 12 weeks (ITT): 41 G1: 19 G2: 22 Analyzed at 12 months (ITT): 41 G1: 19 G2: 22	1	Suffolk County, NY	Outpatient	NA

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Masheb, 2011[26] NA To examine a dietary approach (lowering energy density) for producing weight loss in obese patients with BED who also received CBT to address binge eating. NR Government	randomized controlled trial assessor NR 12 months	50	G1: CBT + low-energy - density diet G2: CBT + general nutrition counseling not related to weight loss	Randomized: G1: 25 G2: 25 Completers analysis: G1: 20 G2: 23	NR	NR	outpatient	R01 MH082629
Masson, 2013[27] This study examined the efficacy of guided self-help based on dialectical behaviour therapy (DBTgsh) for binge eating disorder (BED) Canada Other	randomized controlled trial NR February 2011 through March 2012 13 week intervention (G1 and G2) plus 6 month follow-up (G1 only)	60	G1: Dialectic behavior therapy guided self help (DBTgsh) G2: wait-list	Randomized: G1: 30 G2: 30	NR	Calgary	outpatient	Social Sciences and Humanities Research Council (Canadian government) and the University of Calgary Graduate Research Scholarships

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Munsch, 2007[28] Munsch, 2012[29] NA Munsch, Biedert, Meyer, et al., 2007[28]: To determine the efficacy of CBT and behavioral weight loss treatment (BWLT) for overweight patients with BED Munsch, Meyer, Biedert, et al., 2012[29]: To assess the long-term efficacy of CBT and BWLT in patients with BED and to identify predictors of long-term treatment success Switzerland NR	randomized controlled trial none NR 16 weeks plus 12 months (Munsch, Biedert, Meyer, et al., 2007[28]); 6-year follow-up (Munsch, Meyer, Biedert, et al., 2012[29])	80	G1: CBT G2: BWLT	Randomized G1: 44 G2: 36 Munsch, Biedert, Meyer, et al., 2007[28]: (analyzed sample varies for each outcome; N is indicated in each outcome in tx effectiveness tab) 3m follow-up G1: 30 G2: 27 6m follow-up G1: 30 G2: 24 12m follow-up G1: 28 G2: 23 Munsch, Meyer, Biedert, et al., 2012[29]: 6y follow-up: (analyzed sample varies for each outcome; N is indicated in each outcome in tx effectiveness tab) G1: 26 G2: 26	1	Basel	outpatient, University Department of Clinical Psychology and Psychotherapy	NA

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Pendleton, 2001[30] To evaluate the effects of adding exercise and maintenance to CBT for BED in obese women NR Other	randomized controlled trial NR 9 months 16 months	114	G1: CBT with exercise and maintenance G2: CBT with exercise G3: CBT with maintenance G4: CBT only	Randomized: G1: 29 G2: 28 G3: 28 G4: 29 Analyzed: G1: 24 G2: 20 G3: 23 G4: 17	NR	NR	Outpatient	Government and professional organization: NIDDK grant DK48463, American Heart Association Minority Scientist Developmental Award, American Heart Association Puerto Rico Affiliate

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Peterson, 1998[31] Peterson, 2001[32] NA Peterson, 1998 - Compare three group CBT tx modules and a WL control. Peterson, 2001 - Evaluate the long-term outcome of the 3 group CBT delivery modesl for the tx of BED. USA Other	randomized controlled trial NR NR Peterson, 1998 8 weeks Peterson, 2001 12mo	Peterson, 1998 N= 61 Peterson, 2001 N=51	G1: therapist led G2: partially therapist led G3: structured self-help G4: WL Peterson, 2001: G1-G3 only	Peterson, 1998 Enrolled: 61 G1: 16 G2: 19 G3: 15 G4: 11 Randomized: 42 G1: 14 G2: 17 G3: 11 G4: 9 Peterson, 2001 Randomized: 51 G1: 16 G2: 19 G3: 16 Analyzed:44 G1:12 G2:13 G3: 12	1	Minneapolis, MN	Outpatient primary care (eg general practice)	Funding: Foundation & Government Funding - Center Grant for Eating Disorder Research from the McKnight Foundtion; the Minnesota Obesity Center; NIH P30 DK50546; the Neuropsychiatric Research Institute

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Peterson, 2009[33] NA To compare structured self-help, partially therapist-led, and therapist-led group CBT for overweight patients with BED and associated symptoms US Other	randomized controlled trial assessor NR 72 weeks (20 weeks treatment + 12m or 52 weeks follow-up)	259	G1: Structured self-help G2: Partially therapist led G3: Therapist-led G4: Waitlist	Randomized: 259 G1: 67 G2: 63 G3: 60 G4: 69 Analyzed at post-treatment (20 weeks post-baseline) (completers): 192 G1: 40 G2: 43 G3: 53 G4: 56 Analyzed at post-treatment (20 weeks post-baseline) (ITT): 259 G1: 67 G2: 63 G3: 60 G4: 69	2	Minnesota and North Dakota (cities NR)	Clinical sites, but otherwise NR	Funding: Government, Foundation/non-profit

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Peterson, 2009[33] (continued)				Analyzed at 6m follow-up (44 weeks post-baseline) (completers): 117 G1: 39 G2: 38 G3: 40 G4: NA Analyzed at 6m follow-up (48 weeks post-baseline) (ITT): 259 G1: 67 G2: 63 G3: 60 G4: 69 Analyzed at 12m follow-up (72 weeks post-baseline) (completers): 114 G1: 36 G2: 38 G3: 40 G4: NA				

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Peterson, 2009[33] (continued)				Analyzed at 12m follow-up (72 weeks post-baseline) (ITT): 259 G1: 67 G2: 63 G3: 60 G4: 69				
Ricca, 2010[34] NA To evaluate the effectiveness of individual and group CBT and the possible predictors of BED outcome Italy NR	randomized controlled trial assessor January 2000 to June 2003 24 weeks of treatment + 3 years follow-up after treatment	144	G1: Individual CBT G2: Group CBT	Randomized: G1: 72 G2: 72 Analyzed: ITT analysis G1: 72 G2: 72	1	Florence	outpatient ED clinic	NA

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Riva, 2002[35] NA To evaluate the efficacy of a virtual-reality-based multidimensional approach in the treatment of body image attitudes and related constructs Italy NR	randomized controlled trial NR NR Approximately 6.5 weeks. Mean length for group 1 was 6.6±0.4 weeks; mean length for group 2 was 6.4±0.5 weeks.	20	G1: Virtual reality-based multidimensional intervention G2: Traditional cognitive-behavioral psycho-nutritional program	G1: NR G2: NR	1	Verbania	Inpatient	Setting was a residential weight control treatment program at a scientific institute. The methods do not specify the program was inpatient, but the abstract specifies "residential."
Riva, 2003[36] NA To describe the 6-month follow-up outcome of experiential cognitive therapy (ECT) for BED, compared with CBT and nutritional groups Italy Government	randomized controlled trial NR NR 6 week treatment + 6 months follow-up after end of treatment	36	G1: ECT (experiential cognitive therapy) G2: CBT (cognitive behavioral therapy) G3: NG (nutritional group) G4: WL (waiting list)	G1: NR G2: NR G3: NR G4: NR	1	Verbania	outpatient and inpatient, hospital	Commission of the European Communities (CEC), specifically by the IST program through the VEPSY Updated (IST-2000-25323) research project

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39] NA Safer, Robinson, and Jo, 2010[37]: RCT comparing DBT for BED to an active comparison group therapy. Safer and Joyce, 2011[38]: Examine the prognostic significance of rapid response at end-of-treatment and 1 year follow-up within DBT-BED and the active comparison group therapy Robinson and Safer, 2012[39]: To investigate moderators in the RCT on the post-treatment outcome of binge frequency after 20 two-hour weekly sessions USA Government	randomized controlled trial NR NR 21 weeks of tx, 12 month follow-up	N= 101	G1: DBT-BED G2: Active Comparison Group Therapy (ACGT)	Randomized: 101 G1: 50 G2: 51 Analyzed: 101 G1: 50 G2: 51	1	Stanford, CA	Outpatient primary care (eg general practice)	Funding: NIMH, K23MH066330

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Schlup, 2009[40] The efficacy of a short version of cognitive-behavioral treatment follow by booster sessions for binge eating disorder To evaluate the efficacy of a short version of a group CBT for BD followed by booster sessions after the active tx phase Switzerland Other	randomized controlled trial none December 2004 - June 2007 12m & 8 weeks	- n=132 screenee d via phone - n=60 attended diagnosi stic assessm ent - n=36 randomiz ed -n=35 end of weekly tx - n=32 3m follow up - n=31 12 m follow up	G1: CBT G2: Waitlis t (8 wks), then CBT	Randomized: G1: 18 G2: 18 Analyzed (End of TX): G1: 17 G2: 18	1	Basel	Outpatient primary care (eg general practice)	Funded by Basel Scientific Society

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Schlup, 2010[41] NA To compare treatment outcomes of a CBT long-term and CBT short-term treatment for BED and to identify moderators of treatment outcome Switzerland NR	non-randomized trial NR G1: 2001-2003 G2: December 2004 - June 2007 12 months	76	G1: CBT long-term (CBT-L) G2: CBT short-term (CBT-S)	Randomized: 76 G1: 40 G2: 36 Analyzed: end of treatment G1: 40 G2: 36 Analyzed: 12 month follow-up G1: 40 G2: 36	Samples were drawn from 2 studies that were conducted at the University of Basel, but number of sites NR	Samples were drawn from 2 studies that were conducted at the University of Basel, but location of sites NR	NR	Additional details about study sites may be available in the articles reporting the two original trials: Munsch S, Biedert E, Meyer AH, Michael T, Schlup B, Tuch A, Margraf J. A randomized comparison of cognitive behavioral therapy and behavioral weight loss treatment for overweigh individuals with binge eating disorder. Int J Eat Disord 2007; 40: 102-113 Schlup B, Meyer AH, Margraf J, Wilhelm F. The efficacy of a short version of a cognitive-behavioral treatment followed by booster sessions for binge eating disorder. Behav Res Ther 2009; 47: 628-635

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Tasca, 2006[42] Tasca, 2012[43] NA Tasca, Balfour, Presniak, et al., 2012[43]: To assess whether Group psychodynamic interpersonal psychotherapy had a greater impact compared to group CBT on cold/distant and intrusive/needy interpersonal problems Tasca, Ritchie, Conrad, et al., 2006[42]: To compare GPIP against GCBT in treating BED, and to examine levels of attachment insecurity, measured at pretreatment among women with BED, were related to outcome depending on type of treatment.	randomized controlled trial Assessor NR Tasca, Balfour, Presniak, et al., 2012[43]: Approximately 10 months (16 weeks of intervention + 6 months post-intervention follow-up) Tasca, Ritchie, Conrad, et al., 2006[42]: Approximately 16 months (intervention + 12m follow-up)	Tasca, Balfour, Presniak, et al., 2012[43]: 95 Tasca, Ritchie, Conrad, et al., 2006[42]: 135	G1: Group psychodynamic interpersonal psychotherapy G2: Group cognitive behavioral therapy G3 (presented in Tasca, Ritchie, Conrad, et al., 2006[42] but not Tasca, Balfour, Presniak, et al., 2012[43]): Control	Randomized: G1: 48 G2: 47 G3: 40 Tasca, Ritchie, Conrad, et al., 2006[42] analyzed post-treatment G1: 37 G2: 37 G3: 33 Tasca, Ritchie, Conrad, et al., 2006[42] analyzed 6m G1: 35 G2: 32 G3: 0 Tasca, Ritchie, Conrad, et al., 2006[42] analyzed 12m G1: 35 G2: 32 G3: 0 Tasca, Balfour, Presniak, et al., 2012[43] Analyzed post-treatment: G1: 40 G2: 39	1	NR but researchers are located in Ottowa, Ontario	outpatient: eating disorders center in an urban teaching hospital	Ontario Mental Health Foundation G3 data were only presented in Tasca, Ritchie, Conrad, et al., 2006[42]

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Tasca, 2006[42] Tasca, 2012[43] (continued) Canada Foundation/non-profit				Tasca, Balfour, Presniak, et al., 2012[43] analyzed 6m: G1: 34 G2: 32				
Telch, 2001[44] Dialectical Behavior Therapy for Binge Eating Disorder Assess the efficacy of dialectical behavior therapy (DBT) tx compared to a waitlist control in women with BED USA Government	randomized controlled trial NR NR NR	- n= 465 screened by telephone - n= 88 scheduled for clinical screening; n= 77 attended -n= 44 enrolled and randomized - G1: 18 completed through 6-mth FU; G2: 14 accepted waitlist tx, and 10 completed.	G1: DBT G2: Waitlist	Randomized: G1: 22 G2: 22 Analyzed 6m FU: G1: 18 G2:	1	Palo Alto, CA	Outpatient primary care (eg general practice)	NIH Funding

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Wilfley, 2002[45] Hilbert, 2012[46] NA Wilfley, Welch, Stein, et al., 2002[45]: To compare the effects of group CBT and group interpersonal psychotherapy (IPT) across BED-related symptoms among overweight individuals with BED Hilbert, Bishop, Stein, et al., 2012[46] To examine the long-term efficacy of outpatient group CBT and group interpersonal psychotherapy (IPT) for BED and to analyze predictors of long-term response US Government	randomized controlled trial none NR Wilfley, Welch, Stein, et al., 2002[45]: 17 months (20-week intervention period, 12-month follow-up period) Hilbert, Bishop, Stein, et al., 2012[46] Mean 46.0 months after trial cessation (trial was 20 weeks)	Wilfley, Welch, Stein, et al., 2002[45]: 162 Hilbert, Bishop, Stein, et al., 2012[46] 90	G1: CBT G2: IPT	Wilfley Randomized: G1: 81 G2: 81 Analyzed: Posttreatment G1: 78 G2: 80 4-month G1: 75 G2: 76 8-month G1: 71 G2: 75 12-month G1: 67 G2: 71 Hilbert Randomized: 90 G1: 45 G2: 45 Analyzedin ITT analysis: G1: 45 G2: 45 Analyzed in completers analysis: G1: 25 G2: 33	Wilfley, Welch, Stein, et al., 2002[45]: 2 Hilbert, Bishop, Stein, et al., 2012[46] 1	Wilfley, Welch, Stein, et al., 2002[45]: New Haven, CT San Diego, CA Hilbert, Bishop, Stein, et al., 2012[46] New Haven, CT	outpatient, ED clinic	NIH grants R29MH51384, R29MH138403

Evidence Table 19. Binge eating disorder behavioral treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Wilson, 2010[47] Sysko, 2010[48] NA Wilson, Wilfley, Agras, et al., 2010[47]: To test whether BED patients require specialty therapy beyond behavioral weight loss (BWL) treatment and whether interpersonal therapy is more effective than either BWL or CBTgsh in patients with a high negative affect after 2y follow-up. Sysko, Hildebrandt, Wilson, et al., 2010[48]: To explore heterogeneity and differential treatment outcome among the sample. US Government	randomized controlled trial assessor nr 24 months	205	G1: Behavioral weight loss G2: CBT guided self help G3: Interpersonal therapy	Randomized: G1: 64 G2: 66 G3: 75 Analyzed: G1: 64 G2: 66 G3: 75	2	New Brunswick, NJ St. Louis, MO	University outpatient clinics	NIH grants R010638363, R01064153, K24070446, R01063862 Follow-up period is 2y so may be suitable as course of illness study

Evidence Table E20. Binge eating disorder behavioral treatment - Part 2

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Agras, 1995[5]	"Meeting the proposed criteria for BED", citing Walsh BT. (1992). Diagnostic criteria for eating disorders in DMS-IV: Work in progress. International Journal of Eating Disorders, 12, 301-303. Current involvement in weight loss program Taking antidepressant medication or any medication that might influence weight Abuse of drugs or alcohol Current major psychiatric condition such as a psychosis History of purging within the previous 6 months BMI<27	Adults with BED and BMI ≥27 Overall mean: 47.6 (SD 10.1), range 24-65 G1: NR G2: NR	Overall: 86% G1: NR G2: NR Overall: NR G1: NR G2: NR Overall Mean weight: 107.3kg (SD 25.4) G1: NR G2: NR Overall Mean BMI: 37.1 (SD 7.3) G1: NR G2: NR	NA	Overall: NR G1: NR G2: NR	Overall Onset of overweight: mean age 18.9 years (SD 12.8) G1: NR G2: NR Overall Onset of binge eating: mean age 21.1 years (SD 12.0) G1: NR G2: NR Overall binge eating scale: NR G1: 33.3 (SD 5.9) G2: 27.2 (SD 6.3) Groups were significantly different in BES score at baseline; article reports p>0.01 but may mean p<0.01 None	NA

Evidence Table E20. Binge eating disorder behavioral treatment - Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Allen, 1999[6]	DSM-IV Past or current anorexia Significantly underweight (below 90% of ideal body weight) Purging Currently in treatment for their eating difficulties Current bulimia nervosa Over 160% of ideal body weight	Female college students ages 18-28 with BED Overall: 21 (SD 1.2), range 18-28 G1: NR G2: NR	100% NR Percent ideal body weight G1: 122.82 (SD 22.86) G2: 116.50 (SD 21.98)	Female college students	NR	NR None	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Carrard, 2011[7]	Meeting full or subthreshold diagnostic criteria for BED according to DSM-IV. The criterion for subthreshold inclusion was ≥1 objective binge episode a week for the last 3 months Recent suicide attempt, past obesity surgery. Participants on antidepressant medication (n=14) were required to have been stable on medication for ≥3 months	Adult women aged 21-60 with full or subthreshold BED Overall: 36 (range 21-60) G1: 34.4 (SD 11.0) G2: 37.8 (SD 11.8) p = value NR, but no significant differences were found between groups	Overall: 100 G1: 100 G2: 100 p = NA Overall: NR G1: NR G2: NR p = NR Measure/scale: BMI Overall: 28.8 (SD 5.7, range 19.5-42.5) G1: 29.8 (SD 5.9) G2: 27.7 (5.5) p = value NR, but no significant differences were found between groups	Women 18-60 years old fluent in French average Internet skills (not described how this was assessed)	Measure/scale: Beck Depression Inventory-II Overall: G1: 15.3 (SD 9.7) G2: 16.8 (10.2) p = value NR, but no significant differences were found between groups	Full BED G1: 20 (54.1) G2: 23 (62.2) p = NR Subthreshold BED G1: 17 (45.9) G2: 14 (37.8) p = NR Educational level: Compulsory school G1: 2 (5.4) G2: 1 (2.7) p = NR Educational level: Professional school G1: 17 (45.9) G2: 18 (48.6) p = NR Educational level: University G1: 18 (48.6) G2: 18 (48.6) p = NR Marital status: Single G1: 14 (37.8) G2: 14 (37.8) p = NR	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Carrard, 2011[7] (continued)						Marital status: Married--living together G1: 20 (54.0) G2: 20 (54.0) p = NR Marital status: DIvorced/separated G1: 2 (5.4) G2: 3 (8.1) p = NR Marital status: Widowed G1: 1 (2.7) G2: 0 (0) p = NR Professional status: Employed (full or part-time) G1: 25 (67.5) G2: 31 (83.8) p = NR Professional status: Student G1: 3 (8.1) G2: 2 (5.4) p = NR Professional status: Unemployed G1: 3 (8.1) G2: 0 (0) p = NR	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Carrard, 2011[7] (continued)						Professional status: At home G1: 2 (5.4) G2: 2 (5.4) p = NR Professional status: Other G1: 4 (10.8) G2: 2 (5.4) p = NR ED Treatment history: Past G1: 7 (18.9) G2: 3 (8.1) p = NR ED Treatment history: None G1: 30 (81.1) G2: 34 (91.9) p = NR Other psychological condition: Yes G1: 22 (59.5) G2: 19 (51.4) p = NR None	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Carter, 1998[8]	Participants were required to meet an operational definition of binge eating disorder using ratings on the Eating Disorder Examination (EDE). This definition was based on DSM-IV, operatlonalized in the following way: participants had to report at least weekly objective bulimic episodes (as defined by the EDE) over the previous 3 months, but over this period they must not have vomited, fasted, or taken laxatives or diuretics as a means of controlling their shape or weight, nor must they have met DSM-IV diagnostic criteria for bulimia nervosa or anorexia nervosa. Age below 18 or above 65 years Pregnancy Medical disorder or treatment known to influence eating habits or weight Current psychiatric treatment Previous treatment for a binge eating problem (but those who had received help from commercial weight loss agencies were eligible to take part)	Women 18-65 with BED Overall: 39.7 (SD=10.0) (range 21-59)	100% Overall: 3% (N=72) BMI Overall: 31.6 (SD 6.6, range 18.9-46.2) Weight Overall: 85.8 kg (SD 19.7, range 52-138) Obesity (BMI>30) Overall: 43 (60%)	None	NR	Average binges over the past 4 weeks Overall: 18.0 (SD 12.1, range 4-56) Average age of onset of binge eating Overall: 23.6 years (SD 11.1, range 5-57 years) History of extreme vomiting as compensatory behavior Overall: 8 (11%) History of laxative misuse as compensatory behavior Overall: 14 (19%) Married or cohabiting Overall: 63% Divorced Overall: 12% Widowed Overall: 3% Single Overall: 22% Employed Overall: 67% none	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Cassin, 2008[9]	Tool: SCID-I (during phone interview) Criteria: DSM-IV-TR Engaging in compensatory behaviors characteristic of bulumia nervosa more than once a month	Women with a current diagnosis of BED 42.5 (SD=12.7)	G1 = 100% G2 = 100% p= N/A 11.1%; Group difference NR BMI = 33.2 kg/m^2 (SD = 7.8)	Female	BDI-II G1 = 25.2 (13.9) G2 = 20.6 (9.8) p = NR, state NS	Rosenberg Self-Esteem Scale (RSE) G1 = 26.3 (6.1) G2 = 24.1 (4.6) (p = 0.04) Extended Satisfaction with Life Scale (ESWLS) 1. General life - G1: 16.5 (7.8) G2: 17.1 (8.0) 2. Social life - G1: 14.1 (8.0) G2: 15.8 (8.5) 3. Sex life - G1: 12.0 (8.0) G2: 13.5 (8.7) 4. Self - G1: 14.1 (6.5) G2: 16.0 (6.9) 5. Physical appearance - G1: 7.1 (3.9) G2: 8.7 (4.9) 6. Family - G1: 19.5 (8.8) G2: 18.4 (10.1) 7. Relationships - G1: 17.5 (10.1) G2: 19.2 (9.3)	BMI was calculated based on self reported height and weight

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Cassin, 2008[9] (continued)						No p's reported, state differences are NS for all subscales none	
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	DSM-IV-TR criteria for BED Other severe psychiatric disturbance diagnosed by DSM-IV-TR crtieria Concurrent medical condition not related to obesity	Obese women inpatients with BED Overall: 46.05 (SD 10.54) G1: 46.2 (SD 10.5) G2: 45.9 (SD 10.76) p=NR, NS	Overall: 100% G1: 100% G2: 100% p=NR, NS Overall: NR G1: NR G2: NR Overall: 106.95kg (SD 6.95) G1: 107.37kg (SD 6.83) G2: 106.53kg (SD 7.14) p=NR, NS	Inpatient at study site hospital Female 18-65 years old BMI of at least 30	Overall: NR G1: NR G2: NR	n/a None	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Cesa, 2013[12]	DSM-IV-TR criteria for BED for at least 6 months prior to the beginning of the study Concurrent severe psychiatric disturbance (psychosis, depression with suicidal risk, alcohol or drug abuse) Concurrent involvement in other treatment for BED, including pharmacotherapy Concurrent medical condition not related to the disorder	Obese women age 18-50 years with BED Overall: 31.79 ±7.9 G1: 32.9 ±8.8 G2: 29.9 ±7.95 G3: 32.2 ±6.36 p=0.324	Overall: 100% G1: 100% G2: 100% G3: 100% Overall: NR G1: NR G2: NR G3: NR Weight (kg) Overall: 106.6 ±17.7 G1: 103 ±18.2 G2: 106.6 ±8.9 G3: 111.6 ±22.9 p=0.223 BMI Overall: 40.5 ±5.2 G1: 39.2 ±5.3 G2: 41.1 ±3.3 G3: 41.8 ±6.3 p=0.189	Women Aged 18-50 years Seeking treatment at the study site Article describes the sample as "obese" multiple times although does not explicitly list obesity/BMI as inclusion criteria	Overall: NR G1: NR G2: NR G3: NR	Education: University Overall: NR G1: 4 (14.8%) G2: 1 (5%) G3: 2 (10.5%) Education: High school Overall: NR G1: 14 (51.9%) G2: 12 (60%) G3: 14 (73.7%) Education: Lower education Overall: G1: 9 (33.3%) G2: 7 (35%) G3: 3 (15.8%) Education: p=0.481 Marital status: Married Overall: NR G1: 44.4% G2: 25% G3: 68.4% p=0.026 None	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Compare, 2013[13]	DSM-IV criteria for BED concurrent treatment for eating and/or weight disorders or psychiatric illness medical conditions that might have influenced weight or eating severe current psychiatric conditions requiring different treatments (psychosis, bipolar disorder) pregnancy or lactation	Obese adults age 35-60 years with BED G1: NR G2: NR G3: NR p=NR, NS	Overall: NR G1: 41.3% G2: 65.5% G3: NR p=0.004 for difference between G1 and G2 G1: NR G2: NR G3: NR p=NR BMI Overall: NR G1: 32.3 (SD 1.3) G2: NR G3: 33.6 (SD 2.6) p=significantly higher BMI in G3 than G1, p NR	age 35-60 years BMI of at least 30	G1: NR G2: NR G3: NR p=NR	G1: NR G2: NR G3: NR p=NR None	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
De Zwaan, 2005[14]	DSM-IV criteria for BED (1) Current use of any psychotropic medication; (2) Medical condition that would preclude safe participation; (3) Current evidence of psychosis, suicidality, or chemical abuse; (4) Current psychiatric or obesity treatment	Adult women 22-55 years with BED and ≥50 lbs. above "ideal" body weight (i.e., midpoint of recommended weight range, medium frame; Metropolitan Life Insurance Company, 1993) Mean (SD) (range) Overall: 39.3 (NR) (22-55) G1: 40.9 (7.7) G2: 37.7 (6.5)	Overall: 100 G1: 100 G2: 100 p = NA Overall: 2.8 G1: 2.8 G2: 2.9 p = NS Mean weight (SD) (lbs.) Overall: NR G1: 217.3 (24.8) G2: 214.9 (27.9) p = NS Mean BMI (SD) (range) (kg/m^2) Overall: 36.1 (NR) (29.2-46.7) G1: 36.6 (3.2) G2: 35.7 (4.2) p = NS	(1) Women aged 18-55 years; (2) ≥50 lbs. above "ideal" body weight (i.e., midpoint of recommended weight range, medium frame; Metropolitan Life Insurance Company, 1993)	NR	Education (% with college degree) Overall: 62 G1: 61.1 G2: 62.9 p = NS Marital status (% married) Overall: NR G1: 61.1 G2: 62.8 p = NS Primary role (% housekeepers) Overall: NR G1: 5.0 G2: 28.6 p = NS No	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Dingemans, 2007[15]	DSM-IV criteria for BED Current history of self-induced vomiting Misuse of laxatives, diuretics, enemas, diet pills or other weight-controlling medications, fasting, or excessive exercise within the last 24 weeks Concurrent psychological or weight loss treatment Comorbid diagnosis of psychotic disorder, self-damaging behviors or mental deficiency Pregnancy	Adults with BED Overall: G1: 38.8 (SD 10.4) G2: 36.4 (SD 11.3) p=0.43	Overall: 94.23% (Nn=49) G1: NR G2: NR p=NR Overall: NR G1: NR G2: NR p=NR Overall: NR G1: NR G2: NR p=NR	None	Per SCID: Any axis 1 disorder, current Overall: NR G1: 7 (23%) G2: 9 (40%) p=0.18 Any axis 1 disorder, lifetime Overall: NR G1: 21 (70%) G2: 16 (72%) p=0.83 Mood disorders, current Overall: NR G1: 5 (17%) G2: 3 (14%) p=0.54 Anxiety disorders, current	Some previous treatment eating disorders (including psychoeducation, dietician, self-help groups), N (%) Overall: NR G1: 11 (37%) G2: 7 (32%) p=0.78 Never married, N Overall: NR G1: 8 G2: 9 p=0.37 Married/living together, N Overall: NR G1: 16 G2: 12 p=0.37 Divorced, N Overall: NR G1: 5 G2: 1 p=0.37 Widow, N Overall: NR G1: 1 G2: 0 p=0.37	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Dingemans, 2007[15] (continued)						Full-time job/education, N Overall: NR G1: 13 G2: 9 p=0.63 Part-time job, N Overall: NR G1: 7 G2: 5 p=0.63 Unemployed/homemaker, N Overall: NR G1: 2 G2: 5 p=0.63 Sick leave/disabled, N Overall: NR G1: 6 G2: 3 p=0.63 High education, N Overall: NR G1: 9 G2: 11 p=0.45	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Dingemans, 2007[15] (continued)						Intermediate education, N Overall: NR G1: 9 G2: 4 p=0.45 Low education, N Overall: NR G1: 12 G2: 8 p=0.45 None	
Eldredge, 1997[16]	"Met the proposed diagnostic criteria for BED", citing Walsh BT. (1992). Diagnostic criteria for eating disorders in DMS-IV: Work in progress. International Journal of Eating Disorders, 12, 301-303. Additional treatment which might interfere with that provided in the current study (i.e., concurrent involvement in a weight loss program, antidepressant medication, or any other medication which might influence weight) Current drug or alcohol abuse History of purging within the prior 6 months	Adults with BED and BMI ≥27 Overall mean: 45.2 (SD 9.8), range NR G1: NR G2: NR p=NS	Overall: 96% G1: NR G2: NR p=NS Overall: NR G1: NR G2: NR Overall Mean weight: 106.8kg (SD 28.2) G1: NR G2: NR p=NS	BMI ≥27	Overall: NR G1: NR G2: NR	Overall Onset of overweight: mean age 15.8 years (SD 11.7) G1: NR G2: NR p=NS Overall Onset of binge eating: mean age 22.0 years (SD 13.7) G1: NR G2: NR p=NS Mean binge days over 2wk baseline assessment period: 6.9 (SD 3.0) G1: NR G2: NR p=NS	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Eldredge, 1997[16] (continued)	Current major medical or psychiatric condition which might interfere with the treatment (i.e., pregnancy, psychosis, severe suicidality)		Overall Mean BMI: 38.4 (SD 9.5) G1: 37.05 G2: 43.35 F=3.64, p=0.06				
Gorin, 2003[17]	DSM-IV criteira for BED - Engaged in binge purge behaviors > once a month - meets DSM-IV criteria for AN/BN/EDNOS - receiving concurrent tx for weight loss - taking appetite suppresants - pregnant	Overweight women aged 18-65 with BED and having a spouse/partner who is willing to participate in the study Overall: 45.2 yrs (SD 10.03)	Overall: 100% G1: 100% G2: 100% G3: 100% p=NS Overall: 14% BMI 39.42 (SD 7.72)	Age 18-65 Having BMI >=25 Having spouse or partner who is willing to participate in the study	p=NS	75% of participants attended college Receiving psycotherapy and/or medication for depression G1: 34.4% G2: 19.4% G3: 7% p=0.04 No	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Grilo, 2013[18]	DSM-IV or DSM-5 criteria for BED - DSM-IV ("threshold"): required patients to exhibit BED symptoms for >6 months and have binge eating episodes >twice weekly - DSM-V ("subthreshold"): required patients to exhibit BED symptoms for >3 months and have binge eating episodes >once weekly (1) BMI ≥50 kg/m^2; (2) Age 65 years or older; (3) Current weight loss treatment or current use of medications known to influence eating/weight; (4) Current antidepressant therapy (5) Select severe psychiatric problems (schizophrenia, bipolar disorder, and current substance use disorder); (6) Severe medical problems (e.g., cardiac disease); (7) Uncontrolled liver disease; (8) Hypertension; (9) Thyroid disease; (10) Diabetes	Obese adults 18-65 years with BED and BMI ≥30 kg/m^2 Mean (SD) Overall: 45.8 (11.0) G1: 45.0 (11.8) G2: 46.5 (10.2) p = 0.64	Overall: 79.2 G1: 87.5 G2: 70.8 p = 0.16 African-American Overall: 35.4 G1: 25.0 G2: 45.8 p = NR Hispanic-American Overall: 6.3 G1: 8.4 G2: 4.2 p = NR Other (i.e., bi- or multi-racial) Overall: 12.5 G1: 20.8 G2: 4.2 p = NR Overall p = 0.22	BMI ≥30 kg/m^2	BDI: mean (SD) Overall: NR G1: 38.0 (5.4) G2: 37.2 (4.2) p = NS DSM-IV comorbidities (%): Mood disorders Overall: 50 G1: 41.7 G2: 58.3 p = 0.25 Anxiety disorders Overall: 50 G1: 54.2 G2: 45.8 p = 0.56 Substance use disorders Overall: 20.8 G1: 16.7 G2:	Education (% with college degree) Overall: 48.9 G1: 54.2 G2: 43.5 p = 0.46 Age onset BED, mean (SD) Overall: 24.7 (13.8) G1: 25.8 (13.9) G2: 23.5 (13.9) p = 0.58 No	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Grilo, 2013[18] (continued)			Mean BMI (SD) (kg/m^2) Overall: 37.6 (4.8) G1: 38.0 (5.4) G2: 37.2 (4.2) p = NS				

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Grilo, 2014[19]	DSM-V criteria for BED for 6 months Current use of antidepressant medication Current use of medication known to influence eating/weight Few select severe psychiatric problems (schizophrenia, bipolar disorder, current substance use disorder) Severe medical problems (cardiac disease, liver disease) Uncontrolled hypertension, thyroid disease, or diabetes	Obese adults aged 18-65 with BED Overall: NR for G1 and G2 only G1: 45.7 (SD 12.4) G2: 43.2 (SD 12.4) No significant differences were found between the 4 study groups in age (direct comparisons between G1 and G2 not reported)	Overall: NR for G1 and G2 only G1: 20 (80%) G2: 18 (66.7%) No significant differences were found between the 4 study groups in gender (direct comparisons between G1 and G2 not reported) Overall: NR for G1 and G2 only G1: 13 (52.0%) G2: 15 (55.6%) No significant differences were found between the 4 study	BMI of at least 30 and <50 Age 18-65 years	Mood disorder (DSM-IV) Overall: NR G1: 11 (44.0%) G2: 14 (51.9%) Anxiety disorder (DSM-IV) Overall: NR G1: 9 (36.0%) G2: 11 (40.7%) Substance use disorder (DSM-IV) Overall: NR G1: 5 (20.0%) G2: 7 (25.9%) No significant differences were found between th	College degree Overall: NR G1: 14 (56.0%) G2: 5 (18.5%) p=NR No college degree Overall: NR G1: 11 (44.0%) G2: 22 (81.5%) p=NR Age onset BED Overall: NR G1: 25.7 (SD 15.1) G2: 25.5 (SD 11.1) p=NR None	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Grilo, 2014[19] (continued)			groups in race/ethnicity (direct comparisons between G1 and G2 not reported) BMI Overall: NR for G1 and G2 only G1: 36.5 (SD 5.3) G2: 39.3 (SD 5.5) Weight Overall: NR for G1 and G2 only G1: 229.6 (SD 41.9) G2: 244.5 (SD 41.4)				

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Grilo, 2014[19] (continued)			No significant differences were found between the 4 study groups in any outcome variables (direct comparisons between G1 and G2 not reported)				

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Grilo, 2011[20] Grilo, 2011[21]	DSM-IV criteria for BED Concurrent treatment for eating/weight problems Medical conditions (e.g., diabetes or thyroid problems) that influence eating/weight Severe current neurological or psychiatric conditions requiring alternative treatments (psychosis, bipolar disorder) Pregnancy	Obese adults age 18-60 with BED Overall: 44.8 (SD 9.4) G1: 45.2 (SD 8.5) G2: 44.6 (SD 10.5) G3: 44.5 (SD 9.2) t=0.08 p=0.93	Overall: 67% G1: 64.4% G2: 62.2% G3: 80.0% t=3.61 p=0.16 Overall: 23% G1: 24.4% G2: 20.0% G3: 25.7% t=0.42 p=0.81 BMI Overall: 38.8 (SD 5.8) G1: 250.1 (SD 52.6) G2: 242.7 (SD 45.8) G3: 237.2 (SD 42.8) t=NR p=NR	Age 18-60 BMI 30-55	DSM-IV comorbidity lifetime Major depressive disorder G1: 42.2% G2: 46.7% G3: 40.0% t=0.38 p=0.83	College G1: 60.0% G2: 44.4% G3: 40.0% Some college G1: 28.9% G2: 37.8% G3: 31.4% High school G1: 11.1% G2: 15.6% G3: 28.6% Some high school G1: 0% G2: 2.2% G3: 0% Education t=3.69 Education p=0.16 Age onset BED G1: 25.5 (SD 13.0) G2: 26.6 (SD 12.0) G3: 27.5 (SD 11.8) F=0.28 p=0.76	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Grilo, 2011[20] Grilo, 2011[21] (continued)			Text on page 6 says, "Treatment groups did not differ significantly in demographic or psychiatric variables or on pretreatment levels of any outcome variables			DSM-IV comorbid lifetime any Axis 1 psychiatric disorder G1: 62.2% G2: 80.0% G3: 65.7% t=3.71 p=0.16 DSM-IV comorbid lifetime anxiety disorder G1: 37.8% G2: 48.9% G3: 25.7% t=4.48 p=0.11 DSM-IV comorbid lifetime alcohol use disorder G1: 11.1% G2: 24.4% G3: 20.0% t=2.75 p=0.25	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Grilo, 2011[20] Grilo, 2011[21] (continued)						DSM-IV comorbid lifetime drug use disorder G1: 20.0% G2: 15.6% G3: 20.0% t=0.38 p=0.83 DSM-IV comorbid lifetime any axis 2 personality disorder G1: 24.4% G2: 28.9% G3: 28.6% t=0.27 p=0.87 Rapid responders (CBT and BWL) vs. those without rapid response (CBT and BWL)	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Grilo, 2005[22] Masheb, 2007[23]	DSM-IV Concurrent treatment for eating, weight, or psychiatric illness medical conditions (diabetes, thyroid problems) that influence weight severe current psychiatric conditions requiring different treatments (psychosis, bipolar disorder, current substance use and dependence) pregnancy	Adults aged 20-60 years with BED Overall: 46.3 (range 20-60) G1: 46.0 (SD 9.2) G2: 46.0 (SD 9.2) G3: 48.0 (SD 8.2) p = 0.74	Overall: 79% G1: 86.5% G2: 76.3% G3: 67.7% p = 0.25 Overall: 23% G1: 13.5 G2: 39.5 G3: 6.7 p = 0.23 Measure/scale: BMI Overall: 35.5 (SD 6.7) G1: 33.4 (SD 5.7) G2: 36.0 (SD 6.6) G3: 36.2 (SD 6.6) p = 0.21	age 18-60 years BMI ≥27	Measure/scale: Beck Depression Inventory, mean (SD) Overall: NR G1: 15.6 (SD 9.2) G2: 17.8 (SD 9.7) G3: 14.5 (SD 7.5) p = 0.41 Any Axis 1 psychiatric disorder, N (%) Overall: NR G1: 24 (64.9) G2: 28 (73.7) G3: 10 (66.7) p=0.70 Major depressive disorder,	Education: College N(%) Overall: NR G1: 16 (43.3) G2: 19 (50.0) G3: 10 (66.7) p (for all education categories)=0.76 Education: Some college N(%) Overall: NR G1: 14 (37.8) G2: 15 (39.5) G3: 4 (26.6) p (for all education categories)=0.76 Education: High school N(%) Overall: NR G1: 7 (18.9) G2: 4 (10.5) G3: 1 (6.7) p (for all education categories)=0.76 Age onset BED, mean (SD) G1: 28.9 (13.5) G2: 27.5 (12.9) G3: 27.1 (14.4) p=0.87	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Grilo, 2005[22] Masheb, 2007[23] (continued)						Rapid responders vs. those without rapid response	
Hilbert, 2004[24]	Bige eaters as defined by DSM-IV criteria for BED + allowed in study even if frequency criterion not met. - pregnancy - presence of psychotic symp - substance dependence - suicidality - use of psychoative medication or medication affecting body wt	- full syndrome and subthreshold BE (subthreshold = DSM-5 consistent) - adults - women Overall range:NR G1: 42.1(12.1) G2: 38.6 (8.5) F: 0.75 p: 0.393	Overall: 100% NR BMI Overall: NR G1: 34.0(10.2) G2: 36.4 (10.4) F:NR p: NR	- Frequency criterion for BED: minimum of 1 day per week over the last 6 months with at least 1 OBE (within DSM-5 guidelines) - females	BDI Overall: NR G1: 19.0(8.6) G2: 16.0(7.7) F: NR p: NR	Full syndrome BED Overall: NR G1: 10 (71.4%) G2: 10(71.4%) Subthreshold BED G1: 4 (28.6%) G2: 4 (28.6%) X^2: 0.00 p: 0.999 Age of years of first binge (X(SD)) G1: 21.7 (14.7) G2: 18.7 (10.4) F:0.38 p: 0.544 Duration in yrs of BED, X(SD) G1: 13.5(10.7) G2: 17.7(13.2) F: 0.64 p: 0.433	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Hilbert, 2004[24] (continued)						Highest Edu. level Secondary school degree G1: 7 (50%) G2: 6 (42.9%) HIgh school degree G1: 5 (35.7%) G2: 7 (50%) University degree G1: 2 (14.3%) G2: 1 (7.1%) X^2: 0.74 p: 0.689 NA	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Le Grange, 2002[25]	DSM-IV criteria for BED (1) Purging (i.e. self-induced vomiting, laxative and/or diuretic use as a means of weight control) more than once per month on average during more than once per month on average during preceding 6 months; (2) Receiving concurrent treatment for weight loss; (3) Currently taking appetite suppressants; (4) Suffering from any medical condition that may impact weight (e.g., pregnancy, diabetes, thyroid conditions)	Adult women 25-63 years with BED and BMI ≥27 kg/m^2 Mean (SD) (range) Overall: 44.2 (8.5) (25-63) G1: NR G2: NR	Overall: 100 G1: 100 G2: 100 p = NA Overall: 7 G1: NR G2: NR Mean BMI (SD) (kg/m^2) Overall: 37.9 (8.2) (27-60) G1: 35.5 (7.7) G2: 37.8 (8.2) p = <0.37	BMI ≥27 kg/m^2	BDI: mean (SD) Overall: NR G1: 20.1 (15.7) G2: 20.4 (11.5) p = NS	Patients in treatment for depression (%) Overall: NR G1: NR G2: NR p = 0.34 Married (%) Overall: 49 G1: NR G2: NR p = NS Graduated from college (%) Overall: 66 G1: NR G2: NR p = NS Graduate education (%) Overall: 22 G1: NR G2: NR p = NS Mean age of binge eating onset Overall: 15.6 years (SD 11.3) G1: NR G2: NR p = NS No	Pretreatment BMI for overall sample reported on PDF pg. 4/13 is incorrect. The mean is higher than either group's average BMI.

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Masheb, 2011[26]	DSM-IV-TR criteria for BED (1) had co-existing psychiatric conditions requiring alternative treatments or hospitalization; (2) met criteria for current substance dependence; (3) were currently receiving psychiatric, psychological, behavioral, or pharmacologic treatment known to affect eating or weight; (4) had any physical conditions, such as diabetes, known to affect eating or weight; (5) had serious cardiac disease; (6) had serious neurologic illness; (7) had cognitive impairments that would interfere with being able to complete assessments and understand treatments; or (8) were pregnant, lactating or planning to become pregnant during the treatment period	Obese adults age 21-60 with BED Overall: 45.8 (SD 7.6, range 29-60) G1: 47.9 (SD 7.9) G2: 43.7 (SD 6.7) p=0.048	Overall: 76% G1: 80% G2: 72% p=0.508 Overall: 20% G1: 28% G2: 12% p=0.301 Overall BMI: 39.1 (SD 6.6) G1: 39.2 (SD 6.9) G2: 39.0 (SD 6.5) p=0.930	age 21-60 BMI ≥30 available for the length of the treatment and follow-up at 12m	DSM-IV lifetime any axis 1 disorder Overall: 86% G1: 84% G2: 88% p=0.684 DSM-IV lifetime any mood disorder Overall: 72% G1: 76% G2: 68% p=0.529 DSM-IV lifetime any anxiety disorder Overall: 58% G1: 56% G2: 60% p=0.774 DSM-IV lifetime any substance use	Some high school Overall: 2% G1: 4% G2: 0% p=0.358 High school graduate Overall: 14% G1: 20% G2: 8% p=0.358 Some college Overall: 26% G1: 28% G2: 24% p=0.358 College graduate Overall: 58% G1: 48% G2: 68% p=0.358 Age onset BED Overall: 24.3 (SD 11.8) G1: 25.4 (SD 12.2) G2: 23.1 (SD 11.6) p=0.490 None	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Masson, 2013[27]	Meet BED criteria or BED criteria with binge eating occurring at least once a week for six months (DSM version not specified) Involvement in concurrent psychotherapy for binge eating Active psychosis Body mass index less than 17.5 kg/m2 Use of compensatory behaviours at least once a week over the past three months Unstable dose of psychotropic medication over the last three months Inability to commit adequate time to assessment and treatment (approximately 2e3 h a week for 16 weeks total)	Adults with BED Overall: 42.8 (SD 10.5) G1: 41.31 (SD 10.67) G2: 43.43 (SD 9.59) p=NS	Overall: 88.3% G1: 90.00% G2: 86.70% p=NS Overall: NR G1: 6.90% G2: 9.98% p=NS BMI Overall: NR G1: 37.10 (SD 8.81) G2: 38.83 (SD 8.86) p=NS	18 years of age or older Able to speak English High school graduate or equivalent	Overall: NR G1: NR G2: NR p=NR	Marital status (p=NS) Single Overall: NR G1: 13.33% G2: 33.33% Marital status: Married Overall: NR G1: 60.0% G2: 33.33% Marital status: Common-law Overall: NR G1: 3.33% G2: 10.00% Marital status: Divorced Overall: NR G1: 23.33% G2: 23.33% Marital status: Widowed Overall: NR G1: 0% G2: 0% Employment status (p=NS) Unemployed Overall: NR G1: 23.33% G2: 10.00%	None

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Masson, 2013[27] (continued)						Employment status: Part-time Overall: NR G1: 20.00% G2: 10.00% Employment status: Full-time Overall: NR G1: 53.33% G2: 70.00% Employment status: Retired Overall: NR G1: 3.33% G2: 10.00% Years of employment Overall: NR G1: 13.90 (4.07) G2: 15.17 (3.21) p=NS p= none	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Munsch, 2007[28] Munsch, 2012[29]	DSM-IV-TR criteria for BED "all patients were free of unstable medical conditions" (not clear whether this was exclusion criteria) DSM-IV-TR criteria for mental disorders warranting immediate tx such as suicidal tendency, psychosis, mania, organic dementia, substance use disorder pregnancy participation in diet program or other psychotherapy treatment with weight loss medication (current or in past 3m) previous surgical treatment of obesity	overweight-to-obese adults age 18-70 with BED G1: 44.4 (SD 11.5) G2: 47.8 (SD 11.8)	G1: 40 (90.9%) G2: 31 (86.1%) G1: NR G2: NR BMI G1 (n=42): 33.7 (SD 4.3) G2 (n=33): 34.4 9SD 3.7)	age 18-70 BMI 27-40	Munsch, Biedert, Meyer, et al., 2007[28]: Current comorbidity axis 1 G1: 18 (40.9%) G2: 15 (41.7%) Current Depression G1: 4 (9.1%) G2: 4 (11.1%) Current Anxiety disorders G1: 13 (29.5%) G2: 11 (30.6%) Lifetime comorbidity axis 1 G1: 22 (50%) G2: 15 (	Munsch, Biedert, Meyer, et al., 2007[28]: NR Munsch, Meyer, Biedert, et al., 2012[29]: Self-reported onset of obesity, years G1: 19.9 (SD 12.7) G2: 24.7 (SD 12.8) Self-reported onset of BED, years G1: 24.0 (SD 13.2) G2: 22.9 (SD 14.7) International Socio-Economic Index of Occupational Status (ISEI) (Ganzeboom, de Graaf & Treiman, 1992) G1: 48.4 (SD 9.6) G2: 50.6 (SD 10.8)	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Munsch, 2007[28] Munsch, 2012[29] (continued)						Occurence of self-reported binge first, % G1: 28.6% G2: 25.0% Occurence of self-reported diet first, % G1: 69.0% G2: 55.6% None	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Pendleton, 2001[30]	Match the profile for binge eating as determined by responses to the Questionnaire on Eating and Weight Patterns-Revisited (Spitzer et al. 1992, 1993) which were then verified by clinical interview. history of cardiovascular disease, diabetes, or any other metabolic disorder history of GI disorder or surgery smoking pregnancy lactation receiving treatment for psychological problems or major depression history of drug abuse	Obese women aged 25-60 years with BED Overall: 45 (SD 8.3, range 20-64 years) G1: NR G2: NR G3: NR G4: NR No significant difference between groups	Overall: 100% G1: 100% G2: 100% G3: 100% G4: 100% Overall: 24% G1: NR G2: NR G3: NR G4: NR No significant difference between groups Weight Overall: 97.2 kg (SD 17.8, range 64.4-146.7) G1: NR G2: NR G3: NR G4: NR	Female 25-60 years of age more than 30 lb overweight based on the 1983 Metropolitan Life Insurance Company Height/Weight Tables history of sedentary lifestyle and occupation	BDI score: Overall NR G1: 15.7 (SD 9.7) G2: 18.1 (SD 10.7) G3: 19.0 (SD 10.5) G4: 18.0 (SD 7.2) No significant difference between groups	Hours of self-reported physical activity: Overall: NR G1: 2.2 (SD 2.7) G2: 2.6 (SD 2.8) G3: 2.8 (SD 3.3) G4: 1.9 (SD 2.5) The following frequencies were reported for the overall sample, not by group: Marital status: (significant imbalance among groups in single status, p=0.009) Married: 48% Single or divorced: 30% Never married: 19% Widowed: 3% Education (No significant difference between groups)	Questionnaire on Eating and Weight Patterns-Revisited references: Spitzer RL, Devlin MJ, Walsh BT, Hasin D, Wing R, Marcus M, et al. (1992). Binge eating disorder: A multisite field trial of the diagnostic criteria. International Journal of Eating Disorders

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Pendleton, 2001[30] (continued)			BMI Overall: 36.2 (SD 6.5, range 25.0-53.8) G1: NR G2: NR G3: NR G4: NR No significant difference between groups			At least one college degree: 54% Some college: 38% HS graduates: 8% Work status (No significant difference between groups) Worked full-time: 60% Worked part-time: 10% None	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Peterson, 1998[31] Peterson, 2001[32]	- DSM-IV criteria for BED Peterson, 1998 '- current psychoactive medication or psychotherapy - met criteria for substance abuse or substance dependence within the past 6 months - medically unstable or at risk of self-injury at the time of enrollment - any compensatory behaviors within the past 6 months Peterson, 2001 '- current psychoactive medication - current psychotherapy - substance abuse or dependence w/in 6 months prior to enrollment - medical instability - acute risk for self-injury - any compensatory behavior within 6 months prior to the study	- females - Adults - BED Peterson, 1998 Overall: 42.4 (10.2) Peterson, 2001 Overall: 42.9 (10.1) Overall range: 25-64	Overall: 100% Overall: 3.5% Peterson, 1998 Overall BMI: 34.7 (7.5) Peterson, 2001 BMI Overall: 34.1 (7.04) Overall range: 21.3 - 34.1	- females - 25-64 yo	NR	Peterson, 1998 Overall Married: 46.4% Overall Divorced: 30.4% Overall never married: 19.6% Peterson, 2001 Education Grad degree: 21.6% Some grad edu: 17% Grad college: 13.7% Some college: 39.2% HS or less: 7.9% Married: 47.1% Divorced: 33.3% Never married: 15.7% other: 3.9% NA	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Peterson, 2009[33]	DSM-IV criteria for BED (1) Pregnancy or lactation; (2) Lifetime diagnosis of bipolar or psychotic disorder; (3) Current diagnosis of substance abuse or substance dependence; (4) Medical or psychiatric instability including acute suicide risk; (5) Current psychotherapy; (6) Current participation in formal weight loss program	Adults 19-65 years with BED and BMI ≥25 kg/m^2 Overall: 47.1 (19-65) (SD 10.4) G1: 47.1 (SD 10.4) G2: 48.1 (SD 9.1) G3: 48.1 (SD 9.1) G4: 47.6 (SD 10.6) p = NS NOTE: Minnesota site's total sample significantly older than total sample treated at North Dakota site (52.1 [SD 8.3] vs. 45.6 [SD 10.6], res	Overall: 87.6 G1: 89.6 G2: 81.0 G3: 100 G4: 81.2 p = 0.003 (G3 > G2, G4) Overall: 3.9 G1: 0 G2: 4.8 G3: 8.3 G4: 2.9 p = NS BMI (kg/m^2): mean (SD) Overall: 39.0 (7.8) G1: 38.2 (7.2) G2: 40.7 (8.8) G3: 39.2 (8.3) G4: 38.1 (6.9) p = NS	BMI ≥25 kg/m^2	IDS-SR: mean (SD) Overall: 24.7 (11.3) G1: 26.7 (11.2) G2: 20.4 (10.0) G3: 25.2 (10.9) G4: 26.4 (12.2) p = NS	Use of stable dose of antidepressant medication for ≥6 weeks prior to study (%) Overall: 78.8 G1: 82.1 G2: 79.4 G3: 91.7 G4: 76.8 p = NS No	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Ricca, 2010[34]	DSM-IV criteria for BED OR subthreshold BED. BED: minimum average frequency of binge eating twice a week for a minimum duration of 6 consecutive months; subthreshold BED: binges occurred at a minimum average frequency of once a week for a minimum duration of 6 consecutive months Recurrent severe compensatory behaviors (fasting, purging, excessive exercise for weight control). Individuals were excluded if they reported a lifetime history of such behaviors at a frequency exceeding five times in any consecutive 6m period Current comorbid severe mental disorders, such as schizophrenia, bipolar disorder, severe major depression, suicide ideation, psychoactive substance dependence (per SCID)	Adults 18-60 years old with BED or subthreshold BED Overall: G1: 46.5 (SD 12.4) G2: 47.4 (SD 11.9) p=NR, NS	Overall: G1: 86.1% G2: 90.3% p=NR, NS Overall: NR G1: NR G2: NR p=NR Overall: NR G1: NR G2: NR p=NR	Age 18-60 years To accept not to participate in a CBT program other than the experimental one	Any psychiatric comorbidity Overall: NR G1: 37 (51.4%) G2: 41 (56.9%) p=NR, NS Adjustment disorder with depressed mood Overall: NR G1: 27 (37.5%) G2: 20 (27.8%) p=NR, NS Obsessive-compulsive disorder Overall: NR G1: 2 (2.8%) G2: 3 (4.2%) p=NR, NS Panic	Subthreshold binge eating Overall: NR G1: 32 (44.4%) G2: 31 (43.1%) p=NR, NS Overweight during childhood Overall: NR G1: 17 (23.6%) G2: 26 (36.1% p=NR, NS Previous use of amphetamine derivatives Overall: NR G1: 27 (37.5%) G2: 25 (34.7%) p=NR, NS Number of previous diet attempts, median (quartiles) Overall: NR G1: 4.0 (2.0, 10.0) G2: 4.0 (3.0, 10.0) p=NR, NS None	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Ricca, 2010[34] (continued)	Severe medical conditions that preclude an outpatient treatment, such as severe heart, renal, and/or liver failure Prior cognitive behavioral treatments for eating disorders and/or obesity Current or recent (3m) use of psychoactive medications Previous surgical treatment for obesity Illiteracy and mental retardation						

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Riva, 2002[35]	DSM-IV criteria for BED Taking an antidepressant or any type of medication that might influence weight, abused drugs or alcohol, current major psychiatric condition such as a psychosis	women aged 18-45 years with BED, seeking treatment Overall: mean NR; range 18-45 G1: 30.50 (SD 6.72) G2: 30.10 (SD 6.95) p = NR	Overall: 100 G1: 100 G2: 100 p = NA Overall: NR G1: NR G2: NR p = NR Weight in kg Overall: 114.94±24.04 G1: 120.06±28.34 G2: 109.82±21.48 p = NR BMI Overall: 43.21±9.15 G1: 44.07±10.10 G2: 42.35±8.55 p = NR	No history of purging in the previous 6 months BMI>30	Overall: NR G1: NR G2: NR p = NR	None None	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Riva, 2003[36]	DSM-IV criteria for BED for at least 6 months prior to the beginning of the study Concurrent severe psychiatric disturbance (psychosis, depression with suicidal risk, alcohol or drug abuse) Concurrent involvement in other treatment for BED, including pharmacotherapy Concurrent medical condition not related to the disorder	Women aged 18-50 with BED Overall: 33.07 (SD 8.08) G1: NR G2: NR G3: NR p=NR, NS	Overall: 100% G1: 100% G2: 100% G3: 100% p=NR, NS Overall: NR G1: NR G2: NR G3: NR p=NR, NS Weight (kg) Overall: 105.44 (SD 17.73) G1: NR G2: NR G3: NR p=NR, NS BMI Overall: 39.80 (SD 6.10) G1: NR G2: NR G3: NR p=NR, NS	Female Age 18-50 years	Overall: NR G1: NR G2: NR G3: NR	NR None	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	- DSM-IV criteria for BED (APA, 1994) - BMI < 17.5 - concfurent psychotherapy tx - unstable dosage of psychotropic medications over the 3 months prior to intial assessment - regular use of purging or other compensatory behaviors over the past 6 months - psychosis - current alcohol/drug abuse or dependence - severe depression with recent (e.g., within past month) suicidality - current use of weight altering medications (e.g., phentermine) - severe medical condition affecting weight or appetite (e.g., insulin-dependent diabetes, cancer requiring active chemotherpy) - current pregnancy or breast feeding	- Adults - males and females - BED - overweight overall: 52.2 (10.6) G1: 51.9 (11.6) G2: 52.35 (9.52)	Overall: 86 (85%) G1: 43 (86%) G2: 43 (84%) Overall: 24% G1:27% G2: 20% BMI Overall: 36.38 (8.62) G1: 35.84 (9.35) G2: 36.90 (7.89)	- lived or worked within commuting distance to the clinic	Concurrent MDE Overall: 15 (14.9%) G1: 11 (22%) G2: 4 (7.8%) Past Hx of Depression Overall: 64 (63.4%) G1: 28 (54.9%) G2: 36 (72%)	Current use of Antidepressants Overall: 33 (32.7%) G1: 17 (34%) G2: 16 (31.4%) Criteria met for any Axis II Overall: 43 (42.%) G1: 25 (50%) G2: 18 (35.3%) Marital Status Married Overall:: 61 (60%) G1: 32 (64%) G2: 29 (57) Divorced Overall: 19 (19%) G1: 6 (12%) G2: 13 (26%) Single/NV married Overall: 17 (17%) G1: 11 (22%) G2: 6 (12%) Widowed Overall: 4 (4%) G1: 1 (2%) G2: 3 (6%)	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39] (continued)	- imminently planning or undergoing gastric bypass surgey - lack of avaliability for times of group meetings and/or duration of study					Edu Background Completed @least 1 grad degree Overall: 30 (30%) G1:14 (28%) G2: 16 (31%) Completed some college/2yr degree Overall: 30 (30%) G1: 12 (24%) G2: 18 (35%) Grad from a 4 yr college Overall: 26 (26%) G1: 16 (32%) G2: 10 (20%) Completed some grad school Overall: 9 (9%) G1: 5 (10%) G2: 4 (8%) Had not completed HS Overall: 4 (4%) G1: 2 (4%) G2: 2 (4%) Have HS degree or equi Overall: 2 (3%) G1: 1 (2%) G2: 1 (2%)	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39] (continued)						Employment Status Employed Overall: 50 (50%) G1: 29 (58%) G2: 21 (41%) Retired Overall: 19 (19%) G1: 7 (14%) G2: 12 (24%) Homemaker Overall: 14 (14%) G1: 5 (10%) G2: 9 (18%) Unemployed Overall: 12 (12%) G1: 6 (12%) G2: 6 (12%) Student/Other Overall: 6 (6%) G1: 3 (6%) G2: 3 (6%) Subgroup 1: Intent to treat Subgroup 2: Completer Subgroup 3: Rapid response Subgroup 4: Avoidant personality disorder	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39] (continued)						Subgroup 5: <15 years old at onset of overweight and dieting	
Schlup, 2009[40]	-DSM IV TR BED diagnosis - Meeting DSM-IV-TR criteria for severe mental disorders warranting immediate tx - Pregnancy - Participation in a diet program or another psychotherapy - Tx with wt loss medication (Current or past 3m) - Previous surgical tx for obesity	females adults w/BED Overall (M,SD): 44.3 (10.3) G1: 47.1 (8.5) G2: 41.2 (11.1)	100% NR Overall BMI (M,SD): 33.4 (7.6) G1: 32.4 (5.6) G2: 34.3 (9.1)	18 to 70y old	Overall (n,%): 4 (11.1) G1: 2 (11.1) G2: 2 (11.1)	Anxiety Disorder Overall (n,%): 8 (22.2) G1: 6 (33.3) G2: 2 (11.11) No	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Schlup, 2010[41]	From 227 Munch 227 and 132 Schlup NR	Two samples of female patients with BED with mean ages of 44.6 and 44.4 Overall: NR G1: 44.6 (SD 11.2) G2: 44.4 (SD 10.2) p=0.921	Overall: 100 G1: 100 G2: 100 p = NA Overall: NR G1: NR G2: NR p=NA BMI Overall: NR G1: 33.2 (SD 4.3) G2: 33.2 (SD 6.9) p=0.988	NR	DSM-IV-TR Current comorbidity Axis 1 G1: 61.3% G2: 33.3% p=0.368 DSM-IV-TR Depression G1: 11.4% G2: 11.1% p=0.972 DSM-IV-TR Anxiety disorders G1: 29.5% G2: 27.8% p=0.862 DSM-IV-TR Lifetime comorbidity Axis 1 G1: 72.7% G2: 52.8% p=0.065 DSM-IV-TR Depre	Age at onset of disorder Overall: NR G1: 30.4 (SD 14.7) G2: 25.2 (SD 12.1) p=0.124 Education: High school degree G1: 100% G2: 100% p=NR Education: College G1: 17.5% G2: 20.1% p=0.168 Employed G1: 79.5% G2: 85.4% p=0.482 Married or cohabiting with partner G1: 77.3% G2: 61.0% p=0.103 NA	Additional details about inclusion /exclusion reported available in the articles reporting the two original trials: Munsch S, Biedert E, Meyer AH, Michael T, Schlup B, Tuch A, Margraf J. A randomized comparison of cognitive behavioral therapy and behavior

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Tasca, 2006[42] Tasca, 2012[43]	DSM-IV Current problems with substance use, bipolar disorder, psychotic disorder, currently suicidal, current other medical or psychological treatment for BED, history of eating disorder other than BED, current purging behavior, <18 years old	Adults (average age 43) with BED Overall: 42.75 (SD=10.76) G1: NR G2: NR p = NR	Overall: 123 (91.1%) G1: NR G2: NR p = NR Overall: 2.3% G1: NR G2: NR p = NR BMI in kg/m² Overall: mean 41.11 (SD 9.95) G1: NR G2: NR p = NR	NR	Concurrent mood disorder[43] Overall: 64.7% G1: NR G2: NR p = NR	Married or living with partner Overall: 42.5% G1: NR G2: NR p = NR Single Overall: 27.8% G1: NR G2: NR p = NR Sparated or divorced Overall: 16.5% G1: NR G2: NR p = NR Widowed Overall: 2.3% G1: NR G2: NR p = NR Employed full-time Overall: 53.4% G1: NR G2: NR p = NR Employed part-time Overall: 14.3% G1: NR G2: NR p = NR	G3 data were only presented in Tasca, Ritchie, Conrad, et al., 2006[42]

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Tasca, 2006[42] Tasca, 2012[43] (continued)						Median family income Overall: $50,000-59,000 Canadian G1: NR G2: NR p = NR Some graduate education Overall: 10.4% G1: NR G2: NR p = NR Some undergraduate education Overall: 62% G1: NR G2: NR p = NR Completed high school Overall: 20.1% G1: NR G2: NR p = NR Did not complete HS Overall: 7.5% G1: NR G2: NR p = NR	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Tasca, 2006[42] Tasca, 2012[43] (continued)						5 attachment styles assessed by the Attachment Styles[43] Questionnaire: -Confidence in relationships -Preoccupied -Need for approval -Discomfort with closeness -Relationships as secondary	

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Telch, 2001[44]	Met full DSM-IV diagnostic research criteria for BED - Current involvement in psychotherapy, wt loss tx, or use of psychotropic medications '- Current substance abuse or dependence '- Current suicidality or psychosis '- Pregnancy	Adults w/BED Overall: 50 yrs	Female: 100% 6% BMI: 36.4 (6.6)	Age 18-65	9%	BED Onset: 20.9 yrs of age (SD=11.7) Duration: 29.2 yrs (SD=11.7) Marital Status: Married: 47% Divorced: 35% Never married: 18% Educational Status: Completed college: 70% Completed high school: 100% Lifetime psychopathology: Major depression: 38% Anxiety disorders: 35% Psychotic disorders: 3% Bulimia nervosa: 6% Substance abuse or dependence: 27% Current psychopathology: Anxiety disorder: 18% Personality disorder: 27% No	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Wilfley, 2002[45] Hilbert, 2012[46]	DSM-IV criteria for BED Pregnant or planning to become pregnant Taking weight-affecting or psychotropic medications Psychiatric conditions warranting immediate treatment (e.g., psychotic symptoms, substance dependence, suicidality) Currently enrolled in psychotherapy or a weight loss program	Adults 18-65 with BED Wilfley, Welch, Stein, et al., 2002[45]: Overall: NR G1: 45.6 (SD 9.6) G2: 44.9 (SD 9.6) Hilbert, Bishop, Stein, et al., 2012[46] Overall: NR G1: 45.73 (SD 9.86) G2: 44.02 (SD 10.49) p=0.427	Wilfley, Welch, Stein, et al., 2002[45]: Overall: NR G1: 67 (82.7%) G2: 67 (82.7%) Hilbert, Bishop, Stein, et al., 2012[46] Overall: NR G1: 80.0% G2: 77.8% p=0.796 Wilfley, Welch, Stein, et al., 2002[45]: Overall: NR G1: 5 (6.2%) G2: 7 (8.6%)	18-65 years old BMI 27-48	Wilfley, Welch, Stein, et al., 2002[45]: DSM-III-R dx mood disorders overall, current G1: 21 (25.9%) G2: 15 (18.5%) DSM-III-R dx anxiety disorders overall, current G1: 10 (12.3) G2: 11 (13.6) DSM-III-R dx any axis 1 disorder, current G1: 30 (37.0%) G2	Wilfley, Welch, Stein, et al., 2002[45]: Age at onset of disorder Overall: NR G1: 24.1 (SD 13.5) G2: 25.7 (SD 12.9) DSM-III-R dx substance use disorders overall, current G1: 5 (6.2%) G2: 1 (1.2%) Hilbert, Bishop, Stein, et al., 2012[46] Age at onset of disorder Overall: NR G1: 17.50 (SD 11.76) G2: 18.50 (SD 10.20) p=0.686 none	NA

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Wilfley, 2002[45] Hilbert, 2012[46] (continued)			Hilbert, Bishop, Stein, et al., 2012[46] Overall: NR G1: 8.9% G2: 6.7% p=0.899 Wilfley, Welch, Stein, et al., 2002[45]: BMI Overall: NR G1: 37.4 (SD 5.3) G2: 37.4 (SD 5.1) Hilbert, Bishop, Stein, et al., 2012[46] Overall: NR G1: NR G2: NR p=NR				

Evidence Table 20. Binge eating disorder behavioral treatment- Part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Wilson, 2010[47] Sysko, 2010[48]	DSM-IV Current psychosis, bipolar disorder, or suicidal state Alcohol or drug dependence within the past 6 months Medical disorders that would affect weight and ability to participate Insufficient fluency with English to participate in therapy Current participation in a weight-control program Taking medication that would affect weight Pregnancy Participants currently taking antidepressants were entered into the study provided that they had been taking a stable dosage for at least 2 months	Adults with BED and BMI 27-45 Overall: NR G1: 46.2 (SD 10.9) (range 19-69) G2: 50.3 (SD 13.6) (range 19-77) G3: 48.7 (SD 11.2) (range 23-68)	Overall: NR G1: 89 G2: 82 G3: 85 Overall: NR G1: 12 G2: 18 G3: 23 BMI Overall: NR G1: 36.8 (SD 5.5) G2: 36.2 (SD 4.3) G3: 36.3 (SD 5.1)	>18 years old BMI 27-45	Current depression Overall: NR G1: 13 G2: 15 G3: 16 History depression Overall: NR G1: 47 G2: 37 G3: 47	Substance abuse Overall: NR G1: 11 G2: 11 G3: 5 College degree Overall: NR G1: 34 G2: 38 G3: 30 Personality disorder Overall: NR G1: 27 G2: 20 G3: 23 High vs. low negative affect (defined using BDI cutoff >18 at baseline) High vs. low frequency of binge days (>14 days vs. ≤14 days during the past 28 days) High vs. low global EDE score (median split of 2.675) High vs. low self-esteem score	NA

(median sp

Evidence Table E21. Binge eating disorder behavioral treatment – part 3

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Agras, 1995[5]	none	CBT: 12 weekly 90-minute sessions led by 2 PhD-level therapists experienced in the treatment of eating disorders. CBT based on modified version of manual developed for Telch et al. (1990) study, modified to include weekly weighings, 30 minutes of walking 3 times weekly at minimum, and education on low fat food choices. Participants were taught to monitor their food intake, binge eating episodes, and thoughts and moods before and after binge eating. These records formed the focus of treatment, which aimed at gradually changing restricted and chaotic eating patterns and developing a regular pattern of 3 meals a day. Participants were taught to reduce avoidance, enhance self-control, and minimize feelings of	Waiting list control group	NA	NA	NA

Evidence Table E21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Agras, 1995[5] (continued)		deprivation. Adaptive coping behavior and relapse prevention were also addressed. After the first 12 weeks of CBT, those who succeeded with treatment received an additional 12 weeks of weight loss therapy; those who failed received 12 weeks of IPT. Those interventions are not described here because only 12 week outcomes are for randomized groups.				

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Allen, 1999[6]	NA	Weekly 50-minute group sessions of Appetite Awareness Training for 8 weeks (described in Craighead&Allen 1995). AAT included the following components: 1. Education defining 3 maladaptive cycles associated with BED (dieting, negative affect, ignore satiety) 2. Self-monitoring to increase awareness of moderate hunger and fullness cues and to prompt starting and stopping eating in response to those cues 3. Problem-solving training to reduce episodes of binge eating and overeating 4. Relapse prevention skills Handouts and homework were also used	No intervention during the 8 week study; offered AAT at study completion	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Carrard, 2011[7]	None	Internet-guided self-help treatment program for BED, based on cognitive behavioral therapy, targeting behavioral and psychological aspects of BED such as loss of control on eating and shape and weight concerns; [articipants had 6 months to complete the Internet-based program and then were assessed again 6 months after the end of treatment.	Control group had a 6-month waiting period with no access to the treatment program; then had 6 months to complete the Internet-based program after the initial waiting period	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Carter, 1998[8]	The self-help program used in the study is included in the book Overcoming Binge Eating (Fairburn 1995), consisting of an educational section (8 chapters summarizing knowledge about binge eating, BED, and bulimia nervosa, as well as rationale behind CBT and the self-help program) and the program itself (6 additive, sequential steps on how to change eating habits or other associated problems). G1 was mailed the book, G2 used the book as part of the GSH intervention, and G3 was randomized to receive the book or do GSH after their 12-week waiting period.	Pure self-help (PSH): Participants were mailed the Overcoming Binge Eating book, were asked to read the book and do their best to follow its self-help program over the following 12 weeks. Received no additional information, advice, or contact.	Guided self-help (GSH): Nonspecialist therapists led between 6 and 8 25-minute sessions during which they supported the participant in the use of the Overcoming Binge Eating book. A brief manual provided facilitators with guidelines on conducting the treatment. Facilitators were not required to adhere rigidly to the manual, as this would not happen in clinical practice. Therapists had no clinical background and received limited training, including becoming familiar with the book contents and treating 2-3 pilot participants with some guidance from a clinical psychologist. They received no supervision.	After 12 weeks, those assigned to the waiting list were subsequently randomized to receive PSH or GSH. It is implied that they did not receive the Overcoming Binge Eating book during the 12 week waiting period.	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Cassin, 2008[9]	None	One AMI session (mean = 81.8 min, SD = 12.9) + the self-help handbook. It was NR what those in the AMI group were encouraged to do with the self-help handbook, or when they were instructed to look over it. AMI protocol was based on the book Better Bit(e) by Bit(e): A Survival Guide for Sufferers of Bulimia Nervosa and Binge Eating Disorders (Treasure & Schmidt, 1997). Protocol was modified to remove information about compensatory behaviors and to be completed in a single session.	Self-help handbook - participants were encourage to read the entire handbook and complete the worksheets at the initial session. No further guidance was provided. Self - Help Handbook: 21 pg handbook utilizing a combination of psychoeducation and cogntive-behavioral techniques. Any MI strategies were excluded. Handbook contained worksheets on goal setting, daily food intake, and automatic thoughts that may trigger eating binges. Developed based on the publication Taming the Hungy Bear: Your Way to Recover From Chronic Overeating.	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	Inpatient treatment (diet, physical activity, dietitian counseling, 8 sessions of CBT or BST therapy) plus 8 outpatient telephone-based sessions of psychological support (oriented in CBT or BST) and monitoring with the same therapist they saw during the inpatient phase. Treatments were delivered by 4 experienced and chartered psychotherapists from diverse backgrounds with specific training in CBT and BST, who received monthly supervision by senior psychotherapists	CBT individual sessions lasting 45 minutes each were based on the approach described by Cooper and Fairburn and emphasize the techniques of self-monitoring, goal setting, time management, prompting and cueing, problem solving, cognitive restructuring, stress management and relapse prevention	BST individual sessions lasting 45 minutes each are mainly based on the brief strategic approach described by Nardone and Portelli and emphasize the techniques of working on "attempted solutions" (such as keeping control by abstaining from food and continuously striving to exert self-control with a subsequent loss of control), using reframing maneuvers, inducing fear of fasting rather than bingeing, understanding what is maintaining and worsening the problem, etc.	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Cesa, 2013[12]	Integrated Multimodal Medically Managed Inpatient Program (IP): Hospital-based living for 6 weeks. Inpatients received medical, nutritional, physical, and psychological care. They maintained a low-calorie diet (tailored to patients' needs), entered weekly nutritional groups held by dieticians, received psychological support both in individual and group settings, and undertook physical training.	VR-Enhanced Cognitive Behavior Therapy (ECT): IP plus 15 CBT sessions (5 weekly group sessions and 10 biweekly individual sessions, similar to G2) over 5 weeks. In addition to IP and CBT, participants had 10 biweekly virtual reality (VR) sessions. (ECT protocol described in Riva et al.) NuroVR open-source software was used which includes 14 virtual environments used by the therapist during a 60-minute session with the patient, presenting critical situations related to the maintaining/relapse mechanisms and 2 body image comparison areas. Through VR, patients practiced both eating/emotional/relational management and general decision-making and problem-solving skills. Practicing in VR helps patients develop strategies for	CBT: IP plus 15 CBT sessions over 5 weeks. Therapists followed manual based on Fairburn et al. and Ricca et al. After the 1st inpatient week, participants entered 5 weekly group sessions and 10 biweekly individual sessions. The first 8 individual sessions were structured according to stage 1 of the CBT manual for binge eating, focusing on an overview of treatment goals, use of self-monitoring records to identify high-risk situations that might trigger binge eating, support in normalizing eating patterns, and identification of strategies for coping with high-risk situations for binge eating. Final	Received IP only	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Cesa, 2013[12] (continued)		avoiding/coping with triggering situations. Session 1: Assess stimuli that could elicit abnormal eating behavior Sessions 2-15: Assess and modify: a) expectations and emotions related to food and weight (functional analysis); b) strategies used to cope with difficult interpersonal and potential maintenance situations; c) body experience of the subject. After hospital discharge, continuity of care and support through telecommunication devices were offered, but contacts were not scheduled and rather dependent on patients' needs.	2 individual sessions focused on maintenance of improvement and on relapse prevention. Group sessions were structured according to stage 2 of the CBT manual for binge eating, focusing on problem-solving strategies and cognitive interventions targeting concerns about body weight and shape and problematic eating. After hospital discharge, continuity of care and support through telecommunication devices were offered, but contacts were not scheduled and rather dependent on patients' needs.			

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Compare, 2013[13]	NA	Dietary counseling (DC): administered via 12 one-hour weekly individual sessions over the first 3m treatment period, and 8 weekly group sessions (30 minutes) over the last 2m treatment period	Emotion-focused therapy (EFT): 20 group sessions (10-15 participants, weekly sessions of 60-90 minutes) over a 5m treatment period EFT is a psychological treatment designed to address the cognitive and interpersonal experiential perspective of emotions. With this treatment, once the contact with the emotional experience is achieved, clients must cognitively orient to taht experience as information and must explore, reflect on and make sense of it. This is achieved by exploring beliefs associated with the experienced emotion and by identifying the needs that can motivate change in personal meanings and beliefs.	Combined therapy: EFT sessions were combined with DC. Individual sessions of DC were programmed over the first 3 months on the same day and 1h before the EFT sessions	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
De Zwaan, 2005[14]	NR	VLCD plus group CBT: same as VLCD alone, except that group CBT focusing on binge eating behavior introduced after 2 weeks of food reintroduction or "refeeding". Group CBT: highly structured and manual-based; groups each contained 6-15 participants; placed special emphasis on relapse prevention; included psychoeducation about BED and binge eating, homework assignments, cognitive restructuring, and behavioral problem solving VCLD component: same duration and dosing as in combined treatment group CBT component: 10 weekly sessions of 1.5 hours	VLCD: protein-sparing modified fast (PSMF) involving 1) consumption of powdered supplement mixed with noncaloric liquids and abstaining from regular food and caloric beverages, 2) weekly group behavioral training (BT) meetings with dietitian (included nutritional education, behavioral strategies for weight reduction not designed to reduce or prevent binge eating, and low-level exercise program), 3) reintroduction of food, and then 4) weight stabilization phase involving balanced deficit diet of 1,200 kcal/day	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
De Zwaan, 2005[14] (continued)			1) Supplement (containing 70 g protein, 13 g fat, and 100 g carbohydrates for total of 800 kcal/day plus RDA of vitamins and minerals) taken for 12 weeks; 2) 24 weekly group BT meetings of 90 minutes (i.e., throughout entire treatment program); 3) 6 weeks of food reintroduction; and 4) 6 weeks of weight stabilization			

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Dingemans, 2007[15]	NA	CBT: 15 group sessions conducted over a 20-week period. First 10 sessions were weekly and last 5 sessions were biweekly. Each session lasted 2h. 2 therapists trained and experienced in CBT conducted all 15 sessions. Homework assignments and feedback on food diaries and homework were part of all sessions. Phase 1 (sessions 1-7): main goal to develop a regular eating pattern and to resist the urge to binge eat. Learned to identify and correct dysfunctional cognitions and avoidance behaviors related to eating, and to replace these behaviors with healthier, self-enhancing responses. Phase 2 (sessions 8-13): underlying problems such as body image, self-esteem, stress management, problem solving, assertiveness, and weight loss issues were addressed Phase 3 (sessions 14-15): relapse prevention after the end of treatment	No treatment until end of G1 treatment (20 weeks) at which point participants were offered CBT	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Eldredge, 1997[16]	none	CBT: 12-week phase of CBT described in Agras et al. (1995) (320_Agras). After the first 12 weeks of CBT, those who succeeded with treatment received an additional 12 weeks of the LEARN program for weight control; those who failed received 12 additional weeks of CBT. Those interventions are not described here because only 12 week outcomes are for randomized groups.	Waitlist control group	NA	NA	NA
Gorin, 2003[17]	NA	Tech and Agras (1992) CBT, 90-minute group meetings (with 6 – 11 participants per group), once a wk for 12 wks	CBT (standard manual modified for partner use), 90-min group mtgs once a week for 12 weeks	Wait List	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Grilo, 2013[18]	NR	Self-help CBT plus usual care: PCPs gave patients self-help manual called "Overcoming Binge Eating" (Fairburn, 1995) that follows professional CBT program and is considered to be treatment of choice for BED. Manual uses three stage presentation that offers patients: 1) education about binge eating, diet, and health, introduces graded behavioral techniques for establishing normalized eating patterns; 2) introduces self-monitoring and coping skills to maintain normalized eating; and 3) focuses on maintaining progress and preventing relapse. Usual care: patients instructed to follow whatever advice and treatment their PCPs recommended, although patients asked to refrain from seeking commercial self-help programs. All patients had existing relationships with primary care settings.	Usual care: patients instructed to follow whatever advice and treatment their PCPs recommended, although patients asked to refrain from seeking commercial self-help programs. All patients had existing relationships with primary care settings.	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Grilo, 2014[19]	Placebo: provided by primary care physicians along with information about sibutramine (the study drug), including its potential mechanisms and effects on eating/weight, and potential side effects, and instructed participants how to take it. Physicians instructed participants to contact them if any concerns arose. Physicians were available to meet with patients as needed to discuss any ongoing medication issues, side effects, and their management.	Self-help cognitive behavioral therapy (shCBT) plus placebo medication: Patients were given placebo medication and the book "Overcoming Binge Eating" (Fairburn 1995). Primary care physicians with no specific training as mental health professionals or with eating disorders instructed participants how to read the book and to focus on following the self-help program. The physicians were given brief training and a script to assist them in delivering the message in a standardized manner to participants. The book has 3 stages: 1) Description of CBT model, information about binge eating, dieting and health, and self-monitoring and behavioral techniques for normalizing eating patterns. 2) Maintaining normalized eating patterns, continuing to self-monitor, integrating cognitive procedures, and learning new coping skills for triggers of maladaptive eating. 3) Maintaining changes and learning relapse prevention techniques	Placebo medication only	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Grilo, 2011[20] Grilo, 2011[21]	Delivered by 5 doctoral-level psychologists all with psychothearpy experience and specific clinical experience treating patients with ED and obesity. Delivered in group sessions (comprising 11-12 participants) co-led by 2 thearpists. Three initial groups (1 for each tx condition) were co-led by one of the investigators and one of the therapists, and subsequent therapist pairs always consisted of at least 1 co-leader experienced in conducting tx for this study. Each therapist delivered each of the 3 different treatments. Therapists received intensive training in CBT and BWL.	CBT: administered in 16 group 60-minute sessions over a 24wk period following the manualized protocol (Fairburn et al. 1993). 3 overlapping phases: 1) establishing a collaborative therapeutic relationship while focusing on educating the patient about the nature of binge eating and factors thought to maintain the problem. Specific behavioral strategies are used to help patients identify problems with their eating patterns while working towards a normal and structured eating pattern. 2) integrates cognitive restructuring procedures, where patients learn to identify and challenge maladaptive cognitions regarding eating and weight/shape and thoughts that serve as triggers for binge eating. 3) maintenance of change and relapse prevention	BWL: administered in 16 group 60-minute sessions over a 24wk period following the manualized LEARN Program for Weight Management (Brownell 2000). LEARN focuses on making gradual lifestyle changes with goals of moderate caloric restriction and increased physical activity to produce gradual weight losses. Nutritional guidance follows federal guidelines. This BWL is structured with a series of steps to assess and change eating and activity behaviors. The steps are presented in an additive fashion yet with redundancy to facilitate mastery.	CBT was delivered first (16 sessions over 16 weeks) followed by BWL (16 sessions over 24 weeks) CBT: administered in 16 group 60-minute sessions over a 24wk period following the manualized protocol (Fairburn et al. 1993). 3 overlapping phases: 1) establ	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Grilo, 2005[22] Masheb, 2007[23]	Participants in all groups completed daily self-monitoring record forms about their overeating behaviors. Participants in all groups also met briefly (15-20 minutes) with doctoral research-clinicians 6 times (biweekly during the 12-week intervention period), although the focus of the meetings was different in each arm.	CBT: participants received a self-help CBT patient manual comprised of 2 sections: 1) psychoeducational section comprised of 8 brief chapters describing binge eating and its various forms and associated problems, providing a rationale for the self-help approach and model; 2) self-help program with 6 steps addressing how to assess and change eating behaviors (including binge eating) and associated features. The 6 clinician sessions focused on following the CBT protocol while also a) maintaining and enhancing motivation; b) correcting any misunderstanding of the information; c) problem-solving difficulties with relevant skill-building exercises in the protocols; and d) reinforcing the.	Behavioral weight loss: participants received the LEARN (Lifestyle, Exercise, Attitudes, Relationships, and Nurtition) Program for Weight Management manual, focusing on making gradual and moderate lifestyle changes with goals of moderate caloric restriction and increased physical activity to produce modest gradual weight loss. The book is structured with 16 lessons and a series of steps that address how to assess and change eating and activity behaviors. The 6 clinician sessions focused on following the LEARN protocol while also a) maintaining and enhancing motivation; b)	Control: participants received no treatment manual. The focus of the 6 clinician sessions was the necessity and completeness of the self-monitoring of overeating behaviors.	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Grilo, 2005[22] Masheb, 2007[23] (continued)		necessity for self-monitoring and record-keeping	correcting any misunderstanding of the information; c) problem-solving difficulties with relevant skill-building exercises in the protocols; and d) reinforcing the necessity for self-monitoring and record-keeping.			
Hilbert, 2004[24]	- Guided by a standardized manual based on CBT for BN - 19 weekly sessions with 5 months and a self-management phase of three sessions scheduled every 3rd week - All tx modules focused on eating (sessions 1-8), body image (sessions 2-15), and stress (session 14-19).	CBT- E - body image module included four group sessions and HW assignments based on body exposure (in vivo mirror exposure to one's whole body under various condtionts & exposure to avoided body- related situations)	CBT-C - four group sessions & HW assignments in cognitive restructing provided over four sessions and four HW assignnments.	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Le Grange, 2002[25]	NR	Group CBT with EMA (Ecological Momentary Assessment): identical to group CBT and also required patients to systematically and intensively record mood, events, thoughts, and eating behaviors in situ during first 2 weeks of treatment (Gorin & Stone, 2000). Patients trained in EMA diary-keeping, given detailed instruction of DSM-IV definition of binges, and required to wear wristwatch that beeped to prompt patients to add diary entries. Binge trigger protocols generated for each patient using diary entries and used to identify appropriate individualized strategies to curb future binge eating 12 weeks of sessions, length and frequency of sessions NR	Standard Group CBT, based on Telch and Agras' (1992) CBT for BED therapist manual which was adapted from CBT model for bulimia nervosa (Fairburn, 1985) 12 weeks of sessions, length and frequency of sessions NR	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Masheb, 2011[26]	21 hourly CBT sessions over a 6-month treatment period, weekly for weeks 1-16 and every other week for weeks 17-26, with 40 minutes devoted to CBT and 20 minutes devoted to nutrition. Participants completed daily food diaries that were checked weekly by clinicians, and instructed how to self-monitor binge episodes. First phase of CBT: establishment of collaborative therapeutic relationship while focusing on educating the patient about the nature of binge eating and the factors or processes thought to maintain the problem. Behavioral strategies such as self-monitoring were used to help patients identify eating problems, and other strategies were used to assist the patient in working toward a structured pattern of eating. Second phase of CBT: integrated cognitive skills such that patients learned to identify and challenge maladaptive thoughts and triggers related to eating and weight/shape. Final phase: maintenance of change and relapse prevention.	CBT plus weekly dietary counseling for lowering energy density, using topics adapted from the manualized protocol by Ello-Martin et al. (2007) Phase 1: patients were informed about the objective and science of energy density, shown photos of meals differing in energy density, and taught how to calculate energy using labels and a food chart. Phase 2: Goals were set to increase the patient's consumption of low-energy-density foods which could be eaten in satisfying portions and to exercise portion control over medium to high energy-density foods. Clinicians reviewed and discussed weekly topics with patients and problem-solved any obstacles to achieving goals for lowering energy density.	CBT plus weekly dietary counseling for health Phase 1: Patients were informed about the objective of the general nutrition treatment and the science and definition of nutrients, taught the definition of calories and informed about labels. Phase 2: Weekly topics were designed specifically as a control for the type and amount of dietary information provided in the energy density condition (e.g., dietary fat, calcium, water, etc.). Clinicians reviewed and discussed weekly topics with patients but no problem-solving or goal-setting was conducted in these sessions.	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Masson, 2013[27]	NA	DBTgsh: Manual was used in previous studies of DBT for BED (see Safer et al., 2010). The aim of the treatment is to teach individuals three skills: mindfulness, distress tolerance, and emotion regulation. The self-help book provides psychoeducation as well as activities and exercises. Individuals in the DBT treatment condition attended one inperson 45-min orientation session in which the self-help manual was distributed and the basic tenets of the treatment were described. In addition, participants received six biweekly 20min support phone calls over the 13 weeks of treatment. Under the supervision of a clinical psychologist, a study author/clinical psychologist provided telephone support to participants by asking them a series of standardized questions, encouraging their use of the manual, answering questions about the manual, and problem-solving with participants about how to find time to use the manual or remember strategies discussed in the manual	Wait-list (not described)	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Munsch, 2007[28] Munsch, 2012[29]	Treatment groups consisted of up to 7 members. Active treatment phase consisted of 16 weekly 90-minute group sessions, and 6 monthly 90-minute follow-up group sessions. The last session took place 12 months after the end of active treatment. A therapist (psychotherapists with specialized CBT training) and co-therapist (master's students) led the groups	Group CBT: sessions followed manual developed according to Fairburn et al. Details about goals and techniques/interventions for each session are described in Table 2 of Munsch, Biedert, Meyer, et al., 2007[28].	Group BWLT: sessions based on the manual "Weight loss with Xenical" (Margraf et al. 2000). Details about goals and techniques/interventions for each session are described in Table 2 of Munsch, Biedert, Meyer, et al., 2007[28].		NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Pendleton, 2001[30]	Weekly 90-minute group sessions for 4 months based on CBT treatment for BED outlined in Telch 1990 (see comments), led by registered dieticians with more than 5y experience and training in the CBT tx of obesity. The first half of each session dealt with eliminating binge eating by establishing regular, healthy eating patterns. Weight concerns were put on hold until binges were under control. Subjects were taught to self-monitor their food intake and eating patterns, binge episodes, thoughts and mood pre- and post-binge, as well as the circumstances and environmental conditions surrounding the eating. Second half of each session included efforts to enhance social influence processes and to develop problem-solving skills. Subjects were taught to reinforce each other's progress with praise and to form a telephone network for support calls with each other. Focus on positive reinforcement, specific recommendations regarding problem-solving strategies, and being available to receive support calls.	CBT plus maintenance and exercise The initial 4m CBT intervention plus Exercise (see group 2 description) with maintenance, described as 12 biweekly meetings over a period of 6 months, wherein "exercisers continued to meet and exercise" (unsure whether this means that both exercise and CBT continued for 6 months)	CBT plus exercise The initial 4m CBT intervention plus Exercise: subjects were provided instruction on how fitness relates to dieting and binging and how exercise helps to break the diet-binge cycle. The instruction covered basic exercise principles and self-management techniques, social influence, and problem-solving. Subjects were provided memberships to the Human Performance and Rehabilitation Center (HPRC) and encouraged to increase gradually their levels of aerobic exercise, expected to exercise for at least 45 min per session, 3x / week, twice at the HPRC using equipment and once on their own at home by brisk walking.	CBT plus maintenance The initial 4m CBT intervention plus Maintenance: 12 biweekly CBT meetings over a period of 6 months. Although article says "subjects in the CBT-only group continued with sessions," I believe they meant to refer to the CBT plus maint	CBT only: The initial 4m CBT intervention	

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Peterson, 1998[31] Peterson, 2001[32]		Therapist led - conducted by a PhD trained in CBT - 1st half psychoeducational - 2nd half therapist led group discussion - manual based CBT previously used for BN - 14 one-hour session over 8 weeks - sessions occurred 2x's p/wk during the first 6 wks, 1x p/wk during last 2 wks	Partially therapist-led - viewed vidoetape of same psychologist in therapist led - 1st half videotaped psychoeducational - 2nd half therapist led group discussion - manual based CBT previously used for BN - 14 one-hour session over 8 weeks - sessions occurred 2x's p/wk during the first 6 wks, 1x p/wk during last 2 wks	Structured self-help - viewed same videotape - 1st half videotaped psychoeducational - 2nd half led own discussion - one group member assigned to facilitate each group - manual based CBT previously used for BN - 14 one-hour session over 8 weeks - session	waitlist	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Peterson, 2009[33]	NR	Structured self-help group CBT, in which group members watched psychoeducational videotape during first half of each session and led their own homework review and discussion on rotating basis during second half; 15 sessions of 80 minutes over 20-week period, with weekly sessions for first 10 weeks and bi-weekly sessions for remaining 10 weeks	Partially therapist-led group CBT, in which group members watched psychoeducational videotape during first half of each session, and doctoral-level psychotherapist led homework review and discussion during second half; 15 sessions of 80 minutes over 20-week period, with weekly sessions for first 10 weeks and bi-weekly sessions for remaining 10 weeks	Therapist-led group CBT, in which doctoral-level therapist provided psychoeducation during first half of each session and homework review and discussion during second half; 15 sessions of 80 minutes over 20-week period, with weekly sessions for first 10 w	Waitlist condition that received therapist-led group CBT at end of 20-week waiting period	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Ricca, 2010[34]	In both groups, CBT is based on the manual of Fairburn, Marcus, and Wilson (1993), with 3 phases: 1) aims to eliminate binge eating and adopt a regular eating pattern; 2) reduce food intake and modify dysfunctional beliefs involved in the maintenance of the disorder; 3) prevent relapses, plan adequate strategies to deal with foreseeable obstacles. Patients received information about nutrition, the multifactorial pathogenesis of overweight, and the role of diet and exercise. Patients were educated to self-monitoring and assignment of tasks; daily diaries were completed and reviewed at each session. Subjects also have to try to identify attractive subjects with a size above average, in order to consider them as possible positive role models. Therapists completed a 4-year training in CBT and are experienced in treating individuals with eating disorders. Co-therapists were residents of the	Individual CBT: 22 individual sessions of 50 minutes each for 24 weeks. Phase 1 was 8 sessions, phase 2 was 8 sessions, and phase 3 was 6 sessions. When someone did not attend a session, it was repeated.	Group CBT: 20 group sessions of 60 minutes for 22 weeks. Phase 1 was 7 sessions, phase 2 was 7 sessions, and phase 3 was 6 sessions. Treatment groups consisted of up to 12 members. A therapist and co-therapist led each group.	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Ricca, 2010[34] (continued)	Department of Neuroscience at the University of Florence. Therapists and co-therapists were trained to implement the manual-based treatments, engaged in weekly peer group supervision using session notes and audiotapes. Session audiotapes were reviewed weekly and therapists were given feedback weekly by an independent expert.					

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Riva, 2002[35]	NA	Psychotherapy or behavioral therapy: Virtual reality for eating disorders modification (VREDIM), which delivers an immersive virtual environment composed of seven 3D Healing Experiences, each used by the therapist during a 50-minute session with the patient. The first 3D Healing Experience assesses stimuli that could elicit abnormal eating behavior. Subsequent sessions assess and modify symptoms of anxiety related to food exposure and the body experience of the subject. In all sessions the therapist uses the Socratic style. Participants also followed a low-calorie diet (1200 cal/day) and physical training program (30 min of walking 2x/week as a minimum) (The diet and exercise program were identical to the diet and physical training in the control group).	Psychotherapy or behavioral therapy: Psychonutritional groups based on the cognitive behavior approach, delivered 3 times a week and focused on helping patients understand the importance of their lifestyle and to modify unhealthy and destructive behavior patterns by teaching methods for improving stress management, problem-solving, and eating. Participants also followed a low-calorie diet and physical training program (identical to the diet and physical training in the intervention group).	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Riva, 2003[36]	NA	Experiential cognitive therapy (ECT): 15 sessions over 6 weeks. Week 1: 5 weekly group sessions aimed at improving assertiveness and motivation to change, and 10 biweekly virtual reality (VR) sessions. VR sessions provide 14 virtual environments used by the therapist during a 50m session with the patient. Session 1 assesses any stimuli that could elicit abnormal eating behavior (part of the Temptation Exposure with Response Prevention protocol), and ends with solution planning. Sessions 2-10: assesses and modifies food-related anxiety symptoms and the body experience of the subject. All sessions use the Socratic style. Sessions 11-15 not described. This group also received 5 weekly nutritional groups held by dieticians, in addition	CBT: 15 sessions over 6 weeks: 5 weekly group sessions (aimed at improving assertiveness and motivation to change) plus 10 biweekly individual sessions (targeting eating behavior, self-esteem, and related problems). 10 individual sessions based on the CBT manuals by Fairburn. This group also received 5 weekly nutritional groups held by dieticians, in addition to maintaining a low-calorie diet (1200 kcal/day) and physical training. The duration for all treatments was 6 weeks and was administered by 2 charted clinical psychologists and one chartered psychotherapist under the supervision of a	Nutritional groups: This group also received 5 weekly nutritional groups held by dieticians, in addition to maintaining a low-calorie diet (1200 kcal/day) and physical training. The duration for all treatments was 6 weeks and was administere d by 2 charted	Waiting list: No description provided of this group	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Riva, 2003[36] (continued)		to maintaining a low-calorie diet (1200 kcal/day) and physical training. The duration for all treatments was 6 weeks and was administered by 2 charted clinical psychologists and one chartered psychotherapist under the supervision of a senior chartered psychotherapist. The 3 therapists were balanced between the 3 conditions. It is implied that this treatment is inpatient/outpatient, but it is not described which components are inpatient and which are outpatient.	senior chartered psychotherapist. The 3 therapists were balanced between the 3 conditions. It is implied that this treatment is inpatient/outpatient, but it is not described which components are inpatient and which are outpatient.			

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	- Two co-therapists led sessions, a senior (MD or PhD) and a doctoral candidate	DBT_BED - Based on Linehan's DBT for borderline PD, previously adapted for BED by Telch - 20 sessions including: - 2 intro sessions - 16 sessions teaching adaptive emotion-regulation skills - 2 sessions for review and relapse	ACGT - Safer and Hugo (2006) for detailed description - Based off Markowitz & Sacks (2002) - Follows a Rogerian approach	NA	NA	NA
Schlup, 2009[40]	NA	Shortened CBT, 8 weekly 90-min sessions, followed by 5 90-min booster sessions until 12m follow up	Wait-list, wait 8 weeks then same tx as G1	Examined by coding randomly selected videotaped sessions	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Schlup, 2010[41]	Treatment groups started when 5-8 participants had been recruited. In both samples there were 7 treatment groups carried through by fully qualified psychotherapists with specialized training in CBT and master's students of clinical psychology as co-therapists, trained and supervised weekly by the senior researchers of the corresponding study	16 weekly 90-minute group sessions in the active treatment phase and 5 booster sessions during the 12-month follow-up period. During these sessions, treatment contents discussed during the active treatment phase were revised, whereas no new treatment topics were introduced	8 weekly 90-minute group sessions in the active treatment phase, followed by 5 group sessions identical to the CBT-L during follow-up treatment. Protocol mainly focused on reducing the core symptomatology for BED. In contrast to G1, psychoeducation on balanced nutrition and modifcation of body concept were only marginally targeted	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Tasca, 2006[42] Tasca, 2012[43]	NA	Group psychodynanimc interpersonal therapy was delivered in 16 weekly group therapy sessions using a detailed treatment manual. One pre-group preparation session assessed participant attachment and provided psychoeducation about the treatment. Early sessions focused on understanding patient's cyclical relational patterns (CRPs) and developing a cohesive working group. Later stages focused on loss and separation as universal stressors, and new CRPs and accompanying introjects were reinforced. Diet, weight-related issues, and dysfunctional cognitions specific to dietary restraint were not directly addressed by the therapist.	Group cognitive behavioral therapy (CBT) was delivered in 16 weekly group therapy sessions using a detailed treatment manual. One pre-group preparation session introduced the model and concepts of CBT. Treatment as aimed at reversed excessive dietary restriction, exposing participants to a wider range of foods, reducing rigid food rules and body image problems, and addressing cognitive distortions specific to eating disorders. Three stages included: 1) establishing regular and flexible heart healthy eating patterns, 2) presenting alternative coping	In the control condition, participants were addessed, waited 16 weeks without treatment or any other contact form the center, then were reassessed . After reassessm ent, these participants were offered group therapy for binge eating, so only their prewaitin	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Tasca, 2006[42] Tasca, 2012[43] (continued)			strategies and confronting fears associated with eating and loss of control, and 3) addressing reasonable weight expectations, lifestyle approaches to weight loss, and relapse prevention.			
Telch, 2001[44]	NA	DBT, delivered at wkly, group 2hr sessions to teach DBT skills for 20 wks	Wait-list	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Wilfley, 2002[45] Hilbert, 2012[46]	Twenty 90-minute, weekly group sessions and 3 supplemental individual sessions (pre-treatment, mid-treatment, post-treatment) specifically addressing each participant's goals and progress. Participants received weekly personalized, written feedback detailing progress. Groups led by 2 therapists (one doctoral level, one at doctoral level or psych doctoral student). Therapists followed treatment manuals, trained by manuscript authors. Therapists received session-by-session supervision and feedback on each session's audiotapes to ensure manual adherence.	Group CBT: First phase (sessions 1-6): behavioral strategies (e.g., self-monitoring) help patients identify episodes of overrestriction and underrestriction and encourage normalization of eating patterns. Second phase (sessions 7-14): patients learn cognitive skills and cognitive restructuring to counter negative thoughts identified as predisposing binge eating. Third phase (sessions 15-20): patients learn relapse prevention techniques (e.g., problem-solving and coping with high-risk situations), identify reasonable goals and strategies for weight loss that will not promote bingeing	Group IPT: IPT is a brief, focused treatment focusing on problem resolution within 4 social domains: grief, interpersonal role disputes, role transitions, and interpersonal deficits. Phase 1 (sessions 1-5): examination of patient's interpersonal history to identify problem areas associated with BED, provision of a plan for working on problem areas Intermediate phase (sessions 6-15): strategies are implemented to help patients make changes Termination phase: (sessions 16-20): patients evaluate and consolidate gains, detail plans for maintaining improvements, outline remaining work	NA	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Wilson, 2010[47] Sysko, 2010[48]	NR	BWL: 16 individual weekly sessions each lasting 50 minutes and followed by 4 sessions at 2-week intervals aimed at continuing weight loss and enhancing maintenance of such losses. Based on NIDDK's Diabetes Prevention Program's manual. Moderate caloric restriction and exercise, reduction of fat intake to 25% of calories from fat. Weight loss goal of 7% of starting weight. Self-monitoring of exercise, fat intake, and (if necessary) caloric intake. Treatment delivered by master's-level therapists in clinical psychology or nutrition, who received supervision every other week.	CBTgsh: 10 treatment sessions, each lasting approximately 25 minutes, except for 1st session which was 60 minutes. First 4 sessions were weekly, next 2 occurred at 2wk intervals, and last 4 occurred at 4wk intervals. Based on Fairburn's book Overcoming Binge Eating, performed under the guidance of a therapist. Book provides education about binge eating and a step-by-step CBT self-help program. Primary focus is devloping a regular pattern of moderate eating using self-monitoring, self-control strategies, and problem-solving. Relapse prevention is emphasized to promote	IPT: 19 sessions delivered over 24 weeks (first 3 sessions scheduled during first 2 weeks, followed by 12 weekly sessions, and final 4 sessions were at 2-week intervals). All sessions were individual and lasted 50-60 minutes except for the first session w	NA	NA

Evidence Table 21. Binge eating disorder behavioral treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Wilson, 2010[47] Sysko, 2010[48] (continued)			maintenance of behavioral change. Principal role of therapist is to explain the rationale for the use of the self-help manual, generate a reasonable expectancy for a successful outcome, and to motivate the patient to focus on using the manual. Therapists were 1st or 2nd-year graduate students with no experience in CBTgsh or treating BED, trained in 3h workshop, no regularly scheduled supervision.			

Evidence Table E22. Binge eating disorder behavioral treatment – part 4

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Agras, 1995[5]	NR	CBT manual cited from Telch CF, Agras WS, Rossiter EM, Wilfley D, and Kenardy J. (1990). Group cognitive-behavioral thearpy for the nonpurging bulimic: An initial evaluation. Journal of consulting and clinical psychology, 58, 629-635.	Assessments took place pretreatment and at 12 weeks. Although the study included 24wk outcomes, they are not included in the review due to loss of original randomization after 12 weeks. Binge eating was measured by means of diary on which they recorded whether they had engaged in binge eating each day for a 14-day period. Both "objective" (i.e., binges consisting of a large amount of food and a sense of LOC of eating behavior) and "subjective" (i.e., binges consisting of a normal or small amount of food accompanied by a sense of LOC) were counted as binges
Allen, 1999[6]	NR	Appetite Awareness Training described in Craighead LW & Allen HN. (1995). Appetite awareness training: A cognitive behavioral intervention for binge eating. Cognitive and Behavioral Practice, 2, 249-270.	Assessments were conducted at baseline and posttreatment (8wk). Patients completed self-monitoring records using the Record of Eating Episodes (REE), a self-monitoring form developed for AAT to record feelings of unger and fullness. The REE is completed for 1 week; clients rate appetite on a scale from 1-7 (from very hungry to very full) both immediately before and immediately after each eating episode. Clients also indicate whether they consider the eating episode a meal, a snack, or a binge.
Carrard, 2011[7]	Among 74 participants, 25 (33.8%) completed all 11 intervention modules. 54 (73%) reached module 6. Participants logged on 81.1 times on average (SD 51.8, range 1-191). Number of days completed in the diary ranged from 0-214 days with a mean of 96.3 days (SD=61.4). Participants sent between 1 and 47 messages to their coach (mean=21.8, SD 10.9)	NA	Outcomes were assessed through self-report questionnaires at baseline, after 6 months (at the end of treatment for G1 and at the end of the waiting period for G2), and after 1 year (6 months after the end of treatment for G1 and at end of treatment for G2). Outcome measures included the Eating Disorder Examination Questionnaire (EDE-Q), the Eating Disorder Inventory-2 (EDI-2), and the Three-Factor Eating Questionnaire (TFEQ).

Evidence Table E22. Binge eating disorder behavioral treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Carter, 1998[8]	Twenty-three (92%) G2 participants reported that they had read the whole of the educational section (i.e., all eight educational chapters) in comparison with 24 (71%) of those in G1. Similarly, all the G2 participants reported reading the six-step self-help manual in comparison with 26 (77%) of the G1 participants. When asked whether they had followed the entire self-help program, 17 (68%) of the G2 participants responded positively in comparison with only 2 (6%) of the G1 participants. Across all the steps of the program the G1 participants had significantly lower compliance ratings than those who had received G2.	Citation for intervention book: Fairburn, C.G. (1995). Overcoming binge eating. New York: Guilford Press.	Assessments took place on 4 occasions: immediately before treatment, immediately after treatment, and at 3- and 6-month follow-up. Those in G3 were assessed before entering the study and before subsequent randomization to PSH or GSH.

Evidence Table 22. Binge eating disorder behavioral treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Cassin, 2008[9]	AMI sessions were taped; 20 (37%) were rated by two trained undergraduate RA's on the basis of the MI guidelines of the Yale Adherence and Competence Scale - Second Edition. On a 7 point scale where 7 represents that MI features were extensively present, 78.3% were rated as a 7, 21.3% as a 6, and 1.4% as a 5. Scores were averaged across raters; interrater reliability was not calculated due to restricted ranges on the 7-point scale. 5 was deemed the minimal threshold of adherence based on Nuro et al. 2005	NA	Outcome data were obtained immediately following the intervention and then through three follow-up phone interviews using the Timeline Follow-Back Interview (TLFB) at 4 weeks, 8 weeks, and 16 weeks respectively.
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	NR	NA	Assessments were conducted at baseline, discharge from hospital (about 1 month after discharge), and after 6 months from discharge

Evidence Table 22. Binge eating disorder behavioral treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Cesa, 2013[12]	NR	Fairburn CG. Overcoming binge eating. New York: Guilford Press; 1995. Fairburn CG, Wilson GT. Binge eating: nature, assessment, and treatment. New York: Guilford Press; 1993. Cognitive-behavioral therapy for binge eating and bulimia nervosa: A comprehensive treatment manual. Ricca V, Mannucci E, Zucchi T, Rotella CM, Faravelli C. Cognitive behavioural therapy for bulimia nervosa and binge eating disorder. A review. Psychother Psychosom. 2000; 69(6):287-95. Riva G, Bacchetta M, Baruffi M, Rinaldi S, Vincelli F, Molinari E. Virtual reality-based experiential cognitive treatment of obesity and binge-eating disorders. Clinical Psychology and Psychotherapy. 2000; 7:209-219. Riva G, Bacchetta M, Cesa G, Conti S, Molinari E. Virtual reality and telemedicine based experiential cognitive therapy: rationale and clinical protocol. In: Riva G, Galimberti C, editors. Towards CyberPsychology: Mind, Cognition and Society in the Internet Age. Amsterdam: IOS Press; 2001. pp273-308.	Assessments obtained 1 week after start of inpatient program, at the last week, and at 1-year follow-up (by postal mail).
Compare, 2013[13]	NR	NA	Assessments were conducted at baseline, at the end of treatment, and at 6-month follow-up. Comparisons were performed using a propensity score approach to adjust treatment for baseline values.

Evidence Table 22. Binge eating disorder behavioral treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
De Zwaan, 2005[14]	NR	NA	Outcomes with follow-up at 72 weeks (12 month follow-up) only: - Prevalence of BED diagnosis evaluated with SCID for DSM-IV Outcomes with follow-up at 12 weeks (end of fast), 18 weeks (end of refeeding), 24 weeks (stabilization/end of treatment), and 28 weeks (1 month follow-up): - Frequency of binge eating episodes evaluated using Eating Behavior-IV (EB-IV) (previous 7 days) Outcomes with follow-up at 12 weeks (end of fast), 18 weeks (end of refeeding), 24 weeks (stabilization/end of treatment), 28 weeks (1 month follow-up), and 72 weeks (12 month follow-up): - Percentage of patients abstinent from binge eating evaluated using EB-IV (previous 7 days) - Percentage of weeks abstinent from binge eating evaluated using EB-IV Outcomes with follow-up at 12 weeks (end of fast), 18 weeks (end of refeeding), 24 weeks (end of treatment), 28 weeks (1 month follow-up), 48 weeks (6 month follow-up) and 72 weeks (12 month follow-up): - Weight - BMI - Eating disorder psychopathology evaluated using EDI, TFEQ, and BES - General psychopathology evaluated using BDI, HAM-D, MPQ-Impulsivity, RSE
Dingemans, 2007[15]	NR	NA	Assessments were conducted at baseline, mid-treatment (10 weeks), post-treatment (20 weeks); 1 year follow up data combined the CBT and WLC groups (who underwent CBT after the initial waiting period).

Evidence Table 22. Binge eating disorder behavioral treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Eldredge, 1997[16]	NR	CBT intervention described in Agras WS, Telch CF, Arnow B, Eldredge K, Detzer MJ, Henderson J, and Marnell M. (1995). Does interpersonal therapy help patients with binge eating disorder who fail to respond to cognitive-behavioral therapy? Journal of Counseling and Clinical Psychology, 63, 356-360.	Assessments took place pretreatment and at 12 weeks. Although the study included 24wk outcomes, they are not included in the review due to loss of original randomization after 12 weeks. Binge eating was assessed by self-monitoring throughout treatment, characterized as the number of days during a 14-day period in which patients reported at least one episode of binge eating. The crucial determining factor in labeling an episode a binge was the subjective experience of LOC over eating; therefore, episodes which consisted of both objectively large and small amounts of food were counted as binges.
Gorin, 2003[17]	Adherence checklist completed at the end of each sessions by therapist, checklist reviewed by project director	NA	All outcome results are posttreatment unless otherwise stated
Grilo, 2013[18]	NR	NA	Outcomes with follow-up at 4, 8, 12, and 16 weeks: - Frequency of OBEs in previous 28 days evaluated using EDE-Q at 4, 8, and 12 weeks or EDE Interview (EDE) at 16 weeks - Eating disorder psychopathology evaluated using EDE-Q Global - Depression evaluated using BDI scores - BMI scores measured with balance beam scale Outcomes with follow-up at 16 weeks only: - Remission from binge eating (i.e., no OBEs during previous 28 days) evaluated using EDE - Eating disorder psychopathology evaluated using EDE-Global NOTE: Only 16-week outcome data reported in article

Evidence Table 22. Binge eating disorder behavioral treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Grilo, 2014[19]	NA	NA	Outcomes were assessed at baseline, post-treatment, and at 6 and 12 months after post-treatment.
Grilo, 2011[20] Grilo, 2011[21]	Therapists were monitored by audiotapes of sessions, and received weekly supervision throughout the study by the investigators. Audiotapes were reviewed for adherence to the manualized protocols with specific assessments of session structure, process, and content elements. Evaluations were all above 83% compliance, with the modal ratings being 92-100%.	NA	Data collection occurred at post-treatment and 6- and 12-month follow-ups
Grilo, 2005[22] Masheb, 2007[23]	NR	NA	•Primary treatment outcome was "remission", defined as zero binges for the past 28 days, based on data obtained from ongoing daily self-monitoring assessments participants completed throughout the 12-week treatment period. •Secondary treatment outcomes included: -Frequency of binge eating, also obtained from the self-monitoring assessments -The following outcomes assessed at baseline, 4wk, 8wk, and 12wk f/u: *frequency of binge eating (EDE-Q) *features of eating disorders (EDE-Q, TFEQ) *depression (Beck Depression Inventory) *self-esteem (Rosenberg Self-Esteem Scale) *BMI

Evidence Table 22. Binge eating disorder behavioral treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Hilbert, 2004[24]	Supervision of videotaped sessions provided bi-weekly to ensure manual adherence	NA	- All measures administered at pretreatment posttreatment, 4-month follow-up
Le Grange, 2002[25]	NR	For more information about EMA, see Gorin & Stone, 2000. For more information about Standard Group CBT, see Telch and Agras (1992) and Fairburn, 1985.	Outcomes with follow-up at 12 weeks and 12 months: - Prevalence of BED diagnosis evaluated with SCID for DSM-IV - Frequency of binge eating episodes evaluated using self-report (previous 7 days) - Percentage of patients reducing binge-eating frequency by ≥50% - N of patients abstaining from binge eating - Eating disorder psychopathology evaluated using EDE-Q, TFEQ, and Emotional Eating Scale (EES) - BMI scores measured with balance beam scale Outcomes with follow-up at 12 weeks only: - Frequency of binge eating episodes evaluated with EDE (previous 28 days)

Evidence Table 22. Binge eating disorder behavioral treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Masheb, 2011[26]	Treatment credibility (using an adapted version of the Treatment Credibility Questionnaire): Significantly greater at the end of treatment compared to the beginning (p=0.001) but no significant interaction effect was found suggesting that the treatments were equally credible. Therapist adherence (obtained by independent assessors who listened to randomly selected audio tapes of sessions and rated them for compliance with protocols): 100% for the 3 core elements (reviewing self-monitoring of eating behavior, reviewing daily food diaries, completing CBT portion of the session), 84% for setting the agenda, and 81% for completing the dietary counseling portion of the session	Energy density counseling based on manualized protocol described in: Ello-Martin JA, Roe LS, Ledikwe JH, Beach AM, & Rolls BJ. (2007). Dietary energy density in the treatment of obesity: a year-long trial comparing 2 weight-loss diets. American Journal of Clinical Nutrition, 85(6), 1465-1477.	Assessments were conducted at baseline, 6m, and 12m
Masson, 2013[27]	NR	NA	Outcomes were assessed at baseline and post-treatment, and for G1 only, at 6-month follow-up (statistical tests not abstracted for 6m since analysis was for within-group change only)
Munsch, 2007[28] Munsch, 2012[29]	NR	"Weight loss with Xenical" described in: Margraf J. Aus dick wird nicht dunn. Falsche Erwartungshaltungen. In: Roche E, editor. In Hulle und Fulle. Dem Fett auf den Leib Geruckt. Basel: Hoffmann-La Roche, 2000.	Assessments were conducted at baseline, after the weekly treatment sessions (16 weeks) and at 12 month follow-up, and at 6y follow-up (Munsch, Meyer, Biedert, et al., 2012[29]). Binges were assessed by EDE and patients also completed self-monitoring.

Evidence Table 22. Binge eating disorder behavioral treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Pendleton, 2001[30]	The staff recorded attendance at the HPRC	Telch CF, Agras WS, Rossiter EM. (1990). Cognitive behavioral therapy for binge eating disorder: Therapist manual. Palo Alto, CA: Stanford University Press	Assessments were conducted at baseline, 4 (post-treatment), 10, and 16 months For binge eating, self-monitoring records and the 7d calendar recall method. Binge episodes defined as 1) eating within a 2h period an amount of food larger than most people would eat in a similar period of time under similar circumstances and 2) a sense of lack of control over eating during the episode. Binge episodes were converted to binge days.
Peterson, 1998[31] Peterson, 2001[32]	NA	- All therapist led sessions led by a Ph.D psychologist - Sessions filmed ot standardize delivery and content	- All binges recorded using the Eating Behavior - IV (EB-IV) - self monitoring system, participants taught during the baseline session '- Participants monitored binges 1-week before assessment - Binges were catorgorized into objective binges subjective binges, and total binge episodes based on the amount of food. - Additional self-repot measures were also administered - All measures collected at baseline, posttreatment (Peterson, 1998) and 1 month, 6 month and 12 month (Peterson, 2001)

Evidence Table 22. Binge eating disorder behavioral treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Peterson, 2009[33]	Reported for G2 and G3 only: Overall therapist rating, mean (SD): 6.32 (0.38) Therapist adherence to protocol, mean (SD): 6.19 (0.93) Therapist comprehensiveness, mean (SD): 6.00 (0.86) Therapist use of effective communication, mean (SD): 6.58 (0.62) Therapeutic technique, mean (SD): 6.46 (0.69) Therapist rapport with group members, mean (SD): 6.40 (0.55)	NA	Binges were assessed with the EDE (ref 20), and eating pathology was assessed using the TFEQ (ref 21). Both were administered by graduate level assessors at baseline, post-treatment (20 weeks post-baseline), and at 6-month and 12-month follow-up (44 and 72 weeks post-baseline, respectively). Patients completed all secondary outcome measures, including BMI, depression symptoms, self-esteem, and weight-specific QOL, at every timepoint: baseline, post-treatment (20 weeks post-baseline), and at 6-month and 12-month follow-up (44 and 72 weeks post-baseline, respectively).
Ricca, 2010[34]	Average attendance at groups was 95.4% (G1) and 95% (G2)	NA	Assessments were conducted at baseline, post-treatment (24 weeks), and 3 years after the end of treatment
Riva, 2002[35]	No significant differences in treatment attenddance between the groups. Mean # groups (out of 16 possible sessions) attended: G1: 12.35 (SD 4.41) G2: 11.77 (SD 4.11) p=0.50 Two independent judges (senior clinical psychologists not involved in the study) listed to samples of recorded sessions of both techniques.		Methods state that data collection occurred pre-treatment and post-treatment. However, authors allude to a 1-month post-treatment data collection time point in their reporting of binge cessation. Authors provide no description of how binge eating data were collected. Eating Disorders Inventory-2 was administered to participants at study entry but not at post-treatment, so did not abstract for outcomes
Riva, 2003[36]	NR	NA	Assessments were conducted at baseline, post-treatment (6 weeks), and 6 months after the end of treatment

Evidence Table 22. Binge eating disorder behavioral treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	NA	Adherence - tx sessions audiotapes reviewed wkly - wkly meetings - DBT-BED audiotapes reviewed by a DBT expert - integrity checklist for ACGT therapists to make sure no overlap btwn G1 and G2 tx or IPT, CBT, or behavopral wt. loss - therapists provided with clinical supervision	-Demographic and diagnositic info collected at baseline only - questions realted to tx suitability assessed after the pretreatment orientation - all other assessments at baseline, posttreatment, 3, 6 ,12 months
Schlup, 2009[40]	NA	NA	Examined mean differences between both groups post-treatment. Baseline values are overall, as the model assumes equal aseline values for both tx groups. All analysis at th end of active tx, before wait-list started receiving tx (at 8wks into study). Rest of the analysis does not differentiate betweent the two groups
Schlup, 2010[41]	NR	Additional details about interventions may be available in the articles reporting the two original trials: Munsch S, Biedert E, Meyer AH, Michael T, Schlup B, Tuch A, Margraf J. A randomized comparison of cognitive behavioral therapy and behavioral weight loss treatment for overweigh individuals with binge eating disorder. Int J Eat Disord 2007; 40: 102-113 Schlup B, Meyer AH, Margraf J, Wilhelm F. The efficacy of a short version of a cognitive-behavioral treatment followed by booster sessions for binge eating disorder. Behav Res Ther 2009; 47: 628-635	Variables were assessed at pre-treatment, at the end of treatment (following 16 weeks of CBT in G1 and 8 weeks of CBT in G2), and at 12-month follow-up

Evidence Table 22. Binge eating disorder behavioral treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Tasca, 2006[42] Tasca, 2012[43]	Among 74 participants, 25 (33.8%) completed all 11 intervention modules. 54 (73%) reached module 6. Participants logged on 81.1 times on average (SD 51.8, range 1-191). Number of days completed in the diary ranged from 0-214 days with a mean of 96.3 days. Participants sent between 1 and 47 messages to their coach (mean=21.8, SD 10.9)	G1 manual: Tasca GA, Mikail S, & Hewit P. Group psychodynamic interpersonal psychotherapy: A manual for time limited treatment of binge eating disorder. (2002). Unpublished manuscript. G2 manual: Wilfley DR, Stein RI, Friedman MA, Beren SA, & Wiseman CV. Group cognitive-behavioral therapy for binge eating disorder. (1996). Unpublished manuscript.	Days binged in past 7 days, assessed by EDE and calendar recall method The Inventory of Interpersonal Problems (IIP) was administered pre-treatment, post-treatment (time period not specified), and at 6 months post-treatment. IIP is a 64-item measure that assesses overall distress regarding interpersonal problems, by a total score and 8 subscales (Domineering/controlling, Vindictive/self-centered, Cold/distant, Socially inhibited, Non-assertive, Overly accommodating, Self-sacrificing, Intrusive/needy)
Telch, 2001[44]	NR	NA	Means are reported; square root transformations were used in analyses. Participants asssesd at 20 wks of tx
Wilfley, 2002[45] Hilbert, 2012[46]	Therapists received session-by-session supervision and feedback on each session's audiotapes to ensure manual adherence. Following all treatment, 2 independent raters coded 9 CBT and 9 IBT audiotaped sessions using 30 items adapted from an integrity scale used to differentiate CBT and IPT; treatment-specific indices significantly differentiated the treatments, whereas the nonspecific index did not. No significant differences in number of sessions attended in the two groups.	NA	Wilfley, Welch, Stein, et al., 2002[45]: All data are for completers at each time point unless stated ITT. Outcomes assessed pre-treatment, post-treatment (immediately following treatment cessation, mean 0.5 months), and at 4, 8, and 12 months post-treatment. Hilbert, Bishop, Stein, et al., 2012[46] Data collected at pre-treatment, post-treatment, 1-year follow-up, and long-term follow-up (mean 46.0 months after treatment) Long-term follow-up assessments included phone interviews and self-report questionnaires, whereas all other assessments involved in-person diagnostic visits and self-report questoinnaires. Note: many outcomes were abstracted from a supplemental table not included in the article that can be accessed at http://bjp.rcpsych.org/content/suppl/2012/01/19/bjp.bp.110.089664.DC1/ds89664.pdf

Evidence Table 22. Binge eating disorder behavioral treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Wilson, 2010[47] Sysko, 2010[48]	NR	IPT references: Wilfley DE, Welch RR, Stein RI, Spurrell EB, Cohen LR, Saelens BE, Dounchis JZ, Frank MA, Wiseman CV, Matt GE. A randomized comparison of group cognitive behavioral therapy and group interpersonal psychotherapy for the treatment of overweight individuals with binge eating disorder. Arch Gen Psychiatry. 2002; 59 (8): 713-721. Wilfley DE, Frank E, Welch R, Spurrell EB, Rounsaville B. Adapting interpersonal psychotherapy to a group format (IPT-G) for binge eating disorder: toward a model for adapting empirically-supported treatments. Psychothearpy Res. 1998;8(4):379-391. Fairburn CG. Interpersonal psychothearpy for bulimia nervosa. In: Garner DM, Garfinkel PE, eds. Handbook of treatment for eating disorders. New York, NY: Guilford Press; 1997: 278-294. Klerman GL, Weissman MM, Rounsaville B, Chevron E. Interpersonal Psychothearpy of Depression. New York, NY: Basic Books, 1984. BWL reference: Diabetes Prevention Program (DPP) Research Group. The diabetes prevention program (DPP): description of lifestyle intervention. Diabetes Care. 2002; 25(12):2165-2171. CBT reference: Fairburn CG. Overcoming Binge Eating. New York, NY: Guilford Press; 1995.	Assessments were conducted at the end of treatment (time period not specified) and at 6, 12, 18, and 24m follow-ups

Evidence Table E23. Binge eating disorder behavioral treatment – part 5

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Agras, 1995[5]	Binges/week: Number of days on which patients binged each week Abstinence from binge eating over a 2-week period	Binges/week G1: 4.4 (SD 1.8) G2: 3.7 (SD 1.2)	12 weeks binges/week G1: 0.7 (SD 1.0) G2: 3.4 (SD 2.0) p = NR 12 weeks abstinence G1: 55% G2: 9% chi-square=6.9, p<0.008
Allen, 1999[6]	Record of Eating Episodes -Frequency of binge episodes -Number of "hunger violations" (episodes in which hunger is rated below 2.5 before starting to eat) which indicates the person is waiting too long to eat -Number of "satiety violations" (fullness rated above 5.5 when eating stops), which indicates overeating episodes Binge eating scale (BES)	REE-Frequency of binge episodes G1: 4.86 (SD 2.00) G2: 3.91 (SD 2.28) REE-Number of hunger violations G1: 6.30 (SD 3.90) G2: 11.79 (SD 6.40) REE-Number of satiety violations G1: 6.47 (SD 2.77) G2: 7.42 (SD 3.61) BES G1: 30.36 (SD 3.64) G2: 29.78 (SD 5.56)	REE-Frequency of binge episodes G1: 0.72 (SD 1.10) G2: 4.95 (SD 2.25) F=16.08, p<0.001 REE-Number of hunger violations G1: 3.39 (SD 6.22) G2: 9.87 (SD 6.09) p=NR, NS REE-Number of satiety violations G1: 0.56 (SD 0.76) G2: 6.26 (SD 4.38) F=14.72, p<0.001 BES G1: 17.18 (SD 4.92) G2: 25.22 (SD 9.81) F=5.58, p<0.04

Evidence Table E23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Carrard, 2011[7]	1. Objective binge episodes (part of EDE-Q measure) in the past 28 days 2. Proportion of patients abstinent from bingeing	1. Objective binge episodes G1: 17.4 (15.6) G2: 14.8 (9.6) 2. Abstinence G1: NR G2: NR	1. Objective Binge Episodes 6-month Objective binge episodes G1: 5.5 (7.4) G2: 9.1 (8.8) Mean between-group difference (95% CI): NR p = 0.031 12-month Objective binge episodes G1: 5.5 (7.9) G2: 5.2 (5.5) Mean Between-group difference (95% CI): NR p = NR Statistical significance of the 12-month results is unclear. Article (p.487) states: "The reduction of OBE (F(1,36)= .0,ns) and the decline in BMI (F(1,36)= .4, ns) were also maintained." 2. 6-month Abstinence G1: 35.1% (N=13) G2: 8.1% (N=3) Mean between-group difference (95% CI): NR p=0.005

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Carter, 1998[8]	Freqency of binge eating in the past 28 days, assessed by EDE	Mean (SD) G1: 19.7 (12.9) G2: 17.8 (10.6) G3: 21.6 (12.5)	After treatment binge frequency Mean (SD) G1: 9.3 (11.7) G2: 4.3 (7.8) G3: 13.5 (10.3) 3-month follow-up binge frequency Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment immediately post-treatment) G1: 5.0 (4.3) G2: 3.6 (3.5) 6-month follow-up binge frequency Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment 3 months post-treatment) G1: 4.7 (4.0) G2: 3.7 (4.2) Time x Treatment condition interaction: $F(2,66) = 8.72$, $p = 0.004$ such that those in G1 and G2 had lower binge frequencies than those in G3; differences between G1 and G2 were NS at post-treatment and all follow up points.

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Cassin, 2008[9]	Binge Eating Frequency: Binges were defined by guidelines in SCID-I Binge Size: Self report	Binge Eating Frequency (days/month) G1: 14.6 (8.0) G2: 13.6 (6.9) Binge Size: NR	F stat calculated using repeated measures split-plot analysis of variance (i.e. did the experimental group change more over time than the control?) Binge Eating Frequency (days/month): 16 Week Follow-Up (ITT) G1: 2.8 (3.5) G2: 6.3 (6.0) F = 8.97, (p < 0.01) d=0.58 Binge Size 16 week follow-up No difference between groups: (p = 0.06) Abstinence (no binge eating in past 2 months) G1: 15 G2: 6 (p = 0.03) Does not have 2 or more binges/week G1: 47 G2: 31 (p = 0.001)
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	Number of weekly binge episodes, "assessed with a self-report procedure" BED remission (<2 weekly binge episodes)	Weekly binge episodes Overall: 2.82 (SD 0.77) G1: 2.83 (SD 0.74) G2: 2.8 (SD 0.8) p=NR, NS	6 month Weekly binge episodes G1: NR G2: NR 6 month BED remission G1: 36.70% G2: 80.00% p=0.001

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Cesa, 2013[12]	Number of binge-eating episodes (assessed by EDI-Symptom Checklist), using N=66 sample with 1y values imputed from baseline values carried forward	Binge episodes G1: NR G2: NR G3: NR Values depited in Figure 3 but not reported	Post-treatment binge episodes G1: 0 G2: 0 G3: 0 No significant between-group difference 1y binge episodes G1: NR G2: NR G3: NR no statistically significant difference between the groups in follow-up median scores (depicted in Figure 3 but numbers not reported)
Compare, 2013[13]	Binge eating remission (0 binges during the previous 28 days, based on the "Binge eating bulimic episodes and other episodes of overeating" section of EDE)	G1: NR G2: NR G3: NR p=NR, NS	ITT Posttreatment binge remission, %, propensity-adjusted OR (95% CI) G1: 28.6%, OR ref G2: 31.7%, CI 1.17 (0.55-2.52) G3: 49.2%, CI 2.54 (1.20-5.36) G2 vs. G3 (G2 ref): OR 2.16 (1.04-4.50) As treated Posttreatment binge remission, %, propensity-adjusted OR (95% CI) G1: 39.1%, OR ref G2: 36.4%, OR 0.87 (0.39-1.97) G3: 49.2%, OR 1.56 (0.72-3.93) G2 vs. G3 (G2 ref): OR 1.78 (0.85-3.77) ITT 6m binge remission, %, propensity-adjusted OR (95% CI) G1: 20.6%, OR ref G2: 42.9%, OR 2.93 (1.33-6.47) G3: 61.9%, OR 6.66 (2.97-14.94) G2 vs. G3 (G2 ref): OR 2.27 (1.10-4.67) As treated 6m binge remission, %, propensity-adjusted OR (95% CI) G1: 28.3%, OR ref G2: 49.1%, OR 2.42 (1.05-5.57) G3: 61.9%, OR 4.28 (1.87-9.77) G2 vs. G3 (G2 ref): OR 1.77 (0.84-3.72)

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
De Zwaan, 2005[14]	Prevalence of BED diagnosis Percentage of patients abstinent from binge eating in previous 7 days Percentage of weeks abstinent from binge eating Frequency of binge eating episodes in previous 7 days	Percentage of patients abstinent from binge eating (previous 7 days) (N) G1: 0 G2: 0 p = NA Percentage of weeks abstinent from binge eating G1: NR G2: NR p = NR Frequency of binge eating episodes in previous 7 days: mean (SD) G1: 3.9 (3.4) G2: 6.2 (5.3) p = 0.03	Prevalence of BED diagnosis 72 months, completers analysis (n=64) (%) G1: 54.5 G2: 58.1 p = NS Percentage of patients abstinent from binge eating in previous 7 days 12 weeks, ITT analysis (N) G1: 30 (83.3%) G2: 31 (88.6%) p = NS 18 weeks, ITT analysis (N) G1: 22 (61.1%) G2: 22 (62.9%) p = NS 24 weeks, ITT analysis (N) G1: 21 (58.3%) G2: 26 (74.3%) p = NS 28 weeks, ITT analysis (N) G1: 15 (50%) G2: 14 (53.8%) p = NS 72 weeks, ITT analysis (N) G1: 11 G2: 10 p = NS NOTE: At 72 weeks only, Ns based on abstinence from binge eating in previous 6 months

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
De Zwaan, 2005[14] (continued)			Percentage of weeks abstinent from binge eating 12 weeks, ITT analysis (%) G1: 80.6 G2: 80.4 p = 0.98 18 weeks, ITT analysis (%) G1: 64.7 G2: 69 p = 0.58 24 weeks, ITT analysis (%) G1: 64.7 G2: 69 p = 0.58 Frequency of binge eating episodes in previous 7 days 12 weeks, ITT analysis: mean (SD) G1: 0.7 (1.7) G2: 0.6 (2.6) p (adjusted for baseline diff) = 0.25 18 weeks, ITT analysis: mean (SD) G1: 1.1 (1.8) G2: 1.1 (2.0) p (adjusted for baseline diff) = 0.54 24 weeks, ITT analysis: mean (SD) G1: 1.5 (2.8) G2: 1.2 (2.5) p (adjusted for baseline diff) = 0.28 28 weeks, ITT analysis: mean (SD) G1: 2.3 (5.6) G2: 1.5 (2.5) p (adjusted for baseline diff) = 0.15

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Dingemans, 2007[15]	Subjective binge episodes (SBEs) in past 28 days, per EDE Objective overeating episodes (OOEs) in past 28 days, per EDE Abstinence from Objective binge episodes (OBEs), per EDE	Subjective binge episodes (SBEs) in past 28 days, per EDE G1: 7.0 (SD 16.7) G2: 8.8 (SD 11.6) p=NR Objective overeating episodes (OOEs) in past 28 days, per EDE G1: 6.6 (SD 9.9) G2: 9.6 (SD 12.4) p=NR Objective binge episodes (OBEs) in past 28 days, per EDE G1: 14.8 (SD 7.8) G2: 14.7 (SD NR) p=NR	10wk Subjective binge episodes (SBEs) in past 28 days, per EDE G1: 2.3 (SD 3.7) G2: 3.9 (SD 8.0) 10wk Objective overeating episodes (OOEs) in past 28 days, per EDE G1: 1.3 (SD 3.5) G2: 1.2 (SD 3.4) Post-treatment Subjective binge episodes (SBEs) in past 28 days, per EDE G1: 2.3 (SD 5.4) G2: 7.9 (SD 13.3) SBE test statistics and significance Time ß (SE): 3.07 (SE 1.50) Time x condition ß (SE): -2.40 (SE 1.18) p=NR, NS Post-treatment Objective overeating episodes (OOEs) in past 28 days, per EDE G1: 2.1 (SD 5.5) G2: 4.6 (SD 6.0) OOE test statistics and significance Time ß (SE): 2.57 (SE 0.93), p<0.01 Time x condition ß (SE): -0.88 (SE 0.71), p=NR, NS Post-treatment Abstinence from objective binge episodes (OBEs), per EDE; N (%) G1: 19 (63%) G2: 4 (18%) chi-square=10.5 p<0.001 Decrease in objective binge episodes (OBEs) from BL to posttreatment, per EDE; % G1: 86% G2: 11% p=NR 10wk Objective binge episodes (OBEs), per EDE G1: 3.5 (SD 5.8) G2: 10.3 (SD NR)

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Dingemans, 2007[15] (continued)			Post-treatment Objective binge episodes (OBEs), per EDE G1: 2.0 (SD 5.5) G2: 13.1 (SD NR) Decrease in OBE frequency from baseline to post-treatment G1: 86% G2: 11% OBE test statistics and significance G1: Wilcoxon z=-4.36, p<0.001 G2: Wilcoxon z=0.74, p=0.46
Eldredge, 1997[16]	Binge eating days	G1: NR G2: NR	12wk Binge eating days G1: NR G2: NR Mean percentage decrease in G1: 68.2% Mean percentage decrease in G2: 19.8% ANOVA comparing G1 to G2 for % change in binge eating after 12 weeks was significant, F=4.27, p=0.046

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Gorin, 2003[17]	Days binged (7-day recall) (M,SD) Objective binge episodes (M,SD) Binge abstinence	Days Binged G1: 3.81 (1.66) G2: 3.41 (2.09) G3: 3.77 (1.82) (P = NS) Objective Binge Episodes: G1: 7.61 (5.66) G2: 9.55 (6.09) G3: 8.47 (5.21) (P = NS)	Days Binged: G1: 1.81 (1.97) (P = NR) G2: 1.18 (1.76) (P = NR) G3: 2.95 (1.84) (P = NR); Diff between groups (P = NR) Diff between groups in change over time (P = .04) Active CBT greater reduction in days binged than waitlist Diff between G1 & G2 (P = NR) Diff between G1 & G2 in change over time (P = NS) Follow up G1: 1.05 (1.43) G2: 0.67 (0.86) Objective Binge Episodes G1: 2.44 (2.83) (P = NR) G2: 3.32 (4.35) (P = NR) G3: 5.87 (4.64) (P = NR); Difference between groups (P = NR) Difference between groups in change over time (P = NS) Follow up G1: 1.63 (2.09) G2: 3.50 (4.64) Binge Abstinence: Posttreatment G1+G2: (37%)(P = NR) G3: (9%)(P = NR) Difference between groups (P < .05) Difference between groups in change over time (P = NR) Follow-up (no data reported for waitlist grp): G1: (29%)(P = NR) G2: (46%)(P = NR) Difference between groups (P = NS) Difference between groups in change over time (P = NR) 6m Follow up G1: 47% G2: 52%

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Grilo, 2013[18]	Remission from binge eating (i.e., no OBEs during previous 28 days) evaluated using EDE Frequency of OBEs in previous 28 days evaluated using EDE-Q Frequency of OBEs in previous 28 days evaluated using EDE	Frequency of OBEs in previous 28 days evaluated using EDE-Q: mean (SD) G1: 13.8 (8.7) G2: 9.7 (7.1) p = NS Frequency of OBEs in previous 28 days evaluated using EDE G1: 15.1 (7.6) G2: 16.1 (8.9) p = NS	Remission from binge eating (i.e., no OBEs during previous 28 days) (%) 16 weeks ITT analysis G1: 25 G2: 8.3 p = 0.12 (chi-square) or 0.24 (Fisher's exact test) OR (95% CI) = 3.7 (0.66 to 20.42); p = 0.14 Frequency of OBEs in previous 28 days evaluated using EDE-Q: mean (SD) 16 weeks, ITT analysis G1: 4.5 (5.0) G2: 8.2 (9.4) Effect size = 0.9 p = NR Group-by-time interaction p = 0.03 (G1 improved significantly over time, while G2 did not) Frequency of OBEs in previous 28 days evaluated using EDE: mean (SD) 16 weeks, ITT analysis G1: 5.8 (5.9) G2: 6.5 (7.2) Effect size = 0.24 p = NR Group-by-time interaction p = 0.39

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Grilo, 2014[19]	Binge episodes per month, per EDE Binge abstinence	Binge episodes/month G1: 14.6 (SD 12.8) G2: 21.1 (SD 19.2)	Posttreatment Binge episodes/month G1: 6.4 (SD 7.6) G2: 5.3 (SD 9.9) Hand calculated p = .675 6m Binge episodes/month G1: 3.6 (SD 6.4) G2: 5.7 (SD 10.0) Hand calcuated p = .401 12m Binge episodes/month G1: 4.9 (SD 8.5) G2: 6.7 (SD 13.9) Hand calculated p = .609 Posttreatment Binge remission G1: 24% G2: 29.6% P = NR 6m Binge remission G1: 40% G2: 40.7% P = NR 12m Binge remission G1: 40% G2: 37.0% P = NR

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Grilo, 2011[20] Grilo, 2011[21]	Binge episodes/month (OBEs on EDE) for past 28 days Remission (0 binges over the past month)	Binge episodes/month G1:15.6 (SD 8.0) G2: 14.9 (SD 8.5) G3: 17.9 (SD 9.4)	Post-treatment Binge episodes/month G1: 2.2 (SD 3.8) G2: 4.6 (SD 11.0) G3: 3.4 (SD 9.0) F=3.46 p=0.23 6m Binge episodes/month G1: 2.7 (SD 8.5) G2: 5.5 (SD 7.6) G3: 3.2 (SD 7.8) F=3.80 Binge frequency was significantly lower in G1 than G2, t=2.68, p=0.009 12m Binge episodes/month G1: 2.4 (SD 8.1) G2: 4.6 (SD 6.0) G3: 4.0 (SD 8.4) F=3.28 Binge frequency was significantly lower in G1 than G2, t=2.56, p=0.01 Post-treatment Remission, ITT analysis G1: 44.4% G2: 37.8% G3: 48.6% chi-square=0.98 p=0.61 6m Remission, ITT analysis G1: 51.1% G2: 33.3% G3: 48.6% chi-square=3.30 p=0.19

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Grilo, 2011[20] Grilo, 2011[21] (continued)(			12m Remission, ITT analysis G1: 51.1% G2: 35.6% G3: 40.0% chi-square=2.34 p=0.31 Post-treatment Remission, completers G1: 59% G2: 52% G3: 76% chi-square=NR p=NR, NS 6m Remission, completers G1: 65% G2: 48% G3: 57% chi-square=NR p=NR, NS 12m Remission, completers G1: 65% G2: 42% G3: 48% chi-square=NR p=NR, NS

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Grilo, 2005[22] Masheb, 2007[23]	Remission (0 binges over past 28 days) Objective bulimic episodes over past 28 days (EDE, EDE-Q): days/month (EDE), episodes/month (EDE), episodes/month (EDE-Q)	Objective bulimic epidoses days/month (EDE): mean (SD) G1: 13.0 (7.6) G2: 13.9 (7.1) G3: 11.4 (5.9) p=0.53 Objective bulimic epidoses episodes/month (EDE) mean (SD) G1: 14.6 (9.5) G2: 15.3 (7.7) G3: 11.8 (6.0) p=0.38 Objective bulimic epidoses episodes/month (EDE-Q): mean (SD) G1: 12.1 (9.0) G2: 13.4 (12.1) G3: 14.0 (4.8) p=0.77	12-wk Remission rates (daily self-monitoring): G1: 46% G2: 18.4% G3: 13.3% Overall p=0.01 G1 vs. G2 p=0.01 G2 vs. G3 p=0.66 G1 vs. G3 p=0.03 12-wk Remission rates (EDE-Q): G1: 59.5% G2: 23.7% G3: 26.7% Overall p=0.004 G1 vs. G2 p=0.002 G2 vs. G3 p=0.82 G1 vs. G3 p=0.03 12-wk Objective bulimic epidoses episodies/month (daily self-monitoring): mean (SD) G1: 3.8 (6.1) G2: 7.3 (8.2) G3: 6.8 (6.1) G1 vs. G2 p=0.016 G2 vs. G3 p=n/s G1 vs. G3 p=0.019 12-wk Objective bulimic epidoses episodies/month (EDE-Q): mean (SD) G1: 2.8 (5.1) G2: 6.7 (8.0) G3: 8.1 (6.9) G1 vs. G2 p=0.015 G2 vs. G3 p=n/s G1 vs. G3 p=0.014

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Hilbert, 2004[24]	Measure 1: Binge per week past month, mean, SD, (range) from EDE Measure 2: clinical sig improvement in BED, #, % Measure 3:clinical sig improvement in binge eating, #, % Measure 4: Percentage improved (Less than 4 days with obhective episodes of binge eating over the period of the last 28 days) Measure 5: Percentage recovered (Abstinent from binge eating over the period of the last 28 days)	Measure 1: Pretreatment G1: 2.9 (1.8) (1-7) G2: 3.4 (1.9) (1-8) Measure 2 Pretreatment G1: 10 (83.3%) G2: 10 (83.3%) Measure 3 Pretreatment G1: 2 (16.7%) G2: 2 (16.7%) Measure 4 Pretreatment NR Measure 5 Pretreatment NR	Measure 1: Posttreatment G1: 0.6 (0.7) (0-2) G2: 1.0 (1.9) (0-6) 4- month follow-up G1: 1.2 (2.0) (0-5) G2: 0.5 (1.0) (0-5) Repeated measures (Analysis of time) F: 27.41 df: 2, 44 p: <0.001 Measure 2 Posttreatment G1: 2 (16.7%) G2: 3 (25.0%) 4-month follow-up G1: 3 (25.0%) G2: 1 (8.3%) Measure 3 Posttreatment G1: 0 (0.0%) G2: 0 (0.0%) 4-month follow-up G1:0 (0.0%) G2: 2 (16.6%) Measure 4 Posttreatmet G1: 6 (50%) G2: 0 (0.0%) 4-month follow-up G1: 3 (25%) G2: 1 (8.3%)

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Hilbert, 2004[24] (continued)			Measure 5 Posttreatment G1: 4 (33.3%) G2: 9 (75.0%) 4-month follow-up G1: 6 (50.0%) G2: 8 (66.7%) p=0.408
Le Grange, 2002[25]	Prevalence of BED diagnosis Frequency of binge eating episodes in previous 28 days Frequency of binge eating episodes evaluated in previous 7 days	Frequency of binge eating episodes in previous 28 days (EDE-Q) G1: 13.6 (8.1) G2: 14.7 (8.9) p = NS Frequency of binge eating episodes in previous 7 days (self-report) G1: 3.9 (1.7) G2: 4.3 (2.9) p = NS	Prevalence of BED diagnosis 12 weeks, ITT analysis (%) G1: 37 G2: 59 p = 0.15 12 months, ITT analysis (%) G1: 58 G2: 55 p = 0.83 Frequency of binge eating episodes in previous 28 days (EDE-Q) 12 weeks, ITT analysis: mean (SD) G1: 4.5 (5.8) G2: 5.1 (6.3) p = <0.42 Group x time interaction: p = <0.7 Frequency of binge eating episodes in previous 7 days (self-report) 12 weeks, ITT analysis: mean (SD) G1: 1.6 (2.4) G2: 2.1 (1.9) p = <0.42 Group x time interaction: p = <0.7 12 months, ITT analysis: mean (SD) G1: 2.3 (2.4) G2: 2.2 (1.3) p = <0.42

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Le Grange, 2002[25] (continued)			Group x time interaction: p = <0.7 Percentage of patients reducing binge-eating frequency by ≥50% 12 weeks, ITT analysis (%) G1: 77 G2: 47 p = 0.098 12 months, ITT analysis (%) G1: 68 G2: 64 p = 0.75 N of patients abstaining from binge eating 12 weeks, ITT analysis (%) G1: NR G2: NR p = >0.34 12 months, ITT analysis (%) G1: NR G2: NR p = >0.34

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Masheb, 2011[26]	Objective binge eating (OBE) episodes, EDE past 28 days Binge remission (0 binges for the 28 days prior to the end of treatment) per EDE Binge remission (0 binges for the 28 days prior to the end of treatment) per prospective self-monitoring	Binge eating per month (EDE) G1: 2.3 (SE 0.2) G2: 2.4 (SE 0.2)	12m Binge eating per month (EDE) G1: 0.7 (SE 0.3) G2: 0.0 (SE 0.2) Time x treatment F=1.92, p=0.110 6m Binge remission per self-monitoring, treatment completers (n=38) G1 (n=18): 72.2% (n=13) G2 (n=20): 75.0% (n=15) chi-square=0.04, p=0.846 6m binge remission per self-monitoring, ITT analysis (last observation carried forward) G1: 60% (n=15) G2: 72% (n=18) chi-square=0.80, p=0.370 6m Binge remission per EDE, treatment completers G1 (n=18): 72.2% (n=13) G2 (n=20): 55% (n=11) chi-square=1.21, p=0.272 6m BInge remission per EDE, ITT analysis G1: 52% (n=13) G2: 44% (n=11) chi-square=0.32, p=0.571

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Masson, 2013[27]	Objective binge frequency in the last 28 days (OBE) Rate of binge eating abstinence over the past 28 days	Objective binge frequency in the last 28 days (OBE) G1: 18.67 (SD 13.17) G2: 19.60 (SD 11.91) Effect size d=-0.07 Rate of binge eating abstinence over the past 28 days G1: 3.30% G2: 0.00% Effect size d=NR	Posttreatment Objective binge frequency in the last 28 days (OBE) G1: 5.97 (SD 9.42) G2: 14.37 (SD 11.86) Effect size d=0.79 Between group comparison B=-8.09, SE=2.58, t=-3.14, p<0.05 (95% CI -13.26, -2.93; sr2=0.14) Posttreatment Rate of binge eating abstinence over the past 28 days G1: 40.00% G2: 3.30% Effect size d=0.98 Between group comparison NR 6m Objective binge frequency in the last 28 days (OBE) G1: 9.53 (SD 11.89) G2: NA Effect size (between BL and 6m, G2 only) d=0.73 6m Rate of binge eating abstinence over the past 28 days G1: 30.00% G2: NA Effect size (between BL and 6m, G2 only) d=0.70

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Munsch, 2007[28] Munsch, 2012[29]	Munsch, Biedert, Meyer, et al., 2007[28]: Number of objective binge eating (OBE) days in past 28 days, per EDE Number of weekly binges (self-monitoring) Abstainer rates in past 28 days, per EDE BED diagnosis Munsch, Meyer, Biedert, et al., 2012[29] BED diagnosis Remission Number of weekly binges (self-monitoring)	Munsch, Biedert, Meyer, et al., 2007[28] OBE days G1 (n=43): 14.23 (SD 7.66) G2 (n=35): 14.17 (SD 8.09) # weekly binges G1 (n=36): 3.81 (SD 3.47) G2 (n=29): 4.10 (SD 3.71)	Munsch, Biedert, Meyer, et al., 2007[28] Post-treatment OBE days, Completer G1 (n=25): 0.56 (SD 2.06) G2 (n=23): 2.70 (SD 4.43) chi-square=33.3, p<0.001 12m OBE days, Completer G1 (n=15): 0 (SD 0) G2 (n=18): 1.00 (SD 2.93) chi-square=15.94, p<0.001 Post-treatment OBE days, ITT G1 (n=44): 6.20 (SD 8.66) G2 (n=35): 7.54 (SD 9.38) chi-square=2.91, p<0.088 12m OBE days, ITT G1 (n=44): 4.84 (SD 8.00) G2 (n=): 5.77 (SD 9.15) chi-square=0.01, p<0.92 Post-treatment # weekly binges, Completer G1 (n=28): 0.14 (SD 0.45) G2 (n=26): 1.15 (SD 1.89) chi-square=13.4, p<0.001 12m # weekly binges, Completer G1 (n=23): 0.52 (SD 1.59) G2 (n=14): 1.50 (SD 2.14) chi-square=4.0, p<0.045 Post-treatment Abstainers, Completers G1 (n=25): 80% G2 (n=22): 36% chi-square=9.56, p=0.002 12m Abstainers, Completers G1 (n=16): 94% G2 (n=18): 89% chi-square=0.254, p=0.614

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Munsch, 2007[28] Munsch, 2012[29] (continued)			Post-treatment Abstainers, ITT G1 (n=44): 41% G2 (n=36): 58% chi-square=6.74, p=0.010 12m Abstainers, ITT G1 (n=44): 52% G2 (n=36): 50% chi-square=0.74, p=0.39 Post-treatment BED diagnosis, Completers G1 (n=26): 4% G2 (n=22): 32% chi-square=7.26, p<0.007 12m BED diagnosis, Completers G1 (n=17): 6% G2 (n=19): 16% chi-square=0.92, p=0.33 6y BED diagnosis, Completers (Munsch, Meyer, Biedert, et al., 2012[29]) G1 (n=26): 3.8% G2 (n=22): 7.7% Post-treatment BED diagnosis, ITT G1 (n=44): 50% G2 (n=36): 78% chi-square=2.40, p=0.12 12m BED diagnosis, ITT G1 (n=44): 43% G2 (n=36): 53% chi-square=0.04, p=0.84 Munsch, Meyer, Biedert, et al., 2012[29]: 6y BED diagnosis G1 (n=26): 3.8% G2 (n=22): 11.5% G1 minus G2 posttreatment: 3.9, effect size=could not be estimated as values were too close to 0, p=NR, NS G1 minus G2 6y: 7.7 (+15, -27), effect size=0.31, p=NR, NS

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Munsch, 2007[28] Munsch, 2012[29] (continued)			Remission G1: NR G2: NR G1 minus G2 posttreatment: 44 (+6, -9), effect size=7.00, p<0.01 G1 minus G2 6y: 2.1 (+11, -11), effect size=1.12, p=NR, NS Number of weekly binges G1: NR G2: NR G1 minus G2 posttreatment: -0.289 (0.154), effect size=0.56, p=NR, NS G1 minus G2 6y: -0.646 (0.191), effect size=1.02, p<0.001
Pendleton, 2001[30]	Binge days Abstinence	Binge days G1: 4.2 (SD 2.3) G2: 4.6 (SD 2.1) G3: 4.6 (SD 1.9) G4: 4.8 (SD 2.0) Exercisers (G1&G2): 4.4 (SD 2.2) Non-exercisers (G3&G4): 4.7 (SD 1.9) Maintenance (G1&G3): 4.4 (SD 2.1) No maintenance (G2&G4): 4.7 (SD 2.0)	4m Binge days G1: 0.6 (SD 1.1) G2: 1.0 (SD 1.3) G3: 2.4 (SD 2.2) G4: 1.9 (SD 2.0) G1,2,3,4: chi-square=13.1, p=0.004 Exercisers (G1&G2): 0.7 (SD 1.2) Non-exercisers (G3&G4): 2.2 (SD 2.1) Exercisers (G1&G2) vs. non-exercisers (G3&G4): z=-3.3, p=0.001 Maintenance (G1&G3): 1.5 (SD 1.9) No maintenance (G2&G4): 1.4 (SD 1.7) Maintenance (G1&G3) vs. no maintenance (G2&G4): z=NR; p=NR G1 vs. G4: z=-2.06, p=0.039 10m Binge days G1: 0.5 (SD 0.8) G2: 1.0 (SD 1.3) G3: 1.3 (SD 1.6) G4: 2.0 (SD 1.6) G1,2,3,4: chi-square=10.0, p=0.018 Exercisers (G1&G2): 0.7 (SD 1.1) Non-exercisers (G3&G4): 1.6 (SD 1.6) Exercisers (G1&G2) vs. non-exercisers (G3&G4): z=-2.5, p=0.012

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Pendleton, 2001[30] (continued)			Maintenance (G1&G3): 0.9 (SD 1.3) No maintenance (G2&G4): 1.4 (SD 1.5) Maintenance (G1&G3) vs. no maintenance (G2&G4): z=NR; p=NR, NS G1 vs. G4: z=-3.1, p=0.002 16m Binge days G1: 1.0 (SD 1.7) G2: 0.8 (SD 1.4) G3: 1.8 (SD 2.2) G4: 2.5 (SD 1.8) G1,2,3,4: chi-square=12.3, p=0.006 Exercisers (G1&G2): 0.9 (SD 1.5) Non-exercisers (G3&G4): 2.1 (SD 2.0) Exercisers (G1&G2) vs. non-exercisers (G3&G4): z=-3.1, p=0.002 Maintenance (G1&G3): 1.4 (SD 2.0) No maintenance (G2&G4): 1.5 (SD 1.8) Maintenance (G1&G3) vs. no maintenance (G2&G4): z=NR; p=NR, NS G1 vs. G4: z=-2.6, p=0.007 4m Abstinence (%) G1: 67% G2: 50% G3: 22% G4: 41% G1,2,3,4: chi-square=NR, p=NR Exercisers (G1&G2): 59% Non-exercisers (G3&G4):30% Exercisers (G1&G2) vs. non-exercisers (G3&G4): z=NR, p=NR Maintenance (G1&G3): 45% No maintenance (G2&G4): 46%

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Pendleton, 2001[30] (continued)			Maintenance (G1&G3) vs. no maintenance (G2&G4): z=NR, p=NR 10m Abstinence (%) G1: 63% G2: 45% G3: 43% G4: 23% G1,2,3,4: chi-square=NR, p=NR Exercisers (G1&G2): 55% Non-exercisers (G3&G4):35% Exercisers (G1&G2) vs. non-exercisers (G3&G4): z=NR, p=NR Maintenance (G1&G3): 53% No maintenance (G2&G4): 35% Maintenance (G1&G3) vs. no maintenance (G2&G4): z=NR, p=NR 16m Abstinence (%) G1: 58% G2: 65% G3: 39% G4: 18% G1,2,3,4: chi-square=NR, p=NR Exercisers (G1&G2): 61% Non-exercisers (G3&G4): 30% Exercisers (G1&G2) vs. non-exercisers (G3&G4): z=NR, p=NR Maintenance (G1&G3): 49% No maintenance (G2&G4): 43% Maintenance (G1&G3) vs. no maintenance (G2&G4): z=NR, p=NR

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Peterson, 1998[31] Peterson, 2001[32]	Peterson, 1998 Measure 1: objective binge eating episodes (OB) per week Measure 2: total binge (TB) episodes (objective and subjective) per week Measure 3: hours binge eating (HB) per week Measure 4: percentage abstinent from OB for the last week Measure 5: percentage abstinent from TB for the last week Peterson, 2001 Measure 6: Full dx Measure 7: subthreshold - BE episodes met DSM-IV criteria but occured less than 2 days per week for 6 month Measure 8: Subjective binges only - participant reported only binge episodes that were not objectivly large Measure 9: Remission	Peterson, 1998 Measure 1: G1: 3.4 (1.7) G2: 5.5 (6.5) G3: 3.1 (2.1) G4: 3.5 (4.9) Measure 2: G1: 7.7 (3.8) G2: 8.2 (5.9) G3: 6.8 (2.4) G4: 5.7 (6.0) Measure 3: G1: 9.0 (6.7) G2: 13.4 (13.0) G3: 9.8 (5.5) G4: 8.3 (7.6) Measures 4-5 NR Peterson, 2001 Measure 1: Baseline G1: 3.4 (1.7) G2: 5.5 (6.7) G3: 2.9 (2.2) Measure 2: Baseline G1: 8.3 (3.1) G2: 9.2 (6.7) G3: 6.6 (2.2) Measure 3: Baseline G1: 9.0 (6.6) G2: 13.5 (13.4) G3: 10.0 (5.4)	Peterson, 1998 Measure 1: G1: 0.7 (1.3) G2: 1.3 (3.4) G3: 0.4 (1.1) G4: 4.7 (4.7) Btwn group diff F (3, 53) = 12.1 p: 0.000 Measure 2: G1: 3.3 (3.6) G2: 2.7 (4.3) G3: 1.8 (2.9) G4: 6.6 (4.5) Btwn group diff F (3, 53) = 5.67 p: 0.002 Measure 3: G1: 4.2 (6.9) G2: 3.2 (5.9) G3: 2.3 (3.3) G4: 9.6 (6.5) Btwn group diff F (3, 53) = 4.83 p: 0.005 Simple contrasts revealed that G1, G2, and G3 had fewer binge episodes (on all 3 measures) compared to G4. Measure 4: Post-treatment G1: 68.8% G2: 68.4% G3: 86.7% G4: 12.5% X2 = 13.06, df = 3, p = .004

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Peterson, 1998[31] Peterson, 2001[32] (continued)		Measure 4: Baseline G1: 0.0 G2: 0.0 G3: 0.0 Measure 5: Baseline G1: 0.0 G2: 0.0 G3: 0.0 Measures 6-9 NR	Measure 5: Post-treatment G1: 18.8% G2: 36.8% G3: 53.3% G4: 0% X2 = 8.51, df=3 p=.04 Peterson, 2001 Measure 1: Posttreatment G1: 0.6 (1.4) G2: 0.7 (1.5) G3: 0.2 (2.2) 1 month G1: 0.8 (1.1) G2: 1.1 (2.5) G3: 0.9 (1.6) 6 month G1: 0.7 (0.9) G2: 0.4 (0.7) G3: 1.7 (3.9) 12 month G1: 0.5 (0.8) G2: 1.1 (2.7) G3: 1.0 (2.0) Time effects (Random regression) F: 24.04 p < 0.0001 Group x Time interaction: NR, NS Measure 2: Posttreatment G1: 2.8 (3.2) G2: 2.0 (3.4) G3: 2.4 (6.6)

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Peterson, 1998[31] Peterson, 2001[32] (continued)			1 month G1: 4.4 (4.0) G2: 3.7 (5.5) G3: 1.2 (1.6) 6 month G1: 3.7 (3.9) G2: 3.2 (3.0) G3: 3.0 (3.6) 12 month G1: 3.5 (3.4) G2: 3.1 (4.8) G3: 3.3 (3.6) Time effects (Random regression) F: 27.59 p < 0.0001 Group x Time interaction: NR, NS Measure 3: Posttreatment G1: 2.6 (3.2) G2: 2.1 (3.4) G3: 3.2 (8.9) 1 month G1: 3.0 (2.4) G2: 3.8 (5.8) G3: 2.5 (3.8) 6 month G1: 2.3 (2.3) G2: 3.0 (2.5) G3: 3.6 (5.0) 12 month G1: 2.4 (1.8) G2: 2.8 (4.6) G3: 4.5 (5.2) Time effects (Random regression) F: 19.98 p <0.001 Group x Time interaction: NR, NS

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Peterson, 1998[31] Peterson, 2001[32] (continued)			Measure 4 Posttreatment G1: 78.6 G2: 75.0 G3: 90.0 Between group differences: NR, NS 1 month G1: 54.5 G2: 69.2 G3: 63.6 Between group differences: NR, NS 6 month G1: 55.6 G2: 70.0 G3: 75.0 Between group differences: NR, NS 12 month G1: 66.7 G2: 84.6 G3: 75.0 Between group differences: NR, NS Measure 5: Posttreatment G1: 21.4 G2: 35.3 G3: 70.0 Between group differences: F(2,40) = 5.95 p=.05 G3 > G1, G2 1 month G1: 18.2 G2: 23.1 G3: 45.5

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Peterson, 1998[31] Peterson, 2001[32] (continued)			Between group differences: NR, NS 6 month G1: 20.0 G2: 30.0 G3: 33.3 Between group differences: NR, NS 12 month G1: 16.7 G2: 46.2 G3: 33.3 Between group differences: NR, NS Measure 6: Posttreatment G1: 15.4 G2: 17.6 G3: 8.3 1 Month G1: 0.0 G2: 13.3 G3: 8.3 6 month G1: 0.0 G2: 27. 3 G3: 8.3 12 month G1: 8.3 G2: 15.4 G3: 16.7 Measure 7 posttreatment G1:30.8 G2: 17.6 G3: 50.0 1 month G1: 45.0 G2: 26.7 G3: 41.7

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Peterson, 1998[31] Peterson, 2001[32] (continued)			6 month G1: 50.0 G2: 18.2 G3: 33.3 12 Month G1: 41.7 G2: 23.1 G3: 16.7 Measure 8 Posttreatment G1: 30.8 G2: 41.2 G3: 0.0 1 month G1: 27.3 G2: 40.0 G3: 8.3 6 month G1: 30.0 G2: 18.2 G3: 33.3 12 month G1: 25.0 G2: 7.7 G3: 41.7 Measure 9 Posttreatment G1: 23.1 G2: 23.5 G3: 41.7 1 month G1: 27.3 G2: 20.0 G3: 41.7

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Peterson, 1998[31] Peterson, 2001[32] (continued)			6 month G1: 20.0 G2: 36.4 G3: 25.0 12 month G1: 25.0 G2: 53.8 G3: 25.0 No significant group differences on Measures 6-9 at posttreatment: p=.201, 1m: p=.447, 6m: p=.412, or 12m: p=.337.
Peterson, 2009[33]	Frequency of objective binge eating episodes (OBEs) Objective binge days in past 28 days Abstinence from OBEs in past 28 days	OBE frequency, mean (SD) G1: 22.4 (13.7) G2: 21.9 (12.3) G3: 24.6 (18.7) G4: 23.1 (14.1) Abstinence from OBEs (%): NA at baseline Objective binge days, mean (SD) G1: 16.4 (6.8) G2: 16.4 (6.5) G3: 16.0 (6.9) G4: 17.1 (7.1)	OBE frequency, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 11.9 (13.2) G2: 9.7 (12.4) G3: 6.3 (12.3) G4: 17.6 (14.6) p = <0.001 (adjusted for baseline value, site, and sex) Partial eta squared = 0.154 Post hoc p (G3 < G1, G4) = <0.008 Post hoc p (G1, G2, G3 < G4) = <0.008 Post-treatment (20 weeks post-baseline): completers analysis Group %s and p values NR 6m follow-up (44 weeks post-baseline): ITT analysis G1: 11.9 (13.8) G2: 12.5 (13.2) G3: 10.6 (14.8) G4: NA p = NS 6m follow-up (44 weeks post-baseline): completers analysis Group %s and p values NR 12m follow-up (72 weeks post-baseline): ITT analysis G1: 12.4 (13.7) G2: 12.3 (12.9) G3: 16.2 (19.4) G4: NA p = NS

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Peterson, 2009[33] (continued)			12m follow-up (72 weeks post-baseline): completers analysis Group %s and p values NR NOTE: No site differences at any post-baseline timepoint Objective binge days, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 9.6 (8.6) G2: 7.6 (8.4) G3: 4.4 (7.3) G4: 13.5 (9.3) p = <0.001 (adjusted for baseline value, site, and sex) Partial eta squared = 0.151 Post hoc p (G3 < G1, G4) = <0.008 Post hoc p (G2 < G4) = <0.008 Post-treatment (20 weeks post-baseline): completers analysis Group %s and p values NR 6m follow-up (44 weeks post-baseline): ITT analysis G1: 9.3 (8.8) G2: 9.6 (8.8) G3: 7.4 (9.3) G4: NA p = NS 6m follow-up (44 weeks post-baseline): completers analysis Group %s and p values NR 12m follow-up (72 weeks post-baseline): ITT analysis G1: 9.6 (8.9) G2: 9.3 (8.6) G3: 10.6 (9.3) G4: NA p = NS 12m follow-up (72 weeks post-baseline): completers analysis Group %s and p values NR NOTE: No site differences at any post-baseline timepoint Abstinence from OBEs (%)

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Peterson, 2009[33] (continued)			Post-treatment (20 weeks post-baseline): ITT analysis G1: 17.9 G2: 33.3 G3: 51.7 G4: 10.1 p = <0.001 (adjusted for site and sex) Post hoc p (G2, G3 > G4) = <0.008 Post hoc p (G3 > G1) = NR but significant Post-treatment (20 weeks post-baseline): completers analysis Group %s NR p = <0.001 (G1, G2 > G4 only; adjusted for site and sex) 6m follow-up (44 weeks post-baseline): ITT analysis G1: 19.4 G2: 23.8 G3: 43.3 G4: NA p = 0.62 6m follow-up (44 weeks post-baseline): completers analysis Group %s NR p = 0.035 (adjusted for site and sex) Post hoc p (G3 > G1) = 0.013 12m follow-up (72 weeks post-baseline): ITT analysis G1: 25.4 G2: 27.0 G3: 20.8 G4: NA p = 0.274 12m follow-up (72 weeks post-baseline): completers analysis Group %s NR p = NS (adjusted for site and sex) NOTE: No site differences at any post-baseline timepoint

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Ricca, 2010[34]	Binge episodes per month, per EDE and DSM-IV-TR (not specified how DSM-IV-TR was used) ED full recovery (did not fulfill DSM-IV criteria for BED or subthreshold BED) ED diagnostic change (when a diagnosis of subthreshold BED was performed in former BED patients, or when BED or subthreshold BED patients developed bulimia nervosa) Treatment resistant (post-treatment only) (no diagnostic change or crossover from subthreshold BED toward BED) ED relapses (3y only) (when a diagnosis of BED or subthreshold BED was performed at 3y in patients who had achieved a full recovery at posttreatment)	Binge episodes per month, median (quartiles) G1: 8.0 (4.0, 10.0) G2: 8.0 (4.0, 10.0) p=NR, NS	Posttreatment Binge episodes/month, median (quartiles), p for within-group change BL to posttreatment G1: 4.0 (0, 7.5), p<0.01 G2: 4.0 (2.0, 8.0), p<0.01 3y Binge episodes/month, median (quartiles), p for within-group change posttreatment to 3y G1: 4.0 (0, 6), p=NR, NS G2: 4.0 (0, 8), p<0.05 Binge episodes/month, repeated measures ANOVA for between-group comparison with covariate age F= 0.12 p=0.73 Posttreatment ED full recovery G1: 24 (33.3%) G2: 12 (16.7%) chi-square: 5.33 p=0.02 3y ED full recovery G1: 26 (36.1%) G2: 20 (27.8%)+ p=NR, NS Posttreatment ED diagnostic change G1: 13 (18.1%) G2: 24 (33.3%) chi-squre 4.40 p=0.03 3y ED diagnostic change G1: 12 (16.7%) G2: 18 (25.0%) p=NR, NS Posttreatment treatment resistant G1: 35 (48.6%) G2: 36 (50.0%) p=NR, NS 3y ED relapses G1: 7 (9.7%) G2: 8 (11.1%) p=NR, NS

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Riva, 2002[35]	Complete cessation of binge eating (no binge eating for the past 2 weeks). Authors provide no description of how binge eating data were collected.	N/A	Post-treatment complete cessation of binge eating G1: 100% G2: 100% 1 month after treatment complete cessation of binge eating G1: 100% G2: 100% p values not provided. "All the 20 patients had achieved complete cessation of binge eating… at the end of treatment. This result was maintained in the first month after the end of therapy."
Riva, 2003[36]	Binge measure not specified EDI-2	Binge eating G1: NR G2: NR G3: NR G4: NR EDI Bulimia score G1: NR G2: NR G3: NR G4: NR	Posttreatment Binge eating abstinence G1: NR, "In all of the treatment groups, the patients quit bingeing at the end of treatment" G2: NR, "In all of the treatment groups, the patients quit bingeing at the end of treatment" G3: NR, "In all of the treatment groups, the patients quit bingeing at the end of treatment" G4: NR 6m Binge eating abstinence G1: 77% G2: 56% G3: 22% G4: NR Posttreatment EDI Bulimia score G1: NR G2: NR G3: NR G4: NR 6m EDI Bulimia score G1: 9.33 G2: 14.56 G3: 18.11 G4: NR p<0.05 ("G1 scored significantly better")

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	Measure 1: Abstinence from binge eating (no binge within prior 28 days) ** modeled using a piecewise growth model; modeled as quadratic during the first period and linera during the 2d period. Measure 2: Days of objective binge eating (over the prior 28 days)** modeled using a piecewise growth model; modeled as quadratic during the first period and linera during the 2d period.	Measure 1: NR Measure 2: NR	Measure 1: G1: 64% abstinence rate at posttreatment, 51% at the 3 month follow-up, 52% at the 6 month follow-up, & 64% by the 12 month follow-up G2: 36% abstienence rate at posttreatment, 53% at the 3 month follow-up 43% at the 6 month follow-up, 56% at the 12 month follow-up Measure 2: "Model estimation results indicate that during the first period, binge days in the G2 decreased significantly (p <0.001). Compared to G2, binge days for G1 decreased significantly more (p = 0.001)."
Schlup, 2009[40]	Abstainer rates (%) Objective binge episodes Subective binge episodes # of weekly binges	Abstainer Rates: 0% Objective binge episodes: 7.89 Subjective binge episodes 1.88 # of weekly binges 3.53	Abstainer Rate G1: 39% G2: 0% p=0.008 Objective Binge Episode (mean difference): G1: -5.47 G2: - 0.43 p=0.009 Subjective binge episodes (mean difference): G1: -0.65 G2: -0.17 p=0.570 # of weekly binges (mean difference): G1: -1.58 G2: 0.35 p=0.0004

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Schlup, 2010[41]	Eating Disorder Examination number of objective binge episodes (OBEs) Eating Disorder Examination abstainer rates (proportion of patients not experiencing a binge during the last 28 days)	Means denote estimates from a linear mixed model or generalized linear mixed model. Values were back-transformed if necessary. OBE episodes G1: 14.80 G2: 14.80 p=0.98	Means denote estimates from a linear mixed model or generalized linear mixed model. Values were back-transformed if necessary. End of treatment OBE episodes G1: 0.43 G2: 2.36 Effect size: 0.29 p=0.23 12-month OBE episodes G1: 0.01 G2: 1.91 Effect size: 0.16 p=0.43 End of treatment Remission (%) G1: 86% G2: 46% OR: 7.4 p=0.008 12-month Remission (%) G1: >99% G2: 64% OR: 127.4 p=0.16

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Tasca, 2006[42] Tasca, 2012[43]	Number of days binged in the past 7 days Percent of patients improved for days binged in the past 7 days: fewer than 2 days binged in the past 7 days (those categorized as "abstinent" are also counted in the "improved" category Percent of patients abstinent in the past 7 days: no days binged in the past 7 days	Baseline G1: 4.11 (SD 1.35) G2: 3.95 (SD 1.70) G3: 4.00 (SD 1.52)	Post-treatment G1: 1.11 (SD 1.90) G2: 0.57 (SD 0.93) G3: 3.58 (SD 2.03) G2 vs. G3 Hierarchical linear modeling (HLM) coefficient: -1.41; t-value: -7.71; p<0.001 G1 vs. G3 Hierarchical linear modeling (HLM) coefficient: -1.43; t-value: -5.75, p<0.001 G2 vs. G1 Hierarchical linear modeling (HLM) coefficient:0.27; t-value: 1.37, p=NR 6m G1: 1.06 (SD 1.81) G2: 0.59 (SD 1.13) G3: N/A (6m and 12m not measured for control group) 12m G1: 1.46 (SD 2.10) G2: 0.62 (SD 1.46) G3: (6m and 12m not measured for control group) Pre-treatment to follow-ups modeling Linear modeling coefficients: -5.50, t-value: -9.09, p<0.001 Treatments modeling: 0.18, t-value: 0.61, p=NR Quadratic modeling coefficients: 0.86, t-value: 6.14, p<0.001 Treatments modeling: 0.00, t-value: 0.05, p=NR "There was a linear and quadratic effect for days binged but no interactions of these slopes with treatment type. This indicated that both treatments resulted in significant reduction in days binged from pre- to posttreatment, that these changes were maintained to 12 months posttreatment, and that there were no differences between treatments in the linear or quadratic curves (p.115)." Post-treatment % improved in days binged in the past 7d G1: 75.7% G2: 86.5% G3: 12.1%

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Tasca, 2006[42] Tasca, 2012[43] (continued)			6m % improved in days binged in the past 7d G1: 86.5% G2: 75.7% G3: not measured for control 12m % improved in days binged in the past 7d G1: 78.4% G2: 73.0% G3: not measured for control Post-treatment % abstinent in days binged in the past 7d G1: 59.5% G2: 62.2% G3: 9.1% 6m % abstinent in days binged in the past 7d G1: 62.2% G2: 64.9% G3: not measured for control 12m % abstinent in days binged in the past 7d G1: 56.8% G2: 67.7% G3: not measured for control "Separate chi-square analyses showed no differences between the G1 and G2 in the distribution of improved or abstinent individuals at posttreatment, six months posttreatment, or 12 months posttreatment (p.115)."

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Telch, 2001[44]	Binge days, 28 days Binge episodes, per 28 days Binge abstinence (no binge eating in past 4 weeks)	Binge days (M,SD) G1: 10.5 (9.0) G2: 14.0 (5.0) (P = NS) Binge episodes (M,SD) G1: 11.5 (10.8) G2: 14.5 (7.5) (P = NS)	Binge days (M,SD): G1: 0 (0) (P = NR) G2: 8.5 (10.0) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P < 0.001), G1 better than G2 Binge episodes (M,SD) G1: 0 (0) (P = NR) G2: 10.0 (14.0) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P < 0.001), G1 better than G2 Binge abstinence (M) G1: 89% G2: 12.5% p<0.001

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Wilfley, 2002[45] Hilbert, 2012[46]	Wilfley, Welch, Stein, et al., 2002[45]: Binge-eating days: number of days during previous 28 days on which at least 1 objective bulimic episode occurred (consumption of an unusually large amount of food given the circumstances, accompanied by a loss of control over eating) Percentage of participants in recovery (with no objective bulimic episodes in the past month) Percentage of participants eating at a less than clinically significant level of 4 days per month Percentage of participants being at or below a comparative level of eating disorder attutides and behaviors Hilbert, Bishop, Stein, et al., 2012[46] Binge days per EDE: days with OBEs over previous 28 days Recovered: 0 OBE days in previous 28 days Remitted: fewer than 4 OBE days in previous 28 days Categorical change from 1y to long-term follow-up: maintained abstinence, achieved abstinence, relapse, remained non-abstinent	Wilfley, Welch, Stein, et al., 2002[45]: G1: 17.3 (SD 6.9, range 4-28) G2: 16.3 (SD 7.2, range 5-28) Global eating disorder pathology at or below obese non-BED: G1: 23 (28%) G2: 22 (27%) Hilbert, Bishop, Stein, et al., 2012[46] Binge days G1: 16.44 (SD 0.81) G2: 15.78 (SD 0.81) Recovered G1: 0% G2: 0% Remitted G1: 0% G2: 0%	Wilfley, Welch, Stein, et al., 2002[45]: Binge-eating days Post-treatment G1: 0.6 (SD 1.6, range 0-8) G2: 0.9 (SD 2.0, range 0-10) % decrease from pre-treatment to post-treatment: 96% in G1, 94% in G2 GEE main effect of time indicated improvement from pretreatment to posttreatment (p<0.001) Binge-eating days 4-month G1: 2.0 (SD 4.6, range 0-26) G2: 1.5 (SD 3.9, range 0-23) Binge-eating days 8-month G1: 2.1 (SD 5.0, range 0-28) G2: 1.9 (SD 4.5, range 0-28) Binge-eating days 12-month G1: 1.7 (SD 4.3, range 0-25) G2: 1.2 (2.6, range 0-11) % decrease from pre-treatment to 12-month: 90% in G1, 93% in G2 G1 and G2 were both effective in reducing number of binge days during treatment (ß=-0.27, SE=0.007, z=-11.68, p<0.001), with no significant treatment-by-time interaction (z=0.11, p=0.91). Significant quadratic (p<0.001) and cubic (p=0.002) time effects occurred through follow-up, with no significant linear or higher-order treatment-by-time interactions (all p-values ≥0.2). Recovery (intent-to-treat) Percentages not reported but presented in line graph (figure 2). No significant treatment differences at any time point (all p-values ≥0.36). Recovery Post-treatment (completers) G1: 64 (82%) G2: 59 (74%) Recovery 4-month (completers) G1: NR G2: NR

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Wilfley, 2002[45] Hilbert, 2012[46] (continued)	Diagnosed (per EDE) at long-term follow-up with BED, anorexia nervosa, bulimia nervosa, ED not otherwise specified, purging behavior, fasting, or intense exercise		Recovery 8-month (completers) G1: NR G2: NR Recovery 12-month (completers) G1: 48 (72%) G2: 50 (70%) Sub-clinical bingeing (intent-to-treat) Percentages not reported but presented in line graph (figure 3). No significant treatment differences at any time point (all p-values ≥0.21). Sub-clinical bingeing Post-treatment (completers) G1: 73 (94%) G2: 72 (90%) Sub-clinical bingeing (completers) G1: NR G2: NR Sub-clinical bingeing (completers) G1: NR G2: NR Sub-clinical bingeing (completers) G1: 56 (84%) G2: 63 (89%) Global eating disorder pathology at or below obese non-BED (completers) G1: 66 (85%) G2: 60 (75%) p. 717 - No significant treatment x time interactions for any of the above outcomes Hilbert, Bishop, Stein, et al., 2012[46] ITT Post-treatment binge days G1: 0.49 (SD 0.82) G2: 1.16 (SD 0.81) ITT 1y binge days G1: 1.09 (SD 0.91) G2: 2.15 (SD 0.85)

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Wilfley, 2002[45] Hilbert, 2012[46] (continued)			ITT Long-term binge days G1: 5.86 (SD 1.09) G2: 2.32 (SD 0.98) ITT GEE binge days treatment effect F=0.88 p=0.351 ITT GEE binge days time effect F=155.94 p=<0.001 ITT GEE binge days treatment x time effect F=2.42 p=0.068 Post-hoc analyses binge days Significant improvements at post-treatment, 1y, and long-term follow-up when compared with pre-treatment (p<0.01) ITT Post-treatment Recovered G1: 81.8% G2: 64.4% ITT 1y Recovered G1: 77.8% G2: 53.7% ITT Long-term Recovered G1: 52.0% G2: 76.7% ITT GEE Recovered treatment effect chi-square 0.68, p=0.411 ITT GEE Recovered time effect chi-square 2.38, p=0.304 ITT GEE Recovered treatment x time effect chi-square 15.85, p<0.001 ITT Post-hoc analyses Recovered No significant between-group differences (all p>0.01) G1: a significant decline in recovery rates from post-treatment and 1-year follow-up to long-term follow-up was observed (both p≥0.002)

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Wilfley, 2002[45] Hilbert, 2012[46] (continued)			G2: recovery rates did not change over the follow-up period (both p>0.01) Completer analysis Recovery across all 3 follow-up assessments G1: 27.3% G2: 22.2% Completer analysis Recovery from 1y to long-term follow-up: Maintained abstinence G1: 52.0% G2: 43.3% Completer analysis Recovery from 1y to long-term follow-up: Achieved abstinence G1: 0.0% G2: 33.3% Completer analysis Recovery from 1y to long-term follow-up: Relapsed G1: 24.0% G2: 10.0% Completer analysis Recovery from 1y to long-term follow-up: Remained non-abstinent G1: 24.0% G2: 13.3% ITT Post-treatment Remitted G1: 95.5% G2: 86.7% ITT 1y Remitted G1: 88.9% G2: 80.5% ITT Long-term Remitted G1: 72.0% G2: 83.9% ITT GEE Remitted treatment effect chi-square 0.64, p=0.424 ITT GEE Remitted time effect chi-square 5.14, p=0.077 ITT GEE Remitted treatment x time effect chi-square 3.67, p=0.160

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Wilfley, 2002(#499) Hilbert, 2012[46] (continued)			Long-term Dx BED G1: 12.0% G2: 9.4% Long-term Dx anorexia nervosa G1: 0% G2: 0% Long-term Dx bulimia nervosa G1: 0% G2: 0% Long-term Dx ED not otherwise specified G1: 0% G2: 0% Long-term Purging behavior G1: 0% G2: 0% Long-term Fasting G1: 0% G2: 0% Long-term Intense exercising G1: 0% G2: 0%

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Wilson, 2010[47] Sysko, 2010[48]	Number of binge days in the past 28 days, assessed by EDE Remission (time period not specified) No longer meeting DSM-IV criteria for BED	Number of binge days G1: 16.3 (SD 5.9) G2: 16.6 (SD 7.3) G3: 16.1 (SD 6.6)	Post-treatment Number of binge days G1: 4.3 (SD 7.9) G2: 3.8 (SD 7.2) G3: 3.7 (SD 7.2) Mean change: NR p=NS, NR "ITT analyses revealed no differences among the 3 treatments on... reduction in days of binge eating." 1y Number of binge days G1: 6.5 (SD 8.7) G2: 4.3 (SD 7.8) G3: 4.8 (SD 7.6) Mean change: NR p=NS, NR "At 1 year, no significant difference among treatments on any measure of binge eating were found." 2y Number of binge days G1: 5.8 (SD 8.5) G2: 3.7 (SD 7.3) G3: 4.3 (SD 7.8) Mean change: NR p=NR, no results are reported for the analysis of 2y number of binge days Post-treatment, 1y, and 2y remission rates NR, presented in Figure 2 line graph. Post-treatment remission: G1: NR G2: NR G3: NR Mean change: NR p=NS, NR "ITT analyses revealed no differences among the 3 treatments on remission from binge eating." 1y remission: G1: NR G2: NR G3: NR

Evidence Table 23. Binge eating disorder behavioral treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Wilson, 2010[47] Sysko, 2010[48] (continued)			Mean change: NR p=NS, NR "At 1 year, no significant difference among treatments on any measure of binge eating were found." 2y remission: G1: NR G2: NR G3: NR Mean change: NR; F=3.6 G1 vs. G2 OR: 2.3 G1 vs. G3 OR: 2.6 G2 vs. G3 OR: 1.2 p<0.05 "Both G2 and G3 were significantly more effective than G1 in terms of remission from binge eating" Post-treatment No longer meeting DSM-IV criteria for BED G1: 81% G2: 82% G3: 87% Mean change: NR p=NR, NS "ITT analyses revealed no differences among the 3 treatments on... no longer meeting DSM-IV criteria for BED." 1y No longer meeting DSM-IV criteria for BED G1: NR G2: NR G3: NR Mean change: NR p=NR 2y No longer meeting DSM-IV criteria for BED G1: NR G2: NR G3: NR Mean change: NR p=NR

Evidence Table E24. Binge eating disorder behavioral treatment – part 6

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Agras, 1995[5]	TFEQ -disinhibition -hunger -restraint Binge eating scale (BES) SCL-90 (Global)	12wk TFEQ-disinhibition G1: 12.1 (SD 2.6) G2: 13.6 (SD 1.7) F(2,78) = 6.0 p=.004 12wk TFEQ-hunger G1: 8.5 (SD 2.6) G2: 10.0 (SD 3.2) p = NR 12wk TFEQ-restraint G1: 9.4 (SD 3.3) G2: 7.8 (SD 4.4) p = NR 12wk Binge eating scale (BES) G1: 18.1 (SD 8.0) G2: 23.8 (SD 6.6) F(2,78) = 12.6 p=.0001	12wk TFEQ-disinhibition G1: 12.1 (SD 2.6) G2: 13.6 (SD 1.7) F(2,78) = 6.0 p=.004 12wk TFEQ-hunger G1: 8.5 (SD 2.6) G2: 10.0 (SD 3.2) p = NR 12wk TFEQ-restraint G1: 9.4 (SD 3.3) G2: 7.8 (SD 4.4) p = NR 12wk Binge eating scale (BES) G1: 18.1 (SD 8.0) G2: 23.8 (SD 6.6) F(2,78) = 12.6 p=.0001	NA

Evidence Table E24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Allen, 1999[6]	Eating Self-Efficacy Scale (ESES) -Negative affect -Social acc. Situational Appetite Measure-Urges (SAM-U) -Reward -Relaxation -Food present -Negative feelings -Hunger	ESES-Negative affect G1: 61.27 (SD 16.96) G2: 74.00 (SD 17.95) F=4.36, p=0.053 ESES-Social acc. G1: 45.18 (SD 11.15) G2: 50.89 (SD 9.62) p=NR, NS SAM-U-Reward G1: 14.55 (SD 5.11) G2: 20.89 (SD 5.25) F=8.23, p<0.05 SAM-U-Relaxation G1: 17.64 (SD 4.78) G2: 20.00 (SD 3.57) p=NR, NS SAM-U-Food present G1: 18.82 (SD 4.38) G2: 21.22 (SD 4.24) F=5.50, p<0.05 SAM-U-Negative feelings G1: 17.64 (SD 5.75) G2: 21.78 (SD 5.33) F=7.38, p<0.05 SAM-U-Hunger G1: 25.00 (SD 1.95) G2: 25.44 (SD 3.00) p=NR, NS	ESES-Negative affect G1: 61.27 (SD 16.96) G2: 74.00 (SD 17.95) F=4.36, p=0.053 ESES-Social acc. G1: 45.18 (SD 11.15) G2: 50.89 (SD 9.62) p=NR, NS SAM-U-Reward G1: 14.55 (SD 5.11) G2: 20.89 (SD 5.25) F=8.23, p<0.05 SAM-U-Relaxation G1: 17.64 (SD 4.78) G2: 20.00 (SD 3.57) p=NR, NS SAM-U-Food present G1: 18.82 (SD 4.38) G2: 21.22 (SD 4.24) F=5.50, p<0.05 SAM-U-Negative feelings G1: 17.64 (SD 5.75) G2: 21.78 (SD 5.33) F=7.38, p<0.05 SAM-U-Hunger G1: 25.00 (SD 1.95) G2: 25.44 (SD 3.00) p=NR, NS	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Carrard, 2011[7]	EDI-2 -Drive for thinness -Bulimia -Body dissatisfaction -Ineffectiveness -Perfectionism -Interpersonal distrust -Interoceptive awareness -Maturity fears -Impulse regulation -Social insecurity EDE-Q -Restraint -Shape concern -Total EDE-Q TFEQ restraint TFEQ hunger	6m EDI-2 -Drive for thinness G1: 8.9 (5.9) G2: 11.0 (4.9) Mean Between-group difference (95% CI): NR p = 0.020 1y EDI-2 -Drive for thinness G1: 5.4 (4.7) G2: 7.8 (6.0) Mean Between-group difference (95% CI): NR p <0.001 6m-Bulimia G1: 2.8 (2.6) G2: 5.9 (4.4) Mean Between-group difference (95% CI): NR p <0.001 1y-Bulimia G1: 1.7 (1.9) G2: 2.5 (2.9) Mean Between-group difference (95% CI): NR p = NR, but reports ns 6m-Body dissatisfaction G1: 19.0 (7.0) G2: 18.9 (6.8) Mean Between-group difference (95% CI): NR p = 0.001 1y-Body dissatisfaction G1: 15.6 (7.7) G2: 14.5 (9.2)	6m EDI-2 -Drive for thinness G1: 8.9 (5.9) G2: 11.0 (4.9) Mean Between-group difference (95% CI): NR p = 0.020 1y EDI-2 -Drive for thinness G1: 5.4 (4.7) G2: 7.8 (6.0) Mean Between-group difference (95% CI): NR p <0.001 6m-Bulimia G1: 2.8 (2.6) G2: 5.9 (4.4) Mean Between-group difference (95% CI): NR p <0.001 1y-Bulimia G1: 1.7 (1.9) G2: 2.5 (2.9) Mean Between-group difference (95% CI): NR p = NR, but reports ns 6m-Body dissatisfaction G1: 19.0 (7.0) G2: 18.9 (6.8) Mean Between-group difference (95% CI): NR p = 0.001 1y-Body dissatisfaction G1: 15.6 (7.7) G2: 14.5 (9.2)	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Carrard, 2011[7] (continued)		Mean Between-group difference (95% CI): NR p = 0.001 6m-Ineffectiveness G1: 3.7 (3.5) G2: 5.6 (6.1) Mean Between-group difference (95% CI): NR p = 0.646 1y-Ineffectiveness G1: 2.3 (2.8) G2: 3.8 (5.1) Mean Between-group difference (95% CI): NR p = NR 6m-Perfectionism G1: 6.5 (4.3) G2: 5.8 (4.5) Mean Between-group difference (95% CI): NR p = 0.305 12m-Perfectionism G1: 5.1 (3.8) G2: 5.4 (4.1) Mean Between-group difference (95% CI): NR p = NR 6m-Interpersonal distrust G1: 3.0 (3.4) G2: 3.8 (3.3) Mean Between-group difference (95% CI): NR p = 0.956 12m-Interpersonal distrust G1: 2.3 (3.1) G2: 3.0 (3.6)	Mean Between-group difference (95% CI): NR p = 0.001 6m-Ineffectiveness G1: 3.7 (3.5) G2: 5.6 (6.1) Mean Between-group difference (95% CI): NR p = 0.646 1y-Ineffectiveness G1: 2.3 (2.8) G2: 3.8 (5.1) Mean Between-group difference (95% CI): NR p = NR 6m-Perfectionism G1: 6.5 (4.3) G2: 5.8 (4.5) Mean Between-group difference (95% CI): NR p = 0.305 12m-Perfectionism G1: 5.1 (3.8) G2: 5.4 (4.1) Mean Between-group difference (95% CI): NR p = NR 6m-Interpersonal distrust G1: 3.0 (3.4) G2: 3.8 (3.3) Mean Between-group difference (95% CI): NR p = 0.956 12m-Interpersonal distrust G1: 2.3 (3.1) G2: 3.0 (3.6)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Carrard, 2011[7] (continued)		Mean Between-group difference (95% CI): NR p = NR 6m-Interoceptive awareness G1: 4.5 (4.5) G2: 7.3 (6.2) Mean Between-group difference (95% CI): NR p = 0.024 12m-Interoceptive awareness G1: 3.2 (3.5) G2: 4.1 (4.2) Mean Between-group difference (95% CI): NR p = NR, reports ns 6m-Maturity fears G1: 2.3 (2.6) G2: 2.2 (2.8) Mean Between-group difference (95% CI): NR p = 0.329 12m-Maturity fears G1: 2.3 (2.5) G2: 2.1 (2.9) Mean Between-group difference (95% CI): NR p = NR 6m-Impulse regulation G1: 2.7 (2.6) G2: 3.8 (4.3) Mean Between-group difference (95% CI): NR p = 0.099 12m-Impulse regulation G1: 1.8 (2.4) G2: 2.4 (2.8)	Mean Between-group difference (95% CI): NR p = NR 6m-Interoceptive awareness G1: 4.5 (4.5) G2: 7.3 (6.2) Mean Between-group difference (95% CI): NR p = 0.024 12m-Interoceptive awareness G1: 3.2 (3.5) G2: 4.1 (4.2) Mean Between-group difference (95% CI): NR p = NR, reports ns 6m-Maturity fears G1: 2.3 (2.6) G2: 2.2 (2.8) Mean Between-group difference (95% CI): NR p = 0.329 12m-Maturity fears G1: 2.3 (2.5) G2: 2.1 (2.9) Mean Between-group difference (95% CI): NR p = NR 6m-Impulse regulation G1: 2.7 (2.6) G2: 3.8 (4.3) Mean Between-group difference (95% CI): NR p = 0.099 12m-Impulse regulation G1: 1.8 (2.4) G2: 2.4 (2.8)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Carrard, 2011[7] (continued)		Mean Between-group difference (95% CI): NR p = NR 6m-Social insecurity G1: 3.6 (2.6) G2: 4.7 (3.9) Mean Between-group difference (95% CI): NR p = 0.518 12m-Social insecurity G1: 2.9 (2.3) G2: 3.7 (3.6) Mean Between-group difference (95% CI): NR p = NR EDE-Q 6m-Restraint G1: 1.7 (1.4) G2: 1.8 (1.3) Mean Between-group difference (95% CI): NR p = 0.063 12m-Restraint G1: 1.3 (1.1) G2: 1.2 (1.3) Mean Between-group difference (95% CI): NR p = NR 6m-Shape concern G1: 3.7 (1.3) G2: 4.1 (1.3) Mean Between-group difference (95% CI): NR p = 0.001 12m-Shape concern G1: 2.9 (1.5) G2: 3.3 (1.9)	Mean Between-group difference (95% CI): NR p = NR 6m-Social insecurity G1: 3.6 (2.6) G2: 4.7 (3.9) Mean Between-group difference (95% CI): NR p = 0.518 12m-Social insecurity G1: 2.9 (2.3) G2: 3.7 (3.6) Mean Between-group difference (95% CI): NR p = NR EDE-Q 6m-Restraint G1: 1.7 (1.4) G2: 1.8 (1.3) Mean Between-group difference (95% CI): NR p = 0.063 12m-Restraint G1: 1.3 (1.1) G2: 1.2 (1.3) Mean Between-group difference (95% CI): NR p = NR 6m-Shape concern G1: 3.7 (1.3) G2: 4.1 (1.3) Mean Between-group difference (95% CI): NR p = 0.001 12m-Shape concern G1: 2.9 (1.5) G2: 3.3 (1.9)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Carrard, 2011[7] (continued)		Mean Between-group difference (95% CI): NR p = 0.001 6m-Total EDE-Q G1: 2.5 (1.1) G2: 2.9 (1.0) Mean Between-group difference (95% CI): NR p <0.001 12m-Total EDE-Q G1: 1.9 (1.1) G2: 2.3 (1.5) Mean Between-group difference (95% CI): NR p = NR, reports ns 6m TFEQ restraint G1: 8.5 (3.9) G2: 8.3 (3.8) Mean Between-group difference (95% CI): NR p = 0.500 1y TFEQ restraint G1: 7.5 (4.1) G2: 7.6 (3.8) Mean Between-group difference (95% CI): NR p = NR 6m TFEQ hunger G1: 6.7 (2.9) G2: 9.3 (2.8) Mean Between-group difference (95% CI): NR p = 0.001 12m TFEQ hunger G1: 5.1 (3.4) G2: 6.7 (3.5)	Mean Between-group difference (95% CI): NR p = 0.001 6m-Total EDE-Q G1: 2.5 (1.1) G2: 2.9 (1.0) Mean Between-group difference (95% CI): NR p <0.001 12m-Total EDE-Q G1: 1.9 (1.1) G2: 2.3 (1.5) Mean Between-group difference (95% CI): NR p = NR, reports ns 6m TFEQ restraint G1: 8.5 (3.9) G2: 8.3 (3.8) Mean Between-group difference (95% CI): NR p = 0.500 1y TFEQ restraint G1: 7.5 (4.1) G2: 7.6 (3.8) Mean Between-group difference (95% CI): NR p = NR 6m TFEQ hunger G1: 6.7 (2.9) G2: 9.3 (2.8) Mean Between-group difference (95% CI): NR p = 0.001 12m TFEQ hunger G1: 5.1 (3.4) G2: 6.7 (3.5)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Carrard, 2011[7] (continued)		Mean Between-group difference (95% CI): NR p = 0.002	Mean Between-group difference (95% CI): NR p = 0.002	
Carter, 1998[8]	All assessed by EDE: Global EDE-Q4 score Restraint Eating concern Shape concern Weight concern	Global EDE-Q4 score After treatment Mean (SD) G1: 2.7 (1.3) G2: 2.1 (1.2) G3: 3.5 (0.8) Time x Treatment condition: p <0.0001; G1 and G2 was lower than G3 at post-treatment. Differences between G1 and G2 = NS at post-treatment. Global EDE-Q4 score 3-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment immediately post-treatment) G1: 2.6 (1.5) G2: 2.1 (1.3) Global EDE-Q4 score 6-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment 3 months post-treatment) G1: 2.6 (1.5) G2: 2.4 (1.3) p = NS for all follow up timepoints	Global EDE-Q4 score After treatment Mean (SD) G1: 2.7 (1.3) G2: 2.1 (1.2) G3: 3.5 (0.8) Time x Treatment condition: p <0.0001; G1 and G2 was lower than G3 at post-treatment. Differences between G1 and G2 = NS at post-treatment. Global EDE-Q4 score 3-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment immediately post-treatment) G1: 2.6 (1.5) G2: 2.1 (1.3) Global EDE-Q4 score 6-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment 3 months post-treatment) G1: 2.6 (1.5) G2: 2.4 (1.3) p = NS for all follow up timepoints	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Carter, 1998[8] (continued)		EDE Restraint After treatment Mean (SD) G1: 2.1 (1.4) G2: 1.2 (1.3) G3: 2.6 (1.4) Time x Treatment condition (all 3 groups): p < 0.005 such that G1 was lower than G3; Differences between G2 and G3 and G1 and G2 were NS. Time x Treatment condition interaction (2 groups): p = 0.008 EDE Restraint 3-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment immediately post-treatment) G1: 1.9 (1.6) G2: 1.0 (1.0) G1 v G2: p = 0.01 EDE Restraint 6-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment 3 months post-treatment) G1: 2.0 (1.6) G2: 1.3 (1.2) G1 v G2: NS EDE eating concern After treatment Mean (SD) G1: 2.0 (1.6) G2: 1.4 (1.3) G3: 3.7 (1.1)	EDE Restraint After treatment Mean (SD) G1: 2.1 (1.4) G2: 1.2 (1.3) G3: 2.6 (1.4) Time x Treatment condition (all 3 groups): p < 0.005 such that G1 was lower than G3; Differences between G2 and G3 and G1 and G2 were NS. Time x Treatment condition interaction (2 groups): p = 0.008 EDE Restraint 3-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment immediately post-treatment) G1: 1.9 (1.6) G2: 1.0 (1.0) G1 v G2: p = 0.01 EDE Restraint 6-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment 3 months post-treatment) G1: 2.0 (1.6) G2: 1.3 (1.2) G1 v G2: NS EDE eating concern After treatment Mean (SD) G1: 2.0 (1.6) G2: 1.4 (1.3) G3: 3.7 (1.1)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Carter, 1998[8] (continued)		EDE eating concern 3-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment immediately post-treatment) G1: 2.2 (1.7) G2: 1.6 (1.5) EDE eating concern 6-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment 3 months post-treatment) G1: 2.2 (1.6) G2: 1.8 (1.5) EDE shape concern After treatment Mean (SD) G1: 3.7 (1.6) G2: 3.3 (1.5) G3: 4.6 (0.9) EDE shape concern 3-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment immediately post-treatment) G1: 3.6 (1.8) G2: 3.3 (1.6)	EDE eating concern 3-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment immediately post-treatment) G1: 2.2 (1.7) G2: 1.6 (1.5) EDE eating concern 6-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment 3 months post-treatment) G1: 2.2 (1.6) G2: 1.8 (1.5) EDE shape concern After treatment Mean (SD) G1: 3.7 (1.6) G2: 3.3 (1.5) G3: 4.6 (0.9) EDE shape concern 3-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment immediately post-treatment) G1: 3.6 (1.8) G2: 3.3 (1.6)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Carter, 1998[8] (continued)		EDE shape concern 6-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment 3 months post-treatment) G1: 3.7 (1.7) G2: 3.6 (1.6) EDE Weight concern After treatment Mean (SD) G1: 3.1 (1.4) G2: 2.5 (1.6) G3: 3.7 (1.1) EDE Weight concern 3-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment immediately post-treatment) G1: 2.8 (1.7) G2: 2.6 (1.5) EDE Weight concern 6-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment 3 months post-treatment) G1: 2.7 (1.7) G2: 2.8 (1.5) p = NR for all other EDEQ subscales, but page 620: "The results for the other EDEQ subscales were very similar with the exception of the Restraint scale."	EDE shape concern 6-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment 3 months post-treatment) G1: 3.7 (1.7) G2: 3.6 (1.6) EDE Weight concern After treatment Mean (SD) G1: 3.1 (1.4) G2: 2.5 (1.6) G3: 3.7 (1.1) EDE Weight concern 3-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment immediately post-treatment) G1: 2.8 (1.7) G2: 2.6 (1.5) EDE Weight concern 6-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment 3 months post-treatment) G1: 2.7 (1.7) G2: 2.8 (1.5) p = NR for all other EDEQ subscales, but page 620: "The results for the other EDEQ subscales were very similar with the exception of the Restraint scale."	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Cassin, 2008[9]	Weight Efficacy Lifestyle Questionnaire (WEL) Change ratings (3 questions on an 11-pt visual analogue scale, anchored not at all to extrememly): 1."How important is it for you change?" 2. "How ready are you to change?" 3. "If you decided to change, how confident are you that you will succeed?"	WEL 1. Negative emotions G1: 22.8 (8.4) G2: 16.6 (7.1) t = 4.16, p < .001 2.Food Availability G1: 25.6 (8.2) G2: 17.6 (8.1) t = 5.03, p < .001 3. Social Pressure G1: 28.5 (7.9) G2: 23.9 (8.4) t = 2.93, p < .01 4. Physical Discomfort G1: 28.1 (7.2) G2: 24.0 (7.5) t = 2.93, p < .01 5. Other Activities G1: 29.8 (8.0) G2: 22.7 (7.7) t = 4.72, p < .001 Change Ratings 1. Importance of change G1: 9.5 (0.9) G2: 9.4 (1.1) t = 0.84, p = NS 2. Readiness for change G1: 8.6 (1.3) G2: 8.4 (1.6) t = 0.52, p = NS 3. Confidence for change G1: 7.6 (1.4) G2: 5.5 (2.8) t = 4.91, p < .001	WEL 1. Negative emotions G1: 22.8 (8.4) G2: 16.6 (7.1) t = 4.16, p < .001 2.Food Availability G1: 25.6 (8.2) G2: 17.6 (8.1) t = 5.03, p < .001 3. Social Pressure G1: 28.5 (7.9) G2: 23.9 (8.4) t = 2.93, p < .01 4. Physical Discomfort G1: 28.1 (7.2) G2: 24.0 (7.5) t = 2.93, p < .01 5. Other Activities G1: 29.8 (8.0) G2: 22.7 (7.7) t = 4.72, p < .001 Change Ratings 1. Importance of change G1: 9.5 (0.9) G2: 9.4 (1.1) t = 0.84, p = NS 2. Readiness for change G1: 8.6 (1.3) G2: 8.4 (1.6) t = 0.52, p = NS 3. Confidence for change G1: 7.6 (1.4) G2: 5.5 (2.8) t = 4.91, p < .001	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	NR	NR	NR	NR
Cesa, 2013[12]	NA	NA	NA	NA
Compare, 2013[13]	NA	NA	NA	NA
De Zwaan, 2005[14]	EDI TFEQ BES	No quantitative data reported for any of the three measures used to measure binge eating-related psychopathology. Reason given by authors: "Because of missing data, particularly during the follow-up period, detailed statistical analyses were not conducted. The overall pattern of change for most of the questionnaires assessing eating-related (BES, EDI, TFEQ)...psychopathology revealed a U-shape with some improvement during active treatment and worsening during follow-up, usually not quite returning to baseline levels" (pg. 95). Qualitative data reported as follows: "ANCOVAs conducted at the end of treatment [24 week] controlling for baseline values and ANCOVAs conducted at the 1-year follow-up controlling for end-of-treatment [24 week] values did not reveal significant	No quantitative data reported for any of the three measures used to measure binge eating-related psychopathology. Reason given by authors: "Because of missing data, particularly during the follow-up period, detailed statistical analyses were not conducted. The overall pattern of change for most of the questionnaires assessing eating-related (BES, EDI, TFEQ)...psychopathology revealed a U-shape with some improvement during active treatment and worsening during follow-up, usually not quite returning to baseline levels" (pg. 95). Qualitative data reported as follows: "ANCOVAs conducted at the end of treatment [24 week] controlling for baseline values and ANCOVAs conducted at the 1-year follow-up controlling for end-of-treatment [24 week] values did not reveal significant	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
De Zwaan, 2005[14] (continued)		differences for most of the scales between participants with and without CBT" (pg. 95). G1 had lower (more normal) values than G2 for the EDI DFT subscale (p=.04) and the TFEQ Hunger subscale (p=.04) at 1 year followup. G1 had lower (more normal) values than G2 on the EDI Bulimia subscale (p=.02) at 6 month followup.	differences for most of the scales between participants with and without CBT" (pg. 95). G1 had lower (more normal) values than G2 for the EDI DFT subscale (p=.04) and the TFEQ Hunger subscale (p=.04) at 1 year followup. G1 had lower (more normal) values than G2 on the EDI Bulimia subscale (p=.02) at 6 month followup.	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Dingemans, 2007[15]	EDE -global -dietary restraint -eating concern -weight concern -shape concern	10wk EDE-global G1: 2.3 (SD 1.2) G2: 3.1 (SD 1.1) Post-treatment EDE-global G1: 1.3 (SD 1.0) G2: 2.3 (SD 0.9) EDE-global test statistics and significance Time ß (SE): -0.58 (SE 0.16), p<0.001 Time x condition ß (SE): -0.60 (SE 0.12), p<0.001 10wkEDE -dietary restraint G1: 1.5 (SD 1.3) G2: 2.1 (SD 1.5) Post-treatment EDE -dietary restraint G1: 0.9 (SD 1.0) G2: 1.9 (SD 1.3) EDE-dietary restraint test statistics and significance Time ß (SE): -0.21 (SE 0.21), p=NR, NS Time x condition ß (SE): -0.52 (SE 0.17), p<0.01 EDE-eating concern G1: 1.6 (SD 1.1) G2: 2.6 (SD 1.5) Post-treatment EDE-eating concern G1: 0.9 (SD 1.1) G2: 1.6 (SD 1.1) EDE-eating concern test statistics and significance Time ß (SE): -0.52 (0.23), p=NR, NS Time x condition ß (SE): -0.56 (SE 0.17), p<0.001	10wk EDE-global G1: 2.3 (SD 1.2) G2: 3.1 (SD 1.1) Post-treatment EDE-global G1: 1.3 (SD 1.0) G2: 2.3 (SD 0.9) EDE-global test statistics and significance Time ß (SE): -0.58 (SE 0.16), p<0.001 Time x condition ß (SE): -0.60 (SE 0.12), p<0.001 10wkEDE -dietary restraint G1: 1.5 (SD 1.3) G2: 2.1 (SD 1.5) Post-treatment EDE -dietary restraint G1: 0.9 (SD 1.0) G2: 1.9 (SD 1.3) EDE-dietary restraint test statistics and significance Time ß (SE): -0.21 (SE 0.21), p=NR, NS Time x condition ß (SE): -0.52 (SE 0.17), p<0.01 EDE-eating concern G1: 1.6 (SD 1.1) G2: 2.6 (SD 1.5) Post-treatment EDE-eating concern G1: 0.9 (SD 1.1) G2: 1.6 (SD 1.1) EDE-eating concern test statistics and significance Time ß (SE): -0.52 (0.23), p=NR, NS Time x condition ß (SE): -0.56 (SE 0.17), p<0.001	10wk EDE-weight concern G1: 2.9 (SD 1.6) G2: 3.8 (SD 1.1) Post-treatment EDE-weight concern G1: 1.9 (SD 1.4) G2: 3.2 (SD 1.2) EDE-weight concern test statistics and significance Time ß (SE): -0.47 (SE 0.24), p=NR, NS Time x condition ß (SE): -0.79 (SE 0

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Eldredge, 1997[16]	Binge Eating Scale (BES) Three-Factor Eating Questionnaire (TFEQ) -restraint -disinhibition -hunger	12wk Binge Eating Scale (BES) G1: 17.07 G2: 20.88 Time effect F=79.35, p=0.0001; Table 1 appears to show no effect for treatment 12wk TFEQ-restraint G1: 11.26 G2: 9.38 Time effect F=17.04, p=0.0002; Table 1 appears to show no effect for treatment 12wk TFEQ-disinhibition G1: 10.94 G2: 12.63 Time effect F=35.77, p=0.0001; Table 1 appears to show no effect for treatment 12wk TFEQ-hunger G1: 6.65 G2: 9.63 Time effect F=12.52, p=0.001; Table 1 appears to show no effect for treatment	12wk Binge Eating Scale (BES) G1: 17.07 G2: 20.88 Time effect F=79.35, p=0.0001; Table 1 appears to show no effect for treatment 12wk TFEQ-restraint G1: 11.26 G2: 9.38 Time effect F=17.04, p=0.0002; Table 1 appears to show no effect for treatment 12wk TFEQ-disinhibition G1: 10.94 G2: 12.63 Time effect F=35.77, p=0.0001; Table 1 appears to show no effect for treatment 12wk TFEQ-hunger G1: 6.65 G2: 9.63 Time effect F=12.52, p=0.001; Table 1 appears to show no effect for treatment	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Gorin, 2003[17]	TFEQ-Restraint (M,SD) TFEQ-Disinhibition (M,SD) TFEQ-Hunger(M,SD)	TFEQ-Restraint G1: 9.52 (4.30) G2: 8.41 (3.32) G3: 7.30 (4.73) G1+G2 v. G3: NS, NR Follow up G1: 12.11 (3.53) SD: 8.24 (3.00) p = NR TFEQ-Disinhibition G1: 10.86 (3.81) G2: 11.55 (3.05) G3: 13.23 (2.31) G1+G2 v. G3: p < .05 Follow Up G1: 9.74 (3.87) G2: 11.00 (3.39) p = NR TFEQ-Hunger G1: 7.14 (3.88) G2: 9.23 (3.18) G3: 9.86 (3.47) G1+G2 v. G3: p < .05 Follow Up G1: 5.68 (3.62) G2: 8.71 (3.74) p = NR	TFEQ-Restraint G1: 9.52 (4.30) G2: 8.41 (3.32) G3: 7.30 (4.73) G1+G2 v. G3: NS, NR Follow up G1: 12.11 (3.53) SD: 8.24 (3.00) p = NR TFEQ-Disinhibition G1: 10.86 (3.81) G2: 11.55 (3.05) G3: 13.23 (2.31) G1+G2 v. G3: p < .05 Follow Up G1: 9.74 (3.87) G2: 11.00 (3.39) p = NR TFEQ-Hunger G1: 7.14 (3.88) G2: 9.23 (3.18) G3: 9.86 (3.47) G1+G2 v. G3: p < .05 Follow Up G1: 5.68 (3.62) G2: 8.71 (3.74) p = NR	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Grilo, 2013[18]	Eating disorder psychopathology evaluated using EDE-Q Global Eating disorder psychopathology evaluated using EDE-Global	EDE-Q Global, mean (SD) 16 weeks, ITT analysis G1: 3.0 (0.9) G2: 2.8 (0.9) Effect size = 0.34 p = NR Group-by-time interaction p = 0.43 EDE-Global, mean (SD) 16 weeks, ITT analysis G1: 2.0 (0.6) G2: 2.0 (0.7) Effect size = 0.38 p = NR Group-by-time interaction p = 0.19	EDE-Q Global, mean (SD) 16 weeks, ITT analysis G1: 3.0 (0.9) G2: 2.8 (0.9) Effect size = 0.34 p = NR Group-by-time interaction p = 0.43 EDE-Global, mean (SD) 16 weeks, ITT analysis G1: 2.0 (0.6) G2: 2.0 (0.7) Effect size = 0.38 p = NR Group-by-time interaction p = 0.19	NA
Grilo, 2014[19]	EDE global score	Posttreatment G1: 1.7 (SD 1.2) G2: 2.1 (SD 1.2) Hand calculated p = .267 6m G1: 1.7 (SD 0.9) G2: 1.8 (SD 1.0) Hand calculated p = .724 12m G1: 1.6 (SD 1.0) G2: 1.8 (SD 1.1) Hand calculated p = .530	Posttreatment G1: 1.7 (SD 1.2) G2: 2.1 (SD 1.2) Hand calculated p = .267 6m G1: 1.7 (SD 0.9) G2: 1.8 (SD 1.0) Hand calculated p = .724 12m G1: 1.6 (SD 1.0) G2: 1.8 (SD 1.1) Hand calculated p = .530	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Grilo, 2011[20] Grilo, 2011[21]	EDE -dietary restraint -eating concern -shape concern -weight concern -global score	Post-treatment EDE-dietary restraint G1: 1.4 (SD 0.8) G2: 1.6 (SD 1.1) G3: 1.5 (SD 1.1) p=NS, NR 6m EDE-dietary restraint G1: 1.4 (SD 1.1) G2: 1.5 (SD 1.0) G3: 1.3 (SD 1.1) p=NS, NR 12m EDE-dietary restraint G1: 1.2 (SD 1.1) G2: 1.4 (SD 1.1) G3: 1.1 (SD 1.2) p=NS, NR Post-treatment EDE-eating concern G1: 0.8 (SD 1.1) G2: 1 (SD 1.0) G3: 0.5 (SD 0.6) p=NS, NR 6m EDE-eating concern G1: 0.7 (SD 0.9) G2: 0.8 (SD 0.8) G3: 0.5 (SD 0.6) p=NS, NR 12m EDE-eating concern G1: 0.6 (SD 0.8) G2: 0.6 (SD 0.6) G3: 0.6 (SD 0.7) p=NS, NR	Post-treatment EDE-dietary restraint G1: 1.4 (SD 0.8) G2: 1.6 (SD 1.1) G3: 1.5 (SD 1.1) p=NS, NR 6m EDE-dietary restraint G1: 1.4 (SD 1.1) G2: 1.5 (SD 1.0) G3: 1.3 (SD 1.1) p=NS, NR 12m EDE-dietary restraint G1: 1.2 (SD 1.1) G2: 1.4 (SD 1.1) G3: 1.1 (SD 1.2) p=NS, NR Post-treatment EDE-eating concern G1: 0.8 (SD 1.1) G2: 1 (SD 1.0) G3: 0.5 (SD 0.6) p=NS, NR 6m EDE-eating concern G1: 0.7 (SD 0.9) G2: 0.8 (SD 0.8) G3: 0.5 (SD 0.6) p=NS, NR 12m EDE-eating concern G1: 0.6 (SD 0.8) G2: 0.6 (SD 0.6) G3: 0.6 (SD 0.7) p=NS, NR	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Grilo, 2011[20] Grilo, 2011[21] (continued)		Post-treatment EDE-shape concern G1: 2.3 (SD 1.3) G2: 2.4 (SD 1.2) G3: 2.1 (SD 1.4) p=NS, NR 6m EDE-shape concern G1: 2.0 (SD 1.2) G2: 2.4 (SD 1.3) G3: 2.0 (SD 1.3) p=NS, NR 12m EDE-shape concern G1: 2.1 (SD 1.4) G2: 2.2 (SD 1.3) G3: 1.8 (SD 1.2) p=NS, NR Post-treatment EDE-weight concern G1: 2.4 (SD 1.2) G2: 2.4 (SD 1.1) G3:2.2 (SD 1.1) p=NS, NR 6m EDE-weight concern G1: 2.1 (SD 1.1) G2: 2.4 (SD 0.9) G3: 1.9 (SD 1.1) p=NS, NR 12m EDE-weight concern G1: 2.3 (SD 1.1) G2: 2.3 (SD 1.1) G3: 2.0 (SD 1.0) p=NS, NR	Post-treatment EDE-shape concern G1: 2.3 (SD 1.3) G2: 2.4 (SD 1.2) G3: 2.1 (SD 1.4) p=NS, NR 6m EDE-shape concern G1: 2.0 (SD 1.2) G2: 2.4 (SD 1.3) G3: 2.0 (SD 1.3) p=NS, NR 12m EDE-shape concern G1: 2.1 (SD 1.4) G2: 2.2 (SD 1.3) G3: 1.8 (SD 1.2) p=NS, NR Post-treatment EDE-weight concern G1: 2.4 (SD 1.2) G2: 2.4 (SD 1.1) G3:2.2 (SD 1.1) p=NS, NR 6m EDE-weight concern G1: 2.1 (SD 1.1) G2: 2.4 (SD 0.9) G3: 1.9 (SD 1.1) p=NS, NR 12m EDE-weight concern G1: 2.3 (SD 1.1) G2: 2.3 (SD 1.1) G3: 2.0 (SD 1.0) p=NS, NR	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Grilo, 2011[20] Grilo, 2011[21] (continued)		Post-treatment EDE-global score G1: 1.7 (SD 0.9) G2: 1.8 (SD 0.8) G3: 1.6 (SD 0.9) p=NS, NR 6m EDE-global score G1: 1.6 (SD 0.8) G2: 1.8 (SD 0.7) G3: 1.4 (SD 0.9) p=NS, NR 12m EDE-global score G1: 1.5 (SD 0.8) G2: 1.6 (SD 0.8) G3: 1.4 (SD 0.9) p=NS, NR	Post-treatment EDE-global score G1: 1.7 (SD 0.9) G2: 1.8 (SD 0.8) G3: 1.6 (SD 0.9) p=NS, NR 6m EDE-global score G1: 1.6 (SD 0.8) G2: 1.8 (SD 0.7) G3: 1.4 (SD 0.9) p=NS, NR 12m EDE-global score G1: 1.5 (SD 0.8) G2: 1.6 (SD 0.8) G3: 1.4 (SD 0.9) p=NS, NR	
Grilo, 2005[22] Masheb, 2007[23]	EDE-Q: Dietary restraint, eating concern, weight concern, shape concern, hunger, cognitive restraint, disinhibition	12wk Dietary restraint (EDE-Q) mean (SD) G1: 2.1 (1.3) G2: 2.6 (1.3) G3: 2.4 (1.5) Omnibus analysis p=0.256 12wk Eating concern (EDE-Q) mean (SD) G1: 1.8 (1.3) G2: 2.4 (1.4) G3: 2.4 (1.0) Omnibus analysis p=0.04 G1 vs. G2 p=ns G2 vs. G3 p=0.017 G1 vs. G3 p=ns 12wk Weight concern (EDE-Q) mean (SD) G1: 3.2 (1.4) G2: 3.2 (1.4) G3: 3.1 (0.9)	12wk Dietary restraint (EDE-Q) mean (SD) G1: 2.1 (1.3) G2: 2.6 (1.3) G3: 2.4 (1.5) Omnibus analysis p=0.256 12wk Eating concern (EDE-Q) mean (SD) G1: 1.8 (1.3) G2: 2.4 (1.4) G3: 2.4 (1.0) Omnibus analysis p=0.04 G1 vs. G2 p=ns G2 vs. G3 p=0.017 G1 vs. G3 p=ns 12wk Weight concern (EDE-Q) mean (SD) G1: 3.2 (1.4) G2: 3.2 (1.4) G3: 3.1 (0.9)	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Grilo, 2005[22] Masheb, 2007[23] (continued)		Omnibus analysis p=0.924 12wk Shape concern (EDE-Q) mean (SD) G1: 3.6 (1.6) G2: 3.8 (1.7) G3: 3.9 (1.7) Omnibus analysis p=0.453 12wk Hunger (EDE-Q) mean (SD) G1: 6.6 (3.5) G2: 8.2 (3.7) G3: 9.7 (3.0) Omnibus analysis p=0.001 G1 vs. G2 p=0.025 G2 vs. G3 p=0.001 G1 vs. G3 p=0.046 12wk Cognitive restraint (TFEQ) mean (SD) G1: 10.8 (4.5) G2: 12.0 (4.7) G3: 7.1 (5.1) Omnibus analysis p=0.002 G1 vs. G2 p=0.047 G2 vs. G3 p=0.037 G1 vs. G3 p=0.001 12wk Disinhibition (TFEQ) mean (SD) G1: 11.2 (3.6) G2: 9.6 (3.7) G3: 12.7 (2.4) Omnibus analysis p=0.01 G1 vs. G2 p=ns G2 vs. G3 p=0.003 G1 vs. G3 p=ns	Omnibus analysis p=0.924 12wk Shape concern (EDE-Q) mean (SD) G1: 3.6 (1.6) G2: 3.8 (1.7) G3: 3.9 (1.7) Omnibus analysis p=0.453 12wk Hunger (EDE-Q) mean (SD) G1: 6.6 (3.5) G2: 8.2 (3.7) G3: 9.7 (3.0) Omnibus analysis p=0.001 G1 vs. G2 p=0.025 G2 vs. G3 p=0.001 G1 vs. G3 p=0.046 12wk Cognitive restraint (TFEQ) mean (SD) G1: 10.8 (4.5) G2: 12.0 (4.7) G3: 7.1 (5.1) Omnibus analysis p=0.002 G1 vs. G2 p=0.047 G2 vs. G3 p=0.037 G1 vs. G3 p=0.001 12wk Disinhibition (TFEQ) mean (SD) G1: 11.2 (3.6) G2: 9.6 (3.7) G3: 12.7 (2.4) Omnibus analysis p=0.01 G1 vs. G2 p=ns G2 vs. G3 p=0.003 G1 vs. G3 p=ns	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Hilbert, 2004[24]	Measure 1: Body image vidoe confrontation- Negative automatic thought's on one's body Measure 2: EDE- Wt concern Measure 3: EDE shape concern Measure 4: BSQ Measure 5: Test meal Measure 6: EDE-restraint Measure 7: EDE-eating concern	Measure 1: Posttreatment G1: 9.7 (7.7) G2: 13.7 (11.7) 4-month follow-up G1: 8.8 (8.3) G2: 12.8 (7.0) Repeated measures (Analysis of time) F: 3.32 df: 2,44 P:0.045 Measure 2: Posttreatment G1: 2.3 (1.9) G2: 2.3 (1.5) 4-month follow-up G1: 2.5 (1.7) G2: 2.2 (1.5) Repeated measures (Analysis of time) F: 12.60 df: 2, 44 p: <0.001 Measure 3 Posttreatment G1: 2.6 (1.6) G2: 2.3 (1.5) 4-month follow-up G1: 2.8 (1.7) G2: 2.1 (1.3) Repeated measures (Analysis of time) F: 19.37 df: 2, 44 p: <0.001	Measure 1: Posttreatment G1: 9.7 (7.7) G2: 13.7 (11.7) 4-month follow-up G1: 8.8 (8.3) G2: 12.8 (7.0) Repeated measures (Analysis of time) F: 3.32 df: 2,44 P:0.045 Measure 2: Posttreatment G1: 2.3 (1.9) G2: 2.3 (1.5) 4-month follow-up G1: 2.5 (1.7) G2: 2.2 (1.5) Repeated measures (Analysis of time) F: 12.60 df: 2, 44 p: <0.001 Measure 3 Posttreatment G1: 2.6 (1.6) G2: 2.3 (1.5) 4-month follow-up G1: 2.8 (1.7) G2: 2.1 (1.3) Repeated measures (Analysis of time) F: 19.37 df: 2, 44 p: <0.001	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Hilbert, 2004[24] (continued)		Measure 4 Posttreatment G1: 94.3 (37.8) G2: 104.8 (29.2) 4-month follow-up G1: 92.2 (35.8) G2: 97.4 (31.9) Repeated measures (Analysis of time) F: 21.77 df: 2, 42 p: <0.001 Measure 5: Posttreatment G1: 2.1 (1.5) G2: 6.7 (5.1) 4-month follow-up G1: 2.8 (2.7) G2: 3.0 (2.3) Repeated measures (Analysis of time) F: 2.39 df: 2, 44 p: 0.104 Measure 6: Posttreatment G1: 0.9 (1.2) G2: 0.9 (1.2) 4-month follow-up G1: 1.0 (1.2) G2: 1.1 (1.3) Repeated measures (Analysis of time) F: 24.10 df: 2, 37 p <0.001	Measure 4 Posttreatment G1: 94.3 (37.8) G2: 104.8 (29.2) 4-month follow-up G1: 92.2 (35.8) G2: 97.4 (31.9) Repeated measures (Analysis of time) F: 21.77 df: 2, 42 p: <0.001 Measure 5: Posttreatment G1: 2.1 (1.5) G2: 6.7 (5.1) 4-month follow-up G1: 2.8 (2.7) G2: 3.0 (2.3) Repeated measures (Analysis of time) F: 2.39 df: 2, 44 p: 0.104 Measure 6: Posttreatment G1: 0.9 (1.2) G2: 0.9 (1.2) 4-month follow-up G1: 1.0 (1.2) G2: 1.1 (1.3) Repeated measures (Analysis of time) F: 24.10 df: 2, 37 p <0.001	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Hilbert, 2004[24] (continued)		Measure 7 Posttreatment G1: 0.2 (0.3) G2: 0.4 (0.6) 4-month follow-up G1: 0.3 (0.5) G2: 0.1 (0.2) Repeated measures (Analysis of time) F: 12.56 df: 1, 32 p <0.001	Measure 7 Posttreatment G1: 0.2 (0.3) G2: 0.4 (0.6) 4-month follow-up G1: 0.3 (0.5) G2: 0.1 (0.2) Repeated measures (Analysis of time) F: 12.56 df: 1, 32 p <0.001	
Le Grange, 2002[25]	EDE-Q: - Restraint - Eating Concerns - Shape Concerns - Weight Concerns TFEQ: - Restraint - Disinhibition - Hunger Emotional Eating Scale (EES) - Anger - Anxiety - Depression	EDE-Q Restraint, mean (SD) 12 weeks, ITT analysis (%) G1: 2.0 (1.3) G2: 2.5 (1.9) p = >0.15 12 months, ITT analysis (%) G1: 2.1 (1.3) G2: 2.2 (1.2) p = >0.15 EDE-Q Eating Concerns, mean (SD) 12 weeks, ITT analysis (%) G1: 2.1 (1.8) G2: 2.0 (1.2) p = >0.15 12 months, ITT analysis (%) G1: 2.4 (1.9) G2: 1.9 (1.2) p = >0.15 EDE-Q Shape Concerns, mean (SD) 12 weeks, ITT analysis (%) G1: 3.8 (1.4) G2: 4.3 (1.0) p = >0.15	EDE-Q Restraint, mean (SD) 12 weeks, ITT analysis (%) G1: 2.0 (1.3) G2: 2.5 (1.9) p = >0.15 12 months, ITT analysis (%) G1: 2.1 (1.3) G2: 2.2 (1.2) p = >0.15 EDE-Q Eating Concerns, mean (SD) 12 weeks, ITT analysis (%) G1: 2.1 (1.8) G2: 2.0 (1.2) p = >0.15 12 months, ITT analysis (%) G1: 2.4 (1.9) G2: 1.9 (1.2) p = >0.15 EDE-Q Shape Concerns, mean (SD) 12 weeks, ITT analysis (%) G1: 3.8 (1.4) G2: 4.3 (1.0) p = >0.15	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Hilbert, 2004[24] (continued)		12 months, ITT analysis (%) G1: 4.1 (1.3) G2: 4.2 (1.0) p = >0.15 EDE-Q Weight Concerns, mean (SD) 12 weeks, ITT analysis (%) G1: 3.4 (1.3) G2: 3.6 (1.1) p = >0.15 12 months, ITT analysis (%) G1: 3.7 (1.3) G2: 3.5 (1.1) p = >0.15 TFEQ Restraint, mean (SD) 12 weeks, ITT analysis (%) G1: 10.1 (4.5) G2: 10.1 (4.1) p = >0.15 12 months, ITT analysis (%) G1: 9.6 (4.2) G2: 10.5 (4.3) p = >0.15 TFEQ Disinhibition, mean (SD) 12 weeks, ITT analysis (%) G1: 11.8 (3.8) G2: 10.9 (4.2) p = >0.15 12 months, ITT analysis (%) G1: 12.1 (3.9) G2: 10.8 (4.1) p = >0.15 TFEQ Hunger, mean (SD) 12 weeks, ITT analysis (%) G1: 8.1 (3.8) G2: 7.7 (3.6) p = >0.15	12 months, ITT analysis (%) G1: 4.1 (1.3) G2: 4.2 (1.0) p = >0.15 EDE-Q Weight Concerns, mean (SD) 12 weeks, ITT analysis (%) G1: 3.4 (1.3) G2: 3.6 (1.1) p = >0.15 12 months, ITT analysis (%) G1: 3.7 (1.3) G2: 3.5 (1.1) p = >0.15 TFEQ Restraint, mean (SD) 12 weeks, ITT analysis (%) G1: 10.1 (4.5) G2: 10.1 (4.1) p = >0.15 12 months, ITT analysis (%) G1: 9.6 (4.2) G2: 10.5 (4.3) p = >0.15 TFEQ Disinhibition, mean (SD) 12 weeks, ITT analysis (%) G1: 11.8 (3.8) G2: 10.9 (4.2) p = >0.15 12 months, ITT analysis (%) G1: 12.1 (3.9) G2: 10.8 (4.1) p = >0.15 TFEQ Hunger, mean (SD) 12 weeks, ITT analysis (%) G1: 8.1 (3.8) G2: 7.7 (3.6) p = >0.15	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Hilbert, 2004[24] (continued)		12 months, ITT analysis (%) G1: 8.6 (3.9) G2: 8.1 (3.5) p = >0.15 EES Anger, mean (SD) 12 weeks, ITT analysis (%) G1: 2.1 (0.9) G2: 1.6 (0.9) p = >0.15 12 months, ITT analysis (%) G1: 2.3 (0.9) G2: 1.8 (1.1) p = >0.15 EES Anxiety, mean (SD) 12 weeks, ITT analysis (%) G1: 1.8 (0.8) G2: 1.2 (0.8) p = >0.15 12 months, ITT analysis (%) G1: 2.0 (1.1) G2: 2.0 (1.1) p = >0.15 EES Depression, mean (SD) 12 weeks, ITT analysis (%) G1: 2.4 (1.0) G2: 1.8 (0.9) p = >0.15 12 months, ITT analysis (%) G1: 2.4 (1.0) G2: 2.4 (1.0) p = >0.15	12 months, ITT analysis (%) G1: 8.6 (3.9) G2: 8.1 (3.5) p = >0.15 EES Anger, mean (SD) 12 weeks, ITT analysis (%) G1: 2.1 (0.9) G2: 1.6 (0.9) p = >0.15 12 months, ITT analysis (%) G1: 2.3 (0.9) G2: 1.8 (1.1) p = >0.15 EES Anxiety, mean (SD) 12 weeks, ITT analysis (%) G1: 1.8 (0.8) G2: 1.2 (0.8) p = >0.15 12 months, ITT analysis (%) G1: 2.0 (1.1) G2: 2.0 (1.1) p = >0.15 EES Depression, mean (SD) 12 weeks, ITT analysis (%) G1: 2.4 (1.0) G2: 1.8 (0.9) p = >0.15 12 months, ITT analysis (%) G1: 2.4 (1.0) G2: 2.4 (1.0) p = >0.15	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Masheb, 2011[26]	TFEQ -disinhibition -hunger -restraint EDE -weight concern -shape concern -eating concern -total score	12m TFEQ-disinhibition G1: 8.6 (SE 0.9) G2: 7.6 (SE 0.8) Time x treatment F=0.90, p=0.467 12m TFEQ-hunger G1: 4.6 (SE 0.8) G2: 6.8 (SE 0.8) Time x treatment F=0.40, p=0.806 12m TFEQ-restraint G1: 11.2 (SE 0.9) G2: 9.7 (SE 0.8) Time x treatment F=0.64, p=0.634 12m EDE-weight concern G1: 2.1 (SE 0.3) G2: 2.6 (SE 0.2) Time x treatment F=1.38, p=0.242 12m EDE -shape concern G1: 2.8 (SE 0.3) G2: 2.8 (SE 0.3) Time x treatment F=0.37, p=0.829 12m EDE-eating concern G1: 1.4 (SE 0.3) G2: 1.1 (SE 0.3) Time x treatment F=0.53, p=0.715 12m EDE-total score G1: 1.9 (SE 0.2) G2: 2.1 (SE 0.2) Time x treatment F=1.68, p=0.159	12m TFEQ-disinhibition G1: 8.6 (SE 0.9) G2: 7.6 (SE 0.8) Time x treatment F=0.90, p=0.467 12m TFEQ-hunger G1: 4.6 (SE 0.8) G2: 6.8 (SE 0.8) Time x treatment F=0.40, p=0.806 12m TFEQ-restraint G1: 11.2 (SE 0.9) G2: 9.7 (SE 0.8) Time x treatment F=0.64, p=0.634 12m EDE-weight concern G1: 2.1 (SE 0.3) G2: 2.6 (SE 0.2) Time x treatment F=1.38, p=0.242 12m EDE -shape concern G1: 2.8 (SE 0.3) G2: 2.8 (SE 0.3) Time x treatment F=0.37, p=0.829 12m EDE-eating concern G1: 1.4 (SE 0.3) G2: 1.1 (SE 0.3) Time x treatment F=0.53, p=0.715 12m EDE-total score G1: 1.9 (SE 0.2) G2: 2.1 (SE 0.2) Time x treatment F=1.68, p=0.159	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Masson, 2013[27]	EDE-Q-Restraint EDE-Q Eating concern EDE-Q Weight concern EDE-Q Shape concern EDE-Q total score EDE-Q within 1SD of community norms (%)	Posttreatment EDE-Q-Restraint G1: 3.27 (SD 1.44) G2: 3.21 (SD 1.25) Effect size d=-0.04 Between group comparison=NR Posttreatment EDE-Q Eating concern G1: 2.69 (SD 1.29) G2: 3.74 (SD 1.46) Effect size d=0.76 Between group comparison=NR Posttreatment EDE-Q Weight concern G1: 4.15 (SD 1.18) G2: 4.99 (SD 1.23) Effect size d=0.70 Between group comparison=NR Posttreatment EDE-Q Shape concern G1: 4.49 (SD 1.46) G2: 5.50 (SD 1.20) Effect size d=0.76 Between group comparison=NR Posttreatment EDE-Q total score G1: 3.65 (SD 1.03) G2: 4.36 (SD 1.00) Effect size d=0.70 Between group comparison B=-1.00, SE=0.24, t=-3.43, p<0.05 (95% CI -1.21, -0.32; sr2=0.17) Posttreatment EDE-Q within 1SD of community norms (%) G1: 23.30% G2: 3.30% Effect size d=NR Between group comparison=NR	Posttreatment EDE-Q-Restraint G1: 3.27 (SD 1.44) G2: 3.21 (SD 1.25) Effect size d=-0.04 Between group comparison=NR Posttreatment EDE-Q Eating concern G1: 2.69 (SD 1.29) G2: 3.74 (SD 1.46) Effect size d=0.76 Between group comparison=NR Posttreatment EDE-Q Weight concern G1: 4.15 (SD 1.18) G2: 4.99 (SD 1.23) Effect size d=0.70 Between group comparison=NR Posttreatment EDE-Q Shape concern G1: 4.49 (SD 1.46) G2: 5.50 (SD 1.20) Effect size d=0.76 Between group comparison=NR Posttreatment EDE-Q total score G1: 3.65 (SD 1.03) G2: 4.36 (SD 1.00) Effect size d=0.70 Between group comparison B=-1.00, SE=0.24, t=-3.43, p<0.05 (95% CI -1.21, -0.32; sr2=0.17) Posttreatment EDE-Q within 1SD of community norms (%) G1: 23.30% G2: 3.30% Effect size d=NR Between group comparison=NR	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Masson, 2013[27] (continued)		6m Eating Disorder Quality of Life Scale (EDQLS) G1: 134.90 (SD 24.13) G2: NA Effect size (between BL and 6m, G2 only) d= 0.70 6m EDE-Q-Restraint G1: 2.70 (SD 1.39) G2: NA Effect size (between BL and 6m, G2 only) d= 0.73 6m EDE-Q Eating concern G1: 2.70 (SD 1.33) G2: NA Effect size (between BL and 6m, G2 only) d= 1.12 6m EDE-Q Weight concern G1: 3.93 (SD 1.36) G2: NA Effect size (between BL and 6m, G2 only) d=0.99 6m EDE-Q Shape concern G1: 4.33 (SD 1.60) G2: NA Effect size (between BL and 6m, G2 only) d=1.12 6m EDE-Q total score G1: 3.42 (SD 1.12) G2: NA Effect size (between BL and 6m, G2 only) d= 1.38 6m EDE-Q within 1SD of community norms (%) G1: 33.30% G2: NA Effect size (between BL and 6m, G2 only) d=NR	6m Eating Disorder Quality of Life Scale (EDQLS) G1: 134.90 (SD 24.13) G2: NA Effect size (between BL and 6m, G2 only) d= 0.70 6m EDE-Q-Restraint G1: 2.70 (SD 1.39) G2: NA Effect size (between BL and 6m, G2 only) d= 0.73 6m EDE-Q Eating concern G1: 2.70 (SD 1.33) G2: NA Effect size (between BL and 6m, G2 only) d= 1.12 6m EDE-Q Weight concern G1: 3.93 (SD 1.36) G2: NA Effect size (between BL and 6m, G2 only) d=0.99 6m EDE-Q Shape concern G1: 4.33 (SD 1.60) G2: NA Effect size (between BL and 6m, G2 only) d=1.12 6m EDE-Q total score G1: 3.42 (SD 1.12) G2: NA Effect size (between BL and 6m, G2 only) d= 1.38 6m EDE-Q within 1SD of community norms (%) G1: 33.30% G2: NA Effect size (between BL and 6m, G2 only) d=NR	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Munsch, 2007[28] Munsch, 2012[29]	Munsch, Biedert, Meyer, et al., 2007[28] EDE -dietary restraint -shape concern -weight concern -eating concern Munsch, Meyer, Biedert, et al., 2012[29]: Undergoing a diet to lose weight after active treatment Reporting intake of weight-loss medications EDE -total -restraint eating -eating concern -shape concern -weight concern	Munsch, Biedert, Meyer, et al., 2007[28]: Post-treatment EDE-dietary restraint, Completers G1 (n=25): 0.97 (SD 1.12) G2 (n=23): 0.83 (SD 0.82) F=0.15, p=0.79 12m EDE-dietary restraint, Completers G1 (n=16): 1.14 (SD 1.03) G2 (n=18): 1.06 (SD 0.88) F=0.06, p=0.81 Post-treatment EDE-shape concern, Completers G1 (n=25): 2.04 (SD 1.48) G2 (n=23): 1.85 (SD 1.45) F=0.04, p=0.84 12m EDE-shape concern, Completers G1 (n=16): 1.87 (SD 1.39) G2 (n=18): 1.44 (SD 1.32) F=0.15, p=0.71 Post-treatment EDE-weight concern, Completers G1 (n=25): 2.06 (SD 1.36) G2 (n=23):1.69 (SD 1.13) F=0.37, p=0.55 12m EDE-weight concern, Completers G1 (n=16): 1.75 (SD 1.33) G2 (n=18): 1.37 (SD 1.01) F=0.01, p=0.92 Post-treatment EDE-eating concern, Completers G1 (n=25): 0.35 (SD 0.67) G2 (n=23):0.37 (SD 0.45) F=0.18, p=0.67	Munsch, Biedert, Meyer, et al., 2007[28]: Post-treatment EDE-dietary restraint, Completers G1 (n=25): 0.97 (SD 1.12) G2 (n=23): 0.83 (SD 0.82) F=0.15, p=0.79 12m EDE-dietary restraint, Completers G1 (n=16): 1.14 (SD 1.03) G2 (n=18): 1.06 (SD 0.88) F=0.06, p=0.81 Post-treatment EDE-shape concern, Completers G1 (n=25): 2.04 (SD 1.48) G2 (n=23): 1.85 (SD 1.45) F=0.04, p=0.84 12m EDE-shape concern, Completers G1 (n=16): 1.87 (SD 1.39) G2 (n=18): 1.44 (SD 1.32) F=0.15, p=0.71 Post-treatment EDE-weight concern, Completers G1 (n=25): 2.06 (SD 1.36) G2 (n=23):1.69 (SD 1.13) F=0.37, p=0.55 12m EDE-weight concern, Completers G1 (n=16): 1.75 (SD 1.33) G2 (n=18): 1.37 (SD 1.01) F=0.01, p=0.92 Post-treatment EDE-eating concern, Completers G1 (n=25): 0.35 (SD 0.67) G2 (n=23):0.37 (SD 0.45) F=0.18, p=0.67	Munsch, Biedert, Meyer, et al., 2007[28]: 6y EDE-total G1: NR G2: NR G1 minus G2 posttreatment: 0.014 (0.249), effect size=0.02, p=NR, NS G1 minus G2 6y: 0.035 (0.361), effect size=0.03, p=NR, NS 6y EDE-restraint eating G1: NR G2: NR G1 minus G2 postt

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Munsch, 2007[28] Munsch, 2012[29] (continued)		12m EDE-eating concern, Completers G1 (n=16): 0.23 (SD 0.31) G2 (n=18): 0.14 (SD 0.15) F=0.39, p=0.54	12m EDE-eating concern, Completers G1 (n=16): 0.23 (SD 0.31) G2 (n=18): 0.14 (SD 0.15) F=0.39, p=0.54	
Pendleton, 2001[30]	NA	NA	NA	NA
Peterson, 1998[31] Peterson, 2001[32]	Measure 1: BES Measure 2: Disinhibition TFEQ Measure 3: Hunger TFEQ Measure 4: Restraint TFEQ	Peterson, 1998 Measure 1: Group differences F (3, 46): 3.44 p: 0.024 Measure 2: Group differences F (3, 40): 5.57 p: 0.003 Measure 3: Group differences F (3, 40): 4.3 p: 0.010 Simple contrasts revealed that G1, G2, and G3 demonstrated less pathology than G4 but there were no significant differences between G1, G2, and G3. Measure 4: Group differences F (3, 40): 0.60 P: 0.617 Peterson, 2001 Measure 1 NR Time effect: F(4.134) = 39.06 p<.0001 Group x Time interaction: NR, NS	Peterson, 1998 Measure 1: Group differences F (3, 46): 3.44 p: 0.024 Measure 2: Group differences F (3, 40): 5.57 p: 0.003 Measure 3: Group differences F (3, 40): 4.3 p: 0.010 Simple contrasts revealed that G1, G2, and G3 demonstrated less pathology than G4 but there were no significant differences between G1, G2, and G3. Measure 4: Group differences F (3, 40): 0.60 P: 0.617 Peterson, 2001 Measure 1 NR Time effect: F(4.134) = 39.06 p<.0001 Group x Time interaction: NR, NS	Measure 3 Posttreatment G1: 7.3 (3.3) G2: 6.9 (2.5) G3: 7.7 (4.7) 1 month G1: 6.8 (3.7) G2: 8.3 (3.2) G3: 7.3 (5.1) 6 month G1: 7.4 (3.5) G2: 9.8 (3.3) G3: 7.1 (5.0) 12 month G1: 8.4 (3.7) G2: 8.4 (4.0) G3: 7.2 (5.2) Time effect: F(4, 134) = 8.50 p<.0

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Peterson, 1998[31] Peterson, 2001[32] (continued)		Measure 2 Posttreatment G1: 10.9 (2.7) G2: 11.2 (2.4) G3: 10.9 (3.9) 1 month G1: 9.7 (3.1) G2: 12.3 (2.2) G3: 10.8 (3.5) 6 months G1: 9.8 (2.6) G2: 12.4 (2.2) G3: 10.7 (3.4) 12 month G1: 11.1 (2.6) G2: 10.0 (3.2) G3: 11.2 (3.6) Time effect: F(4,134) = 16.48 p<.0001 Group x Time interaction: NS, NR	Measure 2 Posttreatment G1: 10.9 (2.7) G2: 11.2 (2.4) G3: 10.9 (3.9) 1 month G1: 9.7 (3.1) G2: 12.3 (2.2) G3: 10.8 (3.5) 6 months G1: 9.8 (2.6) G2: 12.4 (2.2) G3: 10.7 (3.4) 12 month G1: 11.1 (2.6) G2: 10.0 (3.2) G3: 11.2 (3.6) Time effect: F(4,134) = 16.48 p<.0001 Group x Time interaction: NS, NR	
Peterson, 2009[33]	EDE: - Global - Restraint - Eating Concerns - Shape Concerns - Weight Concerns TFEQ: - Restraint - Disinhibition - Hunger	NOTE: Ns and p values NR for all completers analyses at all post-treatment and follow-up timepoints EDE Global, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 2.3 (1.0) G2: 1.8 (0.8) G3: 2.1 (0.9) G4: 2.3 (0.9) p = NR	NOTE: Ns and p values NR for all completers analyses at all post-treatment and follow-up timepoints EDE Global, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 2.3 (1.0) G2: 1.8 (0.8) G3: 2.1 (0.9) G4: 2.3 (0.9) p = NR	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Peterson, 2009[33] (continued)		Post hoc p (G3 < G4) = 0.008; p=.008 controlling for baseline value, site, and gender; partial eta-squared = 0.046 (as reported in text) (NOTE: Reporting error in article. Findings in the text (bottom of PDF pg. 5/top of PDF pg. 6) don't match findings in Table 2. According to table, G2 < G4 by statistically significant margin at post-treatment. Likely a typo). 6m follow-up (44 weeks post-baseline): ITT analysis G1: 2.2 (1.0) G2: 1.8 (0.9) G3: 2.1 (0.9) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 2.2 (1.1) G2: 1.9 (0.9) G3: 2.4 (1.0) G4: NA p = NS (adjusted for baseline value, site, and sex) EDE Restraint, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 1.6 (1.2) G2: 1.1 (1.0) G3: 1.1 (1.0) G4: 1.5 (1.3) p = NS (adjusted for baseline value, site, and sex)	Post hoc p (G3 < G4) = 0.008; p=.008 controlling for baseline value, site, and gender; partial eta-squared = 0.046 (as reported in text) (NOTE: Reporting error in article. Findings in the text (bottom of PDF pg. 5/top of PDF pg. 6) don't match findings in Table 2. According to table, G2 < G4 by statistically significant margin at post-treatment. Likely a typo). 6m follow-up (44 weeks post-baseline): ITT analysis G1: 2.2 (1.0) G2: 1.8 (0.9) G3: 2.1 (0.9) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 2.2 (1.1) G2: 1.9 (0.9) G3: 2.4 (1.0) G4: NA p = NS (adjusted for baseline value, site, and sex) EDE Restraint, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 1.6 (1.2) G2: 1.1 (1.0) G3: 1.1 (1.0) G4: 1.5 (1.3) p = NS (adjusted for baseline value, site, and sex)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Peterson, 2009[33] (continued)		Post hoc p (G3 < G4) = 0.017; p=.008 controlling for baseline value, site, gender; partial eta-squared = 0.04 6m follow-up (44 weeks post-baseline): ITT analysis G1: 1.4 (1.2) G2: 1.1 (1.0) G3: 1.4 (1.2) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 1.5 (1.3) G2: 1.2 (1.1) G3: 1.6 (1.2) G4: NA p = NS (adjusted for baseline value, site, and sex) EDE Eating Concerns, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 1.4 (1.2) G2: 1.0 (1.1) G3: 1.1 (1.1) G4: 1.3 (1.1) p = NS (adjusted for baseline value, site, and sex) 6m follow-up (44 weeks post-baseline): ITT analysis G1: 1.3 (1.2) G2: 1.1 (1.1) G3: 1.2 (1.3) G4: NA	Post hoc p (G3 < G4) = 0.017; p=.008 controlling for baseline value, site, gender; partial eta-squared = 0.04 6m follow-up (44 weeks post-baseline): ITT analysis G1: 1.4 (1.2) G2: 1.1 (1.0) G3: 1.4 (1.2) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 1.5 (1.3) G2: 1.2 (1.1) G3: 1.6 (1.2) G4: NA p = NS (adjusted for baseline value, site, and sex) EDE Eating Concerns, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 1.4 (1.2) G2: 1.0 (1.1) G3: 1.1 (1.1) G4: 1.3 (1.1) p = NS (adjusted for baseline value, site, and sex) 6m follow-up (44 weeks post-baseline): ITT analysis G1: 1.3 (1.2) G2: 1.1 (1.1) G3: 1.2 (1.3) G4: NA	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Peterson, 2009[33] (continued)		p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 1.3 (1.2) G2: 1.2 (1.2) G3: 1.6 (1.2) G4: NA p = NS (adjusted for baseline value, site, and sex) EDE Shape Concerns, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 3.1 (1.3) G2: 2.7 (1.1) G3: 3.0 (1.1) G4: 3.1 (1.2) p = NS (adjusted for baseline value, site, and sex) 6m follow-up (44 weeks post-baseline): ITT analysis G1: 3.1 (1.4) G2: 2.7 (1.1) G3: 2.9 (1.2) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 3.0 (1.4) G2: 2.6 (1.3) G3: 3.2 (1.3) G4: NA p = NS (adjusted for baseline value, site, and sex)	p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 1.3 (1.2) G2: 1.2 (1.2) G3: 1.6 (1.2) G4: NA p = NS (adjusted for baseline value, site, and sex) EDE Shape Concerns, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 3.1 (1.3) G2: 2.7 (1.1) G3: 3.0 (1.1) G4: 3.1 (1.2) p = NS (adjusted for baseline value, site, and sex) 6m follow-up (44 weeks post-baseline): ITT analysis G1: 3.1 (1.4) G2: 2.7 (1.1) G3: 2.9 (1.2) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 3.0 (1.4) G2: 2.6 (1.3) G3: 3.2 (1.3) G4: NA p = NS (adjusted for baseline value, site, and sex)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Peterson, 2009[33] (continued)		EDE Weight Concerns, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 3.1 (1.2) G2: 2.4 (1.3) G3: 3.1 (1.3) G4: 3.1 (1.1) p = NS (adjusted for baseline value, site, and sex) 6m follow-up (44 weeks post-baseline): ITT analysis G1: 3.0 (1.3) G2: 2.5 (1.3) G3: 3.0 (1.2) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 3.0 (1.3) G2: 2.5 (1.3) G3: 3.3 (1.2) G4: NA p = NS (adjusted for baseline value, site, and sex) TFEQ Restraint, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 7.8 (4.4) G2: 7.9 (3.7) G3: 8.7 (3.7) G4: 7.0 (3.5) p = NS (adjusted for baseline value, site, and sex)	EDE Weight Concerns, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 3.1 (1.2) G2: 2.4 (1.3) G3: 3.1 (1.3) G4: 3.1 (1.1) p = NS (adjusted for baseline value, site, and sex) 6m follow-up (44 weeks post-baseline): ITT analysis G1: 3.0 (1.3) G2: 2.5 (1.3) G3: 3.0 (1.2) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 3.0 (1.3) G2: 2.5 (1.3) G3: 3.3 (1.2) G4: NA p = NS (adjusted for baseline value, site, and sex) TFEQ Restraint, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 7.8 (4.4) G2: 7.9 (3.7) G3: 8.7 (3.7) G4: 7.0 (3.5) p = NS (adjusted for baseline value, site, and sex)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Peterson, 2009[33] (continued)		6m follow-up (44 weeks post-baseline): ITT analysis G1: 7.8 (4.1) G2: 7.9 (4.3) G3: 8.2 (4.2) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 7.7 (3.9) G2: 7.1 (4.2) G3: 8.1 (4.1) G4: NA p = NS (adjusted for baseline value, site, and sex) TFEQ Disinhibition, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 12.7 (2.3) G2: 12.2 (2.9) G3: 11.9 (3.4) G4: 13.4 (2.1) p = .008 (adjusted for baseline value, site, and sex) Post hoc p (G2, G3 < G4) = 0.001; partial eta-squared = 0.07 for both comparisons 6m follow-up (44 weeks post-baseline): ITT analysis G1: 12.6 (2.7) G2: 11.9 (3.0) G3: 12.7 (3.3) G4: NA p = NS (adjusted for baseline value, site, and sex)	6m follow-up (44 weeks post-baseline): ITT analysis G1: 7.8 (4.1) G2: 7.9 (4.3) G3: 8.2 (4.2) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 7.7 (3.9) G2: 7.1 (4.2) G3: 8.1 (4.1) G4: NA p = NS (adjusted for baseline value, site, and sex) TFEQ Disinhibition, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 12.7 (2.3) G2: 12.2 (2.9) G3: 11.9 (3.4) G4: 13.4 (2.1) p = .008 (adjusted for baseline value, site, and sex) Post hoc p (G2, G3 < G4) = 0.001; partial eta-squared = 0.07 for both comparisons 6m follow-up (44 weeks post-baseline): ITT analysis G1: 12.6 (2.7) G2: 11.9 (3.0) G3: 12.7 (3.3) G4: NA p = NS (adjusted for baseline value, site, and sex)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Peterson, 2009[33] (continued)		12m follow-up (72 weeks post-baseline): ITT analysis G1: 12.8 (2.7) G2: 12.7 (2.5) G3: 13.0 (2.9) G4: NA p = NS (adjusted for baseline value, site, and sex) TDEQ Hunger, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 9.9 (3.8) G2: 8.5 (3.5) G3: 8.0 (3.8) G4: 9.0 (3.6) p = NS (adjusted for baseline value, site, and sex) 6m follow-up (44 weeks post-baseline): ITT analysis G1: 9.2 (3.6) G2: 8.2 (3.6) G3: 8.1 (3.5) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 9.3 (3.3) G2: 8.7 (3.7) G3: 8.4 (3.8) G4: NA p = NS (adjusted for baseline value, site, and sex)	12m follow-up (72 weeks post-baseline): ITT analysis G1: 12.8 (2.7) G2: 12.7 (2.5) G3: 13.0 (2.9) G4: NA p = NS (adjusted for baseline value, site, and sex) TDEQ Hunger, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 9.9 (3.8) G2: 8.5 (3.5) G3: 8.0 (3.8) G4: 9.0 (3.6) p = NS (adjusted for baseline value, site, and sex) 6m follow-up (44 weeks post-baseline): ITT analysis G1: 9.2 (3.6) G2: 8.2 (3.6) G3: 8.1 (3.5) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 9.3 (3.3) G2: 8.7 (3.7) G3: 8.4 (3.8) G4: NA p = NS (adjusted for baseline value, site, and sex)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Ricca, 2010[34]	Binge Eating Scale (BES) Emotional Eating Scale (EES) EDE-Q -total score -restraint -eating concern -weight concern -shape concern Onset of frequent compensatory behaviors (posttreatment only)	Posttreatment Binge Eating Scale (BES), median (quartiles), p for within-group change BL to posttreatment G1: 16.0 (3.5, 30.0), p<0.01 G2: 17.0 (12.0, 27.7), p<0.01 3y Binge Eating Scale (BES), median (quartiles), p for within-group change posttreatment to 3y G1: 17.5 (12.0, 31.0), p=NR, NS G2: 17.0 (11.0, 25.0), p=NR, NS Binge Eating Scale (BES), repeated measures ANOVA for between-group comparison with covariate age F= 0.81 p=0.36 Posttreatment Emotional Eating Scale (EES), median (quartiles), p for within-group change BL to posttreatment G1: 1.7 (0.9, 2.1), p<0.05 G2: 1.7 (1.1, 2.3), p<0.01 3y Emotional Eating Scale (EES), median (quartiles), p for within-group change posttreatment to 3y G1: 2.0 (1.3, 2.3), p=NR, NS G2: 1.7 (1.1, 2.5), p=NR, NS Emotional Eating Scale (EES), repeated measures ANOVA for between-group comparison with covariate age F= 0.42 p=0.51	Posttreatment Binge Eating Scale (BES), median (quartiles), p for within-group change BL to posttreatment G1: 16.0 (3.5, 30.0), p<0.01 G2: 17.0 (12.0, 27.7), p<0.01 3y Binge Eating Scale (BES), median (quartiles), p for within-group change posttreatment to 3y G1: 17.5 (12.0, 31.0), p=NR, NS G2: 17.0 (11.0, 25.0), p=NR, NS Binge Eating Scale (BES), repeated measures ANOVA for between-group comparison with covariate age F= 0.81 p=0.36 Posttreatment Emotional Eating Scale (EES), median (quartiles), p for within-group change BL to posttreatment G1: 1.7 (0.9, 2.1), p<0.05 G2: 1.7 (1.1, 2.3), p<0.01 3y Emotional Eating Scale (EES), median (quartiles), p for within-group change posttreatment to 3y G1: 2.0 (1.3, 2.3), p=NR, NS G2: 1.7 (1.1, 2.5), p=NR, NS Emotional Eating Scale (EES), repeated measures ANOVA for between-group comparison with covariate age F= 0.42 p=0.51	Posttreatment EDE-Q-total score, median (quartiles), p for within-group change BL to posttreatment G1: 2.1 (0.5, 3.3) , p<0.01 G2: 2.9 (2.3, 3.5), p=NR, NS 3y EDE-Q-total score, median (quartiles), p for within-group change posttreatment to 3y G1: 1.3

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Riva, 2002[35]	Dieter's inventory of eating temptations (DIET) -Total score -Positive social -overeating -negative emotions -resisting temptations -exercise -food choice Weight efficacy lifestyle questionnaire (WELSQ) total score	All outcomes are post-treatment DIET-Total score G1: 39.03 G2: 45.90 G1 Mean difference before and after treatment:9.77 G2 Mean difference before and after treatment:0.97 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS DIET-Positive social G1: 34.57 G2: 45.06 G1 Mean difference before and after treatment:19.43 G2 Mean difference before and after treatment:2.52 G1 before-after p=0.06 G2 before-after p=NS Between-group mean difference p=NS DIET-overeating G1: 31.50 G2: 44.00 G1 Mean difference before and after treatment:21.83 G2 Mean difference before and after treatment:0.67 G1 before-after p=0.030 G2 before-after p=NS Between-group mean difference p=0.05	All outcomes are post-treatment DIET-Total score G1: 39.03 G2: 45.90 G1 Mean difference before and after treatment:9.77 G2 Mean difference before and after treatment:0.97 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS DIET-Positive social G1: 34.57 G2: 45.06 G1 Mean difference before and after treatment:19.43 G2 Mean difference before and after treatment:2.52 G1 before-after p=0.06 G2 before-after p=NS Between-group mean difference p=NS DIET-overeating G1: 31.50 G2: 44.00 G1 Mean difference before and after treatment:21.83 G2 Mean difference before and after treatment:0.67 G1 before-after p=0.030 G2 before-after p=NS Between-group mean difference p=0.05	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Riva, 2002[35] (continued)		DIET-negative emotions G1: 37.60 G2: 47.20 G1 Mean difference before and after treatment:9.80 G2 Mean difference before and after treatment:-2.60 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS DIET-resisting temptations G1: 43.75 G2: 37.75 G1 Mean difference before and after treatment:-3.75 G2 Mean difference before and after treatment:1.00 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS DIET-exercise G1: 36.25 G2: 53.25 G1 Mean difference before and after treatment:9.75 G2 Mean difference before and after treatment:3.75 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS	DIET-negative emotions G1: 37.60 G2: 47.20 G1 Mean difference before and after treatment:9.80 G2 Mean difference before and after treatment:-2.60 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS DIET-resisting temptations G1: 43.75 G2: 37.75 G1 Mean difference before and after treatment:-3.75 G2 Mean difference before and after treatment:1.00 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS DIET-exercise G1: 36.25 G2: 53.25 G1 Mean difference before and after treatment:9.75 G2 Mean difference before and after treatment:3.75 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Riva, 2002[35] (continued)		DIET-food choice G1: 43.00 G2: 41.75 G1 Mean difference before and after treatment:-2.50 G2 Mean difference before and after treatment:-1.00 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS Weight efficacy lifestyle questionnaire (WELSQ) total score G1: 146.80 G2: 130.30 G1 Mean difference before and after treatment:-39.20 G2 Mean difference before and after treatment:-1.20 G1 before-after p=0.050 G2 before-after p=NS Between-group mean difference p=0.005	DIET-food choice G1: 43.00 G2: 41.75 G1 Mean difference before and after treatment:-2.50 G2 Mean difference before and after treatment:-1.00 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS Weight efficacy lifestyle questionnaire (WELSQ) total score G1: 146.80 G2: 130.30 G1 Mean difference before and after treatment:-39.20 G2 Mean difference before and after treatment:-1.20 G1 before-after p=0.050 G2 before-after p=NS Between-group mean difference p=0.005	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Riva, 2003[36]	Dieter's Inventory of Eating Temptations (DIET) -total score -resisting temptations score Weight Efficacy Lifestyle Questionnaire (WELSQ) Body Image Avoidance Questionnaire (BIAQ) Body Satisfaction Scale (BSS) -total score -trunk score Contour Drawing Rating Scale (CDRS)	Posttreatment DIET, mean score, within-group change p-value G1: NR, p=NR, significant improvement G2: NR, p=NR, significant improvement G3: NR, p=NR, significant improvement G4: NR, NS 6m DIET resisting temptations score G1: 19.11 G2: 12 G3: 10.89 G4: NR p<0.05 ("G1 scored significantly better") Posttreatment WELSQ, mean score, within-group change p-value G1: NR, p=NR, significant improvement G2: NR, p=NR, significant improvement G3: NR, p=NR, significant improvement G4: NR, NS 6m WELSQ G1: NR G2: NR G3: NR G4: NR	Posttreatment DIET, mean score, within-group change p-value G1: NR, p=NR, significant improvement G2: NR, p=NR, significant improvement G3: NR, p=NR, significant improvement G4: NR, NS 6m DIET resisting temptations score G1: 19.11 G2: 12 G3: 10.89 G4: NR p<0.05 ("G1 scored significantly better") Posttreatment WELSQ, mean score, within-group change p-value G1: NR, p=NR, significant improvement G2: NR, p=NR, significant improvement G3: NR, p=NR, significant improvement G4: NR, NS 6m WELSQ G1: NR G2: NR G3: NR G4: NR	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Riva, 2003[36] (continued)		Posttreatment BIAQ G1: NR G2: NR G3: NR G4: NR "G1 was more effective than G2 in improving body image (BIAQ-BSS-CDRS); in particular,G1 subjects scored significantly higher after the treatment on body awareness, body satisfaction, and physical acceptance" 6m BIAQ G1: NR G2: NR G3: NR G4: NR Posttreatment BSS G1: NR G2: NR G3: NR G4: NR "G1 was more effective than G2 in improving body image (BIAQ-BSS-CDRS); in particular,G1 subjects scored significantly higher after the treatment on body awareness, body satisfaction, and physical acceptance" 6m BSS total score G1: 8.5 G2: 17.3 G3: 16.2 G4: NR p<0.05 ("G1 scored significantly better")	Posttreatment BIAQ G1: NR G2: NR G3: NR G4: NR "G1 was more effective than G2 in improving body image (BIAQ-BSS-CDRS); in particular,G1 subjects scored significantly higher after the treatment on body awareness, body satisfaction, and physical acceptance" 6m BIAQ G1: NR G2: NR G3: NR G4: NR Posttreatment BSS G1: NR G2: NR G3: NR G4: NR "G1 was more effective than G2 in improving body image (BIAQ-BSS-CDRS); in particular,G1 subjects scored significantly higher after the treatment on body awareness, body satisfaction, and physical acceptance" 6m BSS total score G1: 8.5 G2: 17.3 G3: 16.2 G4: NR p<0.05 ("G1 scored significantly better")	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Riva, 2003[36] (continued)		Posttreatment BSS trunk score G1: NR G2: NR G3: NR G4: NR 6m BSS trunk score G1: 9.56 G2: 17.73 G3: 14.72 G4: NR p<0.05 ("G1 scored significantly better") Posttreatment CDRS G1: NR G2: NR G3: NR G4: NR "G1 was more effective than G2 in improving body image (BIAQ-BSS-CDRS); in particular,G1 subjects scored significantly higher after the treatment on body awareness, body satisfaction, and physical acceptance" 6m CDRS G1: NR G2: NR G3: NR G4: NR	Posttreatment BSS trunk score G1: NR G2: NR G3: NR G4: NR 6m BSS trunk score G1: 9.56 G2: 17.73 G3: 14.72 G4: NR p<0.05 ("G1 scored significantly better") Posttreatment CDRS G1: NR G2: NR G3: NR G4: NR "G1 was more effective than G2 in improving body image (BIAQ-BSS-CDRS); in particular,G1 subjects scored significantly higher after the treatment on body awareness, body satisfaction, and physical acceptance" 6m CDRS G1: NR G2: NR G3: NR G4: NR	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	Measure 1: EDE - restraint Measure 2: EDE - weight concnerns Measure 3: EDE - shape concerns Measure 4: EDE - eating concerns Measure 5: Emotional Eating Scale (EES) Anger Measure 6: EES - Anxiety Measure 7: EES Depression	Measure 1: Posttreatment G1: 1.29 (1.04) G2: 1.91 (1.23) 12- month FU G1: 1.10 (1.09) G2: 1. 85 (1.42) Effect size posttreatment: 0.54 Effect size 12 month FU: 0.59 Measure 2: Posttreatment G1: 2.53 (1.18) G2: 3.00 (1.25) 12 month FU G1: 2.27 (1.24) G2: 2. 78 (1.31) Effect size posttreatment: 0.39 Effect size 12 month FU: 0.40 Measure 3: Posttreatment G1: 2.62 (1.15) G2: 3.03 (1.35) 12 month FU G1: 2.50 (1.39) G2: 2. 66 (1.30) Effect size posttreatment: 0.33 Effect size 12 month FU: 0.12 Measure 4: Posttreatment G1: 0.54 (0.71) G2: 1.14 (1.39) 12 month FU G1: 0.88 (1.38) G2: 0.66 (0.95) Effect size posttreatment: 0.54 Effect size 12 month FU: -0.19	Measure 1: Posttreatment G1: 1.29 (1.04) G2: 1.91 (1.23) 12- month FU G1: 1.10 (1.09) G2: 1. 85 (1.42) Effect size posttreatment: 0.54 Effect size 12 month FU: 0.59 Measure 2: Posttreatment G1: 2.53 (1.18) G2: 3.00 (1.25) 12 month FU G1: 2.27 (1.24) G2: 2. 78 (1.31) Effect size posttreatment: 0.39 Effect size 12 month FU: 0.40 Measure 3: Posttreatment G1: 2.62 (1.15) G2: 3.03 (1.35) 12 month FU G1: 2.50 (1.39) G2: 2. 66 (1.30) Effect size posttreatment: 0.33 Effect size 12 month FU: 0.12 Measure 4: Posttreatment G1: 0.54 (0.71) G2: 1.14 (1.39) 12 month FU G1: 0.88 (1.38) G2: 0.66 (0.95) Effect size posttreatment: 0.54 Effect size 12 month FU: -0.19	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39] (continued)		Measure 5: posttreatment G1: 1.83 (0.98) G2: 2.06 (1.05) 12 month FU G1: 1.93 (0.97) G2: 1.90 (0.96) effect size posttreatment: 0.23 effect size 12 month FU: -0.03 Measure 6: posttreatment G1: 1.51 (0.87) G2:1.81 (0.89) 12 month FU G1:1.67 (0.90) G2: 1.67 (0.89) effect size posttreatment: 0.34 effect size 12 month FU: 0 Measure 7: posttreatment G1: 2.06 (0.99) G2; 2.43 (0.80) 12 month FU G1: 2.12 (0.92) G2: 2.18 (0.89) effect size posttreatment: 0.41 effect size 12 month FU: 0.07	Measure 5: posttreatment G1: 1.83 (0.98) G2: 2.06 (1.05) 12 month FU G1: 1.93 (0.97) G2: 1.90 (0.96) effect size posttreatment: 0.23 effect size 12 month FU: -0.03 Measure 6: posttreatment G1: 1.51 (0.87) G2:1.81 (0.89) 12 month FU G1:1.67 (0.90) G2: 1.67 (0.89) effect size posttreatment: 0.34 effect size 12 month FU: 0 Measure 7: posttreatment G1: 2.06 (0.99) G2; 2.43 (0.80) 12 month FU G1: 2.12 (0.92) G2: 2.18 (0.89) effect size posttreatment: 0.41 effect size 12 month FU: 0.07	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Schlup, 2009[40]	EDE-Q Weight concern Shape concern Eating concern Restraint eating	Weight Concern (mean difference) G1: -0.66 G2: -0.11 p=0.153 Shape Concern (mean difference) G1: -0.51 G2: 0.07 p=0.164 Eating concern (mean difference) G1: -0.71 G2: 0.21 p=0.009 Restraint eating (mean difference) G1: 0.17 G2: -0.41 p=0.110	Weight Concern (mean difference) G1: -0.66 G2: -0.11 p=0.153 Shape Concern (mean difference) G1: -0.51 G2: 0.07 p=0.164 Eating concern (mean difference) G1: -0.71 G2: 0.21 p=0.009 Restraint eating (mean difference) G1: 0.17 G2: -0.41 p=0.110	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Schlup, 2010[41]	EDE -dietary restraint -eating concern -weight concern -shape concern	Means denote estimates from a linear mixed model or generalized linear mixed model. Values were back-transformed if necessary. End of treatment EDE-dietary restraint G1: 1.01 G2: 1.62 Effect size: 0.30 p=0.06 12m EDE-dietary restraint G1: 1.05 G2: 1.75 Effect size: 0.29 p=0.07 End of treatment EDE-shape concern G1: 2.15 G2: 3.00 Effect size: 0.39 p=0.02 12m EDE-shape concern G1: 1.91 G2: 2.59 Effect size: 0.25 p=0.10 End of treatment EDE-weight concern G1: 2.14 G2: 2.52 Effect size: 0.17 p= 0.27	Means denote estimates from a linear mixed model or generalized linear mixed model. Values were back-transformed if necessary. End of treatment EDE-dietary restraint G1: 1.01 G2: 1.62 Effect size: 0.30 p=0.06 12m EDE-dietary restraint G1: 1.05 G2: 1.75 Effect size: 0.29 p=0.07 End of treatment EDE-shape concern G1: 2.15 G2: 3.00 Effect size: 0.39 p=0.02 12m EDE-shape concern G1: 1.91 G2: 2.59 Effect size: 0.25 p=0.10 End of treatment EDE-weight concern G1: 2.14 G2: 2.52 Effect size: 0.17 p= 0.27	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Schlup, 2010[41] (continued)		12m EDE-weight concern G1: 1.66 G2: 2.26 Effect size: 0.23 p=0.14 End of treatment EDE-eating concern G1: 0.34 G2: 0.82 Effect size: 0.29 p=0.07 12m EDE-eating concern G1: 0.16 G2: 0.68 Effect size: 0.26 p=0.09	12m EDE-weight concern G1: 1.66 G2: 2.26 Effect size: 0.23 p=0.14 End of treatment EDE-eating concern G1: 0.34 G2: 0.82 Effect size: 0.29 p=0.07 12m EDE-eating concern G1: 0.16 G2: 0.68 Effect size: 0.26 p=0.09	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Tasca, 2006[42] Tasca, 2012[43]	TFEQ -dietary restraint -hunger	Post-treatment TFEQ-dietary restraint G1: 8.75 (SD 3.94) G2: 8.52 (SD 3.75) G3: 6.63 (SD 3.82) G2 vs. G3 Hierarchical linear modeling (HLM) coefficient: 1.09; t-value: 2.20, p=0.028 G1 vs. G3 Hierarchical linear modeling (HLM) coefficient: 1.14; t-value: 2.33, p=0.02 G2 vs. G1 Hierarchical linear modeling (HLM) coefficient: 0.07; t-value: 0.14, p=NR 6m TFEQ-dietary restraint G1: 8.79 (SD 4.29) G2: 8.97 (SD 4.19) G3: 6m and 12m not measured for control group 12m TFEQ-dietary restraint: not collected at 12m TFEQ-dietary restraint Pre-treatment to follow-ups modeling Linear modeling coefficients: 1.82, t-value: 0.81, p=NR Treatments modeling: 1.01, t-value: 0.98, p=NR Quadratic modeling coefficients: -0.08, t-value: -0.12, p=NR Treatments modeling: -0.39, t-value: -1.15, p=NR "There were no significant effects noted for the Cognitive Restraint of Eating scale, suggesting no change from pretreatment to six months posttreament (p.115)."	Post-treatment TFEQ-dietary restraint G1: 8.75 (SD 3.94) G2: 8.52 (SD 3.75) G3: 6.63 (SD 3.82) G2 vs. G3 Hierarchical linear modeling (HLM) coefficient: 1.09; t-value: 2.20, p=0.028 G1 vs. G3 Hierarchical linear modeling (HLM) coefficient: 1.14; t-value: 2.33, p=0.02 G2 vs. G1 Hierarchical linear modeling (HLM) coefficient: 0.07; t-value: 0.14, p=NR 6m TFEQ-dietary restraint G1: 8.79 (SD 4.29) G2: 8.97 (SD 4.19) G3: 6m and 12m not measured for control group 12m TFEQ-dietary restraint: not collected at 12m TFEQ-dietary restraint Pre-treatment to follow-ups modeling Linear modeling coefficients: 1.82, t-value: 0.81, p=NR Treatments modeling: 1.01, t-value: 0.98, p=NR Quadratic modeling coefficients: -0.08, t-value: -0.12, p=NR Treatments modeling: -0.39, t-value: -1.15, p=NR "There were no significant effects noted for the Cognitive Restraint of Eating scale, suggesting no change from pretreatment to six months posttreament (p.115)."	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Tasca, 2006[42] Tasca, 2012[43] (continued)		Post-treatment TFEQ-hunger G1: 9.40 (SD 3.02) G2: 7.73 (SD 3.82) G3: 9.54 (SD 3.37) G2 vs. G3 Hierarchical linear modeling (HLM) coefficient: -0.96; t-value: -2.48, p=0.14 G1 vs. G3 Hierarchical linear modeling (HLM) coefficient: -0.15; t-value: -0.39, p=NR G2 vs. G1 Hierarchical linear modeling (HLM) coefficient: 0.81; t-value:2.19, p=NR 6m TFEQ-hunger G1: 7.61 (SD 3.46) G2: 7.38 (SD 3.62) G3: 6m and 12m not measured for control group 12m TFEQ-hunger: not collected at 12m TFEQ-hunger Pre-treatment to follow-ups modeling Linear modeling coefficients: -4.21, t-value: -2.35, p=0.02 Treatments modeling: 1.21, t-value: 1.44 Quadratic modeling coefficients: 0.72, t-value: 1.39, p=NR Treatments modeling: -0.32, t-value: 1.19, p=NR "The significant linear effect for Hunger suggested that patients improved from pretreatment to six months posttreatment on this variable across both treatments (p. 115)."	Post-treatment TFEQ-hunger G1: 9.40 (SD 3.02) G2: 7.73 (SD 3.82) G3: 9.54 (SD 3.37) G2 vs. G3 Hierarchical linear modeling (HLM) coefficient: -0.96; t-value: -2.48, p=0.14 G1 vs. G3 Hierarchical linear modeling (HLM) coefficient: -0.15; t-value: -0.39, p=NR G2 vs. G1 Hierarchical linear modeling (HLM) coefficient: 0.81; t-value:2.19, p=NR 6m TFEQ-hunger G1: 7.61 (SD 3.46) G2: 7.38 (SD 3.62) G3: 6m and 12m not measured for control group 12m TFEQ-hunger: not collected at 12m TFEQ-hunger Pre-treatment to follow-ups modeling Linear modeling coefficients: -4.21, t-value: -2.35, p=0.02 Treatments modeling: 1.21, t-value: 1.44 Quadratic modeling coefficients: 0.72, t-value: 1.39, p=NR Treatments modeling: -0.32, t-value: 1.19, p=NR "The significant linear effect for Hunger suggested that patients improved from pretreatment to six months posttreatment on this variable across both treatments (p. 115)."	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Telch, 2001[44]	EDE Weight Concern EDE Shape Concern EDE Eating Concern EDE Restraint BES	EDE, Weight Concerns (M,SD): G1: 2.2 (0.9) (P = NR) G2: 3.1 (1.0) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P < 0.02), G1 better than G2 EDE, Shape Concerns(M,SD) G1: 2.3 (0.9) (P = NR) G2: 3.1 (1.0) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P < 0.03), G1 better than G2 EDE, Eating Concerns(M,SD) G1: 0.4 (0.4) (P = NR) G2: 1.4 (0.9) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P < 0.001), G1 better than G2 EDE, Restraint (M,SD) G1: 1.4 (1.0) (P = NR) G2: 1.8 (1.3) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P = NS) BES(M,SD) G1: 15.7 (9.4) (P = NR) G2: 28.2 (8.3) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P < 0.001) G1 better than G2	EDE, Weight Concerns (M,SD): G1: 2.2 (0.9) (P = NR) G2: 3.1 (1.0) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P < 0.02), G1 better than G2 EDE, Shape Concerns(M,SD) G1: 2.3 (0.9) (P = NR) G2: 3.1 (1.0) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P < 0.03), G1 better than G2 EDE, Eating Concerns(M,SD) G1: 0.4 (0.4) (P = NR) G2: 1.4 (0.9) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P < 0.001), G1 better than G2 EDE, Restraint (M,SD) G1: 1.4 (1.0) (P = NR) G2: 1.8 (1.3) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P = NS) BES(M,SD) G1: 15.7 (9.4) (P = NR) G2: 28.2 (8.3) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P < 0.001) G1 better than G2	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Wilfley, 2002[45] Hilbert, 2012[46]	Wilfley, Welch, Stein, et al., 2002[45]: EDE subscales: Dietary restraint Shape concern Weight concern Eating concern Global eating disorder psychopathology at or below a sample of patients who were obese and not bingeing Hilbert, Bishop, Stein, et al., 2012[46] Improved EDE: being at or lower than comparative EDE-Q global score 2.47 EDE -restraint -eating concern -shape concern -weight concern -global score -composite shape/weight concern score	Wilfley, Welch, Stein, et al., 2002[45]: "All other secondary outcomes showed a significant improbelemtn from pre-treatment to post-treatment (linear time effects, all p-values <0.001) except for BMI, which remained stable during the course of treatment." Dietary restraint Post-treatment G1: 0.9 (SD 0.9) G2: 1.5 (SD 1.1) Dietary restraint 4-month G1: 0.9 (SD 0.9) G2: 1.3 (SD 1.2) Dietary restraint 8-month G1: 0.8 (SD 0.8) G2: 1.2 (SD 1.2) Dietary restraint 12-month G1: 1.0 (SD 1.1) G2: 1.3 (SD 1.3) Shape concern Post-treatment G1: 2.3 (SD 1.4) G2: 2.4 (SD 1.1) GEE main effect of time indicated improvement from pretreatment to posttreatment (p<0.001) Shape concern 4-month G1: 2.3 (SD 1.2) G2: 2.4 (SD 1.2) Shape concern 8-month G1: 2.3 (SD 1.3) G2: 2.2 (SD 1.2)	Wilfley, Welch, Stein, et al., 2002[45]: "All other secondary outcomes showed a significant improbelemtn from pre-treatment to post-treatment (linear time effects, all p-values <0.001) except for BMI, which remained stable during the course of treatment." Dietary restraint Post-treatment G1: 0.9 (SD 0.9) G2: 1.5 (SD 1.1) Dietary restraint 4-month G1: 0.9 (SD 0.9) G2: 1.3 (SD 1.2) Dietary restraint 8-month G1: 0.8 (SD 0.8) G2: 1.2 (SD 1.2) Dietary restraint 12-month G1: 1.0 (SD 1.1) G2: 1.3 (SD 1.3) Shape concern Post-treatment G1: 2.3 (SD 1.4) G2: 2.4 (SD 1.1) GEE main effect of time indicated improvement from pretreatment to posttreatment (p<0.001) Shape concern 4-month G1: 2.3 (SD 1.2) G2: 2.4 (SD 1.2) Shape concern 8-month G1: 2.3 (SD 1.3) G2: 2.2 (SD 1.2)	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Wilfley, 2002(#499) Hilbert, 2012[46] (continued)		Shape concern 12-month G1: 2.2 (SD 1.3) G2: 2.2 (SD 1.3) No significant GEE main effects of time or treatment and no significant interaction across follow-up (e.g., stable during the follow-up period) Weight concern Post-treatment G1: 2.0 (SD 1.2) G2: 2.1 (SD 1.2) GEE main effect of time indicated improvement from pretreatment to posttreatment (p<0.001) Weight concern 4-month G1: 2.0 (SD 1.1) G2: 2.2 (SD 1.3) Weight concern 8-month G1: 2.1 (SD 1.2) G2: 1.9 (SD 1.1) Weight concern 12-month G1: 1.9 (SD 1.3) G2: 1.9 (SD 1.3) No significant GEE main effects of time or treatment and no significant interaction across follow-up (e.g., stable during the follow-up period) Eating concern Post-treatment G1: 0.6 (SD 0.8) G2: 0.7 (SD 0.8) GEE main effect of time indicated improvement from pretreatment to posttreatment (p<0.001)	Shape concern 12-month G1: 2.2 (SD 1.3) G2: 2.2 (SD 1.3) No significant GEE main effects of time or treatment and no significant interaction across follow-up (e.g., stable during the follow-up period) Weight concern Post-treatment G1: 2.0 (SD 1.2) G2: 2.1 (SD 1.2) GEE main effect of time indicated improvement from pretreatment to posttreatment (p<0.001) Weight concern 4-month G1: 2.0 (SD 1.1) G2: 2.2 (SD 1.3) Weight concern 8-month G1: 2.1 (SD 1.2) G2: 1.9 (SD 1.1) Weight concern 12-month G1: 1.9 (SD 1.3) G2: 1.9 (SD 1.3) No significant GEE main effects of time or treatment and no significant interaction across follow-up (e.g., stable during the follow-up period) Eating concern Post-treatment G1: 0.6 (SD 0.8) G2: 0.7 (SD 0.8) GEE main effect of time indicated improvement from pretreatment to posttreatment (p<0.001)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Wilfley, 2002(#499) Hilbert, 2012[46] (continued)		Eating concern 4-month G1: 0.6 (SD 0.8) G2: 0.8 (SD 1.0) Eating concern 8-month G1: 0.6 (SD 0.7) G2: 0.7 (SD 0.9) Eating concern 12-month G1: 0.6 (SD 0.8) G2: 0.6 (SD 0.9) No significant GEE main effects of time or treatment and no significant interaction across follow-up (e.g., stable during the follow-up period) Global ED psychopathology ≤ obese non-bingeing sample (intent-to-treat) Percentages not reported but presented in line graph (figure 4). No significant treatment differences at any time point (all p-values ≥0.36). Global ED psychopathology ≤ obese non-bingeing sample (completers) G1: 66 (85%) G2: 60 (75%) Global ED psychopathology ≤ obese non-bingeing sample (completers) G1: NR G2: NR	Eating concern 4-month G1: 0.6 (SD 0.8) G2: 0.8 (SD 1.0) Eating concern 8-month G1: 0.6 (SD 0.7) G2: 0.7 (SD 0.9) Eating concern 12-month G1: 0.6 (SD 0.8) G2: 0.6 (SD 0.9) No significant GEE main effects of time or treatment and no significant interaction across follow-up (e.g., stable during the follow-up period) Global ED psychopathology ≤ obese non-bingeing sample (intent-to-treat) Percentages not reported but presented in line graph (figure 4). No significant treatment differences at any time point (all p-values ≥0.36). Global ED psychopathology ≤ obese non-bingeing sample (completers) G1: 66 (85%) G2: 60 (75%) Global ED psychopathology ≤ obese non-bingeing sample (completers) G1: NR G2: NR	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Wilfley, 2002(#499) Hilbert, 2012[46] (continued)		Global ED psychopathology ≤ obese non-bingeing sample (completers) G1: NR G2: NR Global ED psychopathology ≤ obese non-bingeing sample (completers) G1: 54 (82%) G2: 56 (79%) Hilbert, Bishop, Stein, et al., 2012[46] Post-treatment Improved EDE G1: 65.0% G2: 36.4% 1y Improved EDE G1: 75.8% G2: 57.1% Long-term Improved EDE G1: 54.5% G2: 61.5% GEE Improved EDE treatment effect chi-square 3.05, p=0.081 GEE Improved EDE time effect chi-square 6.03, p=0.049 GEE Improved EDE treatment x time effect chi-square 3.52, p=0.172 Post-hoc analysis did not reveal any change over the follow-up period (all p>0.01) ITT EDE-restraint Post-treatment G1: 1.65 (SD 0.21) G2: 2.03 (SD 0.20)	Global ED psychopathology ≤ obese non-bingeing sample (completers) G1: NR G2: NR Global ED psychopathology ≤ obese non-bingeing sample (completers) G1: 54 (82%) G2: 56 (79%) Hilbert, Bishop, Stein, et al., 2012[46] Post-treatment Improved EDE G1: 65.0% G2: 36.4% 1y Improved EDE G1: 75.8% G2: 57.1% Long-term Improved EDE G1: 54.5% G2: 61.5% GEE Improved EDE treatment effect chi-square 3.05, p=0.081 GEE Improved EDE time effect chi-square 6.03, p=0.049 GEE Improved EDE treatment x time effect chi-square 3.52, p=0.172 Post-hoc analysis did not reveal any change over the follow-up period (all p>0.01) ITT EDE-restraint Post-treatment G1: 1.65 (SD 0.21) G2: 2.03 (SD 0.20)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Wilfley, 2002(#499) Hilbert, 2012[46] (continued)		ITT 1y EDE-restraint G1: 1.25 (SD 0.23) G2: 1.94 (SD 0.22) ITT Long-term EDE-restraint G1: 2.11 (SD 0.27) G2: 1.96 (SD 0.25) ITT GEE EDE-restraint treatment effect F=1.70 p=0.196 ITT GEE EDE-restraint time effect F=7.59 p<0.001 ITT GEE EDE-restraint time x treatment effect F=1.63 p=0.184 Post-hoc analyses EDE-restraint Significant improvements when compared with pre-treatment at post-treatment and 1y (p<0.01) but not at long-term follow-up (p>0.01) ITT Post-treatment EDE-eating concern G1: 1.05 (SD 0.16) G2: 1.85 (SD 0.15) ITT 1y EDE-eating concern G1: 0.92 (SD 0.18) G2: 1.50 (SD 0.17) ITT Long-term EDE-eating concern G1: 1.57 (SD 0.21) G2: 1.19 (SD 0.19)	ITT 1y EDE-restraint G1: 1.25 (SD 0.23) G2: 1.94 (SD 0.22) ITT Long-term EDE-restraint G1: 2.11 (SD 0.27) G2: 1.96 (SD 0.25) ITT GEE EDE-restraint treatment effect F=1.70 p=0.196 ITT GEE EDE-restraint time effect F=7.59 p<0.001 ITT GEE EDE-restraint time x treatment effect F=1.63 p=0.184 Post-hoc analyses EDE-restraint Significant improvements when compared with pre-treatment at post-treatment and 1y (p<0.01) but not at long-term follow-up (p>0.01) ITT Post-treatment EDE-eating concern G1: 1.05 (SD 0.16) G2: 1.85 (SD 0.15) ITT 1y EDE-eating concern G1: 0.92 (SD 0.18) G2: 1.50 (SD 0.17) ITT Long-term EDE-eating concern G1: 1.57 (SD 0.21) G2: 1.19 (SD 0.19)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Wilfley, 2002(#499) Hilbert, 2012[46] (continued)		ITT GEE EDE-eating concern treatment effect F=1.92 p=0.169 ITT GEE EDE-eating concern time effect F=121.78 p<0.001 ITT GEE EDE-eating concern time x treatment effect F=6.96 p<0.001 Post-hoc analyses EDE-eating concern Significant improvements at post-treatment, 1y, and long-term follow-up when compared with pre-treatment (p<0.01) Course of EDE-eating concern G1: worsened from 1y to long-term follow-up (p<0.01) G2: improvement from post-treatment to long-term follow-up (p<0.01) ITT Post-treatment EDE-shape concern G1: 3.19 (SD 0.19) G2: 3.72 (SD 0.19) ITT 1y EDE-shape concern G1: 2.92 (SD 0.21) G2: 3.12 (SD 0.20) ITT Long-term EDE-shape concern G1: 3.25 (SD 0.25) G2: 2.82 (SD 0.23)	ITT GEE EDE-eating concern treatment effect F=1.92 p=0.169 ITT GEE EDE-eating concern time effect F=121.78 p<0.001 ITT GEE EDE-eating concern time x treatment effect F=6.96 p<0.001 Post-hoc analyses EDE-eating concern Significant improvements at post-treatment, 1y, and long-term follow-up when compared with pre-treatment (p<0.01) Course of EDE-eating concern G1: worsened from 1y to long-term follow-up (p<0.01) G2: improvement from post-treatment to long-term follow-up (p<0.01) ITT Post-treatment EDE-shape concern G1: 3.19 (SD 0.19) G2: 3.72 (SD 0.19) ITT 1y EDE-shape concern G1: 2.92 (SD 0.21) G2: 3.12 (SD 0.20) ITT Long-term EDE-shape concern G1: 3.25 (SD 0.25) G2: 2.82 (SD 0.23)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Wilfley, 2002(#499) Hilbert, 2012[46] (continued)		ITT GEE EDE-shape concern treatment effect F=0.04 p=0.841 ITT GEE EDE-shape concern time effect F=48.51 p<0.001 ITT GEE EDE-shape concern time x treatment effect F=3.03 p=0.030 Post-hoc analyses EDE-shape concern Significant improvements at post-treatment, 1y, and long-term follow-up when compared with pre-treatment (p<0.01) Course of EDE-shape concern G1: NR G2: improvement from post-treatment to long-term follow-up (p<0.01) ITT Post-treatment EDE-weight concern G1: 2.65 (SD 0.18) G2: 3.26 (SD 0.17) ITT 1y EDE-weight concern G1: 2.42 (SD 0.19) G2: 2.69 (SD 0.19) ITT Long-term EDE-weight concern G1: 2.72 (SD 0.23) G2: 2.47 (SD 0.21)	ITT GEE EDE-shape concern treatment effect F=0.04 p=0.841 ITT GEE EDE-shape concern time effect F=48.51 p<0.001 ITT GEE EDE-shape concern time x treatment effect F=3.03 p=0.030 Post-hoc analyses EDE-shape concern Significant improvements at post-treatment, 1y, and long-term follow-up when compared with pre-treatment (p<0.01) Course of EDE-shape concern G1: NR G2: improvement from post-treatment to long-term follow-up (p<0.01) ITT Post-treatment EDE-weight concern G1: 2.65 (SD 0.18) G2: 3.26 (SD 0.17) ITT 1y EDE-weight concern G1: 2.42 (SD 0.19) G2: 2.69 (SD 0.19) ITT Long-term EDE-weight concern G1: 2.72 (SD 0.23) G2: 2.47 (SD 0.21)	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Wilfley, 2002(#499) Hilbert, 2012[46] (continued)		ITT GEE EDE-weight concern treatment effect F=0.99 p=0.322 ITT GEE EDE-weight concern time effect F=42.98 p<0.001 ITT GEE EDE-weight concern time x treatment effect F=2.27 p=0.082 Post-hoc analyses EDE-weight concern Significant improvements at post-treatment, 1y, and long-term follow-up when compared with pre-treatment (p<0.01) ITT Post-treatment EDE-global score G1: 2.14 (SD 0.14) G2: 2.72 (SD 0.14) ITT 1y EDE-global score G1: 1.88 (SD 0.16) G2: 2.32 (SD 0.15) ITT Long-term EDE-global score G1: 2.41 (SD 0.19) G2: 2.12 (SD 0.17) ITT GEE EDE-global score treatment effect F=1.34 p=0.249 ITT GEE EDE-global score time effect F=72.98 p=0.001	ITT GEE EDE-weight concern treatment effect F=0.99 p=0.322 ITT GEE EDE-weight concern time effect F=42.98 p<0.001 ITT GEE EDE-weight concern time x treatment effect F=2.27 p=0.082 Post-hoc analyses EDE-weight concern Significant improvements at post-treatment, 1y, and long-term follow-up when compared with pre-treatment (p<0.01) ITT Post-treatment EDE-global score G1: 2.14 (SD 0.14) G2: 2.72 (SD 0.14) ITT 1y EDE-global score G1: 1.88 (SD 0.16) G2: 2.32 (SD 0.15) ITT Long-term EDE-global score G1: 2.41 (SD 0.19) G2: 2.12 (SD 0.17) ITT GEE EDE-global score treatment effect F=1.34 p=0.249 ITT GEE EDE-global score time effect F=72.98 p=0.001	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Wilfley, 2002(#499) Hilbert, 2012[46] (continued)		ITT GEE EDE-global scoretreatment x time effect F=4.72 p=0.003 Post-hoc analyses EDE-global score Significant improvements at post-treatment, 1y, and long-term follow-up when compared with pre-treatment (p<0.01) Course of EDE-global score G1: NR G2: improvement from post-treatment to long-term follow-up (p<0.01) ITT Post-treatment EDE shape/weight composite G1: 2.90 (SD 0.28) G2: 3.40 (SD 0.25) ITT 1y EDE shape/weight composite G1: 2.78 (SD 0.28) G2: 3.27 (SD 0.25) ITT Long-term EDE shape/weight composite G1: 3.80 (SD 0.28) G2: 3.26 (SD 0.25) ITT GEE EDE shape/weight composite treatment effect F=0.03 p=0.866 ITT GEE EDE shape/weight composite time effect F=27.56 p<0.001	ITT GEE EDE-global scoretreatment x time effect F=4.72 p=0.003 Post-hoc analyses EDE-global score Significant improvements at post-treatment, 1y, and long-term follow-up when compared with pre-treatment (p<0.01) Course of EDE-global score G1: NR G2: improvement from post-treatment to long-term follow-up (p<0.01) ITT Post-treatment EDE shape/weight composite G1: 2.90 (SD 0.28) G2: 3.40 (SD 0.25) ITT 1y EDE shape/weight composite G1: 2.78 (SD 0.28) G2: 3.27 (SD 0.25) ITT Long-term EDE shape/weight composite G1: 3.80 (SD 0.28) G2: 3.26 (SD 0.25) ITT GEE EDE shape/weight composite treatment effect F=0.03 p=0.866 ITT GEE EDE shape/weight composite time effect F=27.56 p<0.001	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Wilfley, 2002[45] Hilbert, 2012[46] (continued)		ITT GEE EDE shape/weight composite treatment x time effect F=3.38 p=0.020 Post-hoc analyses EDE shape/weight composite Significant improvements at post-treatment, 1y, and long-term follow-up when compared with pre-treatment (p<0.01) Course of EDE-shape/weight composite G1: worsened from 1y to long-term follow-up (p<0.01) G2: NR	ITT GEE EDE shape/weight composite treatment x time effect F=3.38 p=0.020 Post-hoc analyses EDE shape/weight composite Significant improvements at post-treatment, 1y, and long-term follow-up when compared with pre-treatment (p<0.01) Course of EDE-shape/weight composite G1: worsened from 1y to long-term follow-up (p<0.01) G2: NR	
Wilson, 2010[47] Sysko, 2010[48]	EDE -global -dietary restraint -eating concern -shape concern -weight oncern	Post-treatment Global EDE score G1: 2.1 (SD 1.0) G2: 1.7 (SD 1.0) G3: 1.8 (SD 0.9) Mean change: NR p=NR, no results are reported for the analysis of post-treatment EDE global 1y Global EDE score G1: 2.2 (SD 1.0) G2: 1.7 (SD 0.9) G3: 1.9 (SD 1.0) Mean change: NR p=NR, no results are reported for the analysis of 1y EDE global 2y Global EDE score G1: 2.0 (SD 1.2) G2: 1.7 (SD 1.0) G3: 1.7 (SD 1.1) Mean change: NR	Post-treatment Global EDE score G1: 2.1 (SD 1.0) G2: 1.7 (SD 1.0) G3: 1.8 (SD 0.9) Mean change: NR p=NR, no results are reported for the analysis of post-treatment EDE global 1y Global EDE score G1: 2.2 (SD 1.0) G2: 1.7 (SD 0.9) G3: 1.9 (SD 1.0) Mean change: NR p=NR, no results are reported for the analysis of 1y EDE global 2y Global EDE score G1: 2.0 (SD 1.2) G2: 1.7 (SD 1.0) G3: 1.7 (SD 1.1) Mean change: NR	NA

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Wilson, 2010[47] Sysko, 2010[48] (continued)		p=NR, no results are reported for the analysis of 2y EDE global Post-treatment EDE-dietary restraint G1: NR G2: NR G3: NR G1 was significantly more effective than G2 in increasing dietary restraint; Mean change NR, F=5.3 p<0.01 1y EDE-dietary restraint G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 1y EDE dietary restraint 2y EDE-dietary restraint G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 2y EDE dietary restraint Post-treatment EDE-eating concern G1: NR G2: NR G3: NR Mean change: NR	p=NR, no results are reported for the analysis of 2y EDE global Post-treatment EDE-dietary restraint G1: NR G2: NR G3: NR G1 was significantly more effective than G2 in increasing dietary restraint; Mean change NR, F=5.3 p<0.01 1y EDE-dietary restraint G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 1y EDE dietary restraint 2y EDE-dietary restraint G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 2y EDE dietary restraint Post-treatment EDE-eating concern G1: NR G2: NR G3: NR Mean change: NR	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Wilson, 2010[47] Sysko, 2010[48] (continued)		p=NS, NR "No differences were found on the EDE subscales of eating, weight, or shape concerns" 1y EDE-eating concern G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 1y EDE eating concern 2y EDE-eating concern G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 2y EDE eating concern Post-treatment EDE-shape concern G1: NR G2: NR G3: NR Mean change: NR p=NS, NR "No differences were found on the EDE subscales of eating, weight, or shape concerns" 1y EDE-shape concern G1: NR G2: NR G3: NR Mean change: NR	p=NS, NR "No differences were found on the EDE subscales of eating, weight, or shape concerns" 1y EDE-eating concern G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 1y EDE eating concern 2y EDE-eating concern G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 2y EDE eating concern Post-treatment EDE-shape concern G1: NR G2: NR G3: NR Mean change: NR p=NS, NR "No differences were found on the EDE subscales of eating, weight, or shape concerns" 1y EDE-shape concern G1: NR G2: NR G3: NR Mean change: NR	

Evidence Table 24. Binge eating disorder behavioral treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes	Eating Related Psychopathology Outcomes Continued
Wilson, 2010[47] Sysko, 2010[48] (continued)		p=NR, no results are reported for the analysis of 1y EDE shape concern 2y EDE-shape concern G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 2y EDE shape concern Post-treatment EDE-weight concern G1: NR G2: NR G3: NR Mean change: NR p=NS, NR "No differences were found on the EDE subscales of eating, weight, or shape concerns" 1y EDE-weight concern G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 1y EDE weight concern 2y EDE-weight concern G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 2y EDE weight concern	p=NR, no results are reported for the analysis of 1y EDE shape concern 2y EDE-shape concern G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 2y EDE shape concern Post-treatment EDE-weight concern G1: NR G2: NR G3: NR Mean change: NR p=NS, NR "No differences were found on the EDE subscales of eating, weight, or shape concerns" 1y EDE-weight concern G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 1y EDE weight concern 2y EDE-weight concern G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 2y EDE weight concern	

Evidence Table E25. Binge eating disorder behavioral treatment – part 7

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Agras, 1995[5]	Beck Depression Inventory (BDI) Inventory of Interpersonal Problems (IIP) Rosenberg Self-Esteem Scale (RSE) SCL-90 (Global)	Beck Depression Inventory (BDI) G1: 14.6 (SD 9.7) G2: 11.2 (SD 6.8) Inventory of Interpersonal Problems (IIP) G1: 1.5 (SD 0.6) G2: 1.5 (SD 0.5) Rosenberg Self-Esteem Scale (RSE) G1: 2.8 (SD 1.6) G2: 2.5 (SD 1.4) SCL-90 (Global) G1: 0.9 (SD 0.7) G2: 0.8 (SD 0.5)	12wk Beck Depression Inventory (BDI) G1: 11.5 (SD 8.7) G2: 11.9 (SD 6.6) p = NR 12wk Inventory of Interpersonal Problems (IIP) G1: 1.3 (SD 0.6) G2: 1.4 (SD 0.5) p = NR 12wk Rosenberg Self-Esteem Scale (RSE) G1: 2.7 (SD 1.7) G2: 2.7 (SD 2.1) p = NR 12wk SCL-90 (Global) G1: 0.8 (SD 0.5) G2: 0.8 (SD 0.6) p= NR
Allen, 1999[6]	BDI Fear of Negative Evaluation Rosenberg Self-esteem scale (RSES)	BDI G1: 17.09 (SD 5.05) G2: 16.22 (SD 8.54) Fear of Negative Evaluation G1: 23.09 (SD 4.11) G2: 23.11 (SD 9.68) Rosenberg Self-esteem scale (RSES) G1: 26.82 (SD 3.71) G2: 28.67 (SD 3.43)	BDI G1: 6.91 (SD 3.21) G2: 12.33 (SD 5.15) F=6.06, p<0.03 Fear of Negative Evaluation G1: 20.00 (SD 5.00) G2: 22.33 (SD 8.66) F=4.80, p<0.05 Rosenberg Self-esteem scale (RSES) G1: 30.27 (SD 3.72) G2: 29.00 (SD 4.18) F=4.36, p=0.053

Evidence Table E25. Binge eating disorder behavioral treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Carrard, 2011[7]	Beck Depression Inventory-II (BDI-II) Global Severity Index Symptom Checklist-90 Revised (SCL-90R GSI) Rosenberg Self-Esteem Scale	Beck Depression Inventory-II (BDI-II) G1: 15.3 (9.7) G2: 16.8 (10.2) Global Severity Index Symptom Checklist-90 Revised (SCL-90R GSI) G1: 0.8 (0.4) G2: 0.9 (0.6) Rosenberg Self-Esteem Scale G1: 17.5 (5.2) G2: 18.1 (5.9)	6m Beck Depression Inventory-II (BDI-II) G1: 10.0 (7.4) G2: 13.2 (9.6) Mean Between-group difference (95% CI): NR p = 0.405 1y Beck Depression Inventory-II (BDI-II) G1: 7.7 (5.9) G2: 10.6 (8.3) Mean Between-group difference (95% CI): NR p = NR 6m Global Severity Index Symptom Checklist-90 Revised (SCL-90R GSI) G1: 0.6 (0.4) G2: 0.8 (0.5) Mean Between-group difference (95% CI): NR p = 0.880 1y Global Severity Index Symptom Checklist-90 Revised (SCL-90R GSI) G1: 0.4 (0.3) G2: 0.5 (0.3) Mean Between-group difference (95% CI): NR p = NR 6m Rosenberg Self-Esteem Scale G1: 21.3 (4.2) G2: 19.1 (4.9) Mean Between-group difference (95% CI): NR p = 0.015 1y Rosenberg Self-Esteem Scale G1: 22.5 (4.1) G2: 21.0 (5.4) Mean Between-group difference (95% CI): NR p = NR, reports ns

Evidence Table 25. Binge eating disorder behavioral treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Carter, 1998[8]	General psychiatric disturbance, assessed by General Severity Index (GSI) of the Brief Symptom Inventory (BSI) Self-esteem, assessed by the Rosenberg Self-Esteem Scale	G1: 1.3 (0.8) G2: 0.9 (0.6) G3: 1.2 (0.8)	After treatment Mean (SD) G1: 0.8 (0.6) G2: 0.7 (0.6) G3: 1.2 (0.7) 3-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment immediately post-treatment) G1: 1.7 (1.5) G2: 1.6 (1.4) 6-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment 3 months post-treatment) G1: 1.8 (1.5) G2: 1.5 (1.4) Time x Treatment condition interaction: p = 0.006 such that those in G1 and G2 had loswer GSI scores at post-treatment than those in G3. Difference between G1 and G2 = NS at post-treatment and at all f/u points.
Cassin, 2008[9]	BDI-II Rosenberg Self-Esteem Scale (RSE)	BDI - II G1: 25.2 (13.9) G2: 20.6 (9.8) RSE G1 = 26.3 (6.1) G2 = 24.1 (4.6)	F stat calculated using repeated measures split-plot analysis of variance (i.e. did the experimental group change more over time than the control?) 16 Week Follow-Up BDI - II G1: 14.2 (11.1) G2: 16.2 (12.2) F = 10.9, p < .001 RSE G1: 22.5 (5.8) G2: 22.9 (5.7) F = 9.44, p < .01

Evidence Table 25. Binge eating disorder behavioral treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	Outcome Questionnaire (OQ 45.2) -Symptom distress -Interpersonal relations -Social role -Global index	OQ 45.2-Symptom distress Overall: 50.3 (SD 10) G1: 48.47 (SD 8.42) G2: 52.13 (SD 11.19) p=NR, NS OQ 45.2-Interpersonal relations Overall: 25.17 (SD 6.75) G1: 24.40 (SD 5.8) G2: 25.93 (SD 7.61) p=NR, NS OQ 45.2-Social role Overall: 18.95 (SD 4.55) G1: 19.50 (SD 4.47) G2: 18.40 (SD 4.64) p=NR, NS OQ 45.2-Global index Overall: 94.42 (SD 10.73) G1: 92.37 (SD 11.01) G2: 96.47 (SD 10.22) p=NR, NS	OQ 45.2-Symptom distress, change from BL to discharge G1: -2.7 (SD 3.49) G2: -3.2 (SD 3.04) Effect size (Hedges): -0.15 95% CI: -0.66, 0.36 p=0.556 OQ 45.2-Symptom distress, change from discharge to 6m G1: -7.93 (SD 5.12) G2: -14.1(SD 5.98) Effect size (Hedges): -1.09 95% CI: -1.64, -0.55 p=0.000 OQ 45.2-Interpersonal relations, change from BL to discharge G1: -1.5 (SD 6.67) G2: -4.5 (SD 7.78) Effect size (Hedges): -0.41 95% CI: -0.92, 0.10 p=0.114 OQ 45.2-Interpersonal relations, change from discharge to 6m G1: -2.2 (SD 10.3) G2: -4.47 (SD 10.78) Effect size (Hedges): -0.21 95% CI: -0.72, 0.29 p=0.408 OQ 45.2-Social role, change from BL to discharge G1: -1.77 (SD 2.11) G2: -1.7 (SD 2.93) Effect size (Hedges): 0.03 95% CI: -0.48, 0.53 p=0.920

Evidence Table 25. Binge eating disorder behavioral treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Castelnuovo, 2011[10] Castelnuovo, 2011[11] (continued)			OQ 45.2-Social role, change from discharge to 6m G1: -4.33 (SD 2.93) G2: -5.57 (SD 4.38) Effect size (Hedges): -0.33 95% CI: -0.84, 0.18 p=0.205 OQ 45.2-Global index, change from BL to discharge G1: -5.97 (SD 6.2) G2: -9.4 (SD 7.46) Effect size (Hedges): -0.49 95% CI: -1.01, 0.02 p=0.570 OQ 45.2-Global index, change from discharge to 6m G1: -14.47 (SD 12.07) G2: -27.2 (SD 10.91) Effect size (Hedges): -1.09 95% CI: -1.63, -0.55 p=0.000
Cesa, 2013[12]	Body Satisfaction Scale (BSS); not analyzed for 1y due to lack of imputation Body Image Avoidance Questionnaire (BIAQ), using N=44 "as-treated" sample ; not analyzed for 1y due to lack of imputation Contour Drawing Rating Scale, using N=44 "as-treated" sample ; not analyzed for 1y due to lack of imputation	BSS G1: 54.85 (SD 12.8) G2: 60.35 (SD 8.7) G3: 57 (SD 12.8) p=0.281 BIAQ-Total G1: 34.4 (SD 8.5) G2: 33.85 (SD 5.8) G3: 35.53 (SD 7.16) p=0.681 CDRS G1: 1.85 (SD 0.35) G2: 2.3 (SD 1.65) G3: 1.8 (SD 0.44) p=0.886	Post-treatment BSS G1: 45 (SD 13.9) G2: 52 (SD 15.5) G3: 47.84 (SD 13) p=0.353 (across groups at each time point) Post-treatment BIAQ G1: 27.2 (SD 7.23) G2: 31.95 (SD 6.9) G3: 33.1 (SD 10.26) p=0.031 (across groups at each time point) Post-treatment CDRS G1: 1.58 (SD 0.36) G2: 2.02 (SD 1.69) G3: 1.6 (SD 0.35) p=0.711 (across groups at each time point)

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Compare, 2013[13]	NA	NA	NA
De Zwaan, 2005[14]	BDI HAM-D RSE	NR	No quantitative data reported for any of the three measures used to measure general psychopathology. Reason given by authors: "Because of missing data, particularly during the follow-up period, detailed statistical analyses were not conducted. The overall pattern of change for most of the questionnaires assessing...general (BDI, HAM-D, MPQ-Impulsivity, RSE) psychopathology revealed a U-shape with some improvement during active treatment and worsening during follow-up, usually not quite returning to baseline levels" (pg. 95). Qualitative data reported as follows: "ANCOVAs conducted at the end of treatment [24 week] controlling for baseline values and ANCOVAs conducted at the 1-year follow-up controlling for end-of-treatment [24 week] values did not reveal significant differences for most of the scales between participants with and without CBT" (pg. 95).
Dingemans, 2007[15]	BDI SCL-90 score Coping styles (Utrecht Coping List) -Active tackling -Palliative reacting -Avoiding,waiting -Seeking social support -Passive reacting -Expression of emotions -Reassuring thoughts	BDI G1: 20.7 (SD 13.1) G2: 17.7 (SD 9.8) p=NR SCL-90 score G1: 169.3 (SD 48.0) G2: 167.2 (SD 45.6) p=NR Coping styles (Utrecht Coping List) -Active tackling G1: 17.5 (SD 3.5) G2: 16.5 (SD 3.5) p=NR	10wk BDI G1: 14.6 (SD 10.4) G2:18.2 (SD 11.9) Post-treatment BDI G1: 12.9 (SD 13.2) G2: 17.4 (SD 10.5) BDI concern test statistics and significance Time ß (SE): 0.78 (SE 1.41), p=NR, NS Time x condition ß (SE): -3.72 (SE 1.32), p<0.01 10wk SCL-90 G1: 152.1 (SD 39.7) G2: 166.8 (SD 52.0)

Evidence Table 25. Binge eating disorder behavioral treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Dingemans, 2007[15] (continued)		-Palliative reacting G1: 19.0 (SD 2.9) G2: 19.3 (SD 3.0) p=NR -Avoiding,waiting G1: 17.5 (SD 3.8) G2: 17.2 (SD 3.5) p=NR -Seeking social support G1: 12.1 (SD 4.3) G2: 12.6 (SD 3.3) p=NR -Passive reacting G1: 14.0 (SD 3.5) G2: 13.5 (SD 2.7) p=NR -Expression of emotions G1: 6.4 (SD 1.5) G2: 6.6 (SD 1.7) p=NR -Reassuring thoughts G1: 15.5 (SD 2.6) G2: 14.3 (SD 3.2) p=NR	Post-treatment SCL-90 G1: 143.6 (SD 49.0) G2: 170.0 (SD 57.7) SCL-90 test statistics and significance Time ß (SE): 5.08 (SE 5.56), p=NR, NS Time x condition ß (SE): -16.09 (SE 4.85), p<0.001 10wk UCL-Active tackling G1: 18.1 (SD 4.4) G2: 16.8 (SD 2.9) Post-treatment UCL-Active tackling G1: 17.7 (SD 3.9) G2: 16.3 (SD 3.3) UCL-Active tackling concern test statistics and significance Time ß (SE): -0.63 (SE 0.51), p=NR, NS Time x condition ß (SE): 0.32 (SE 0.41), p=NR, NS 10wk UCL-palliative reacting G1: 18.4 (SD 3.0) G2: 19.6 (SD 3.0) Post-treatment UCL-palliative reacting G1: 18.8 (SD 3.3) G2: 18.6 (SD 2.7) UCL-palliative reacting test statistics and significance Time ß (SE): -0.10 (SE 0.53), p=NR, NS Time x condition ß (SE): -0.08 (SE 0.38), p=NR, NS 10wk UCL-avoiding,waiting G1: 16.2 (SD 3.2) G2: 17.5 (SD 3.6) Post-treatment UCL-avoiding,waiting G1: 16.4 (SD 3.4) G2: 17.1 (SD 3.2)

Evidence Table 25. Binge eating disorder behavioral treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Dingemans, 2007[15] (continued)			UCL-avoiding,waiting test statistics and significance Time ß (SE): 0.32 (SE 0.46), p=NR, NS Time x condition ß (SE): -0.74 (SE 0.34), p=NR, NS
Eldredge, 1997[16]	Inventory of Interpersonal Problems (IIP) Beck Depression Inventory (BDI) Rosenberg Self-Esteem Scale (RSE) Global Severity Index of the SCL-90-R (GSI)	Inventory of Interpersonal Problems (IIP) G1: 1.40 G2: 1.19 Beck Depression Inventory (BDI) G1: 13.67 G2: 14.38 Rosenberg Self-Esteem Scale (RSE) G1: 22.68 G2: 21.0 Global Severity Index of the SCL-90-R (GSI) G1: 0.63 G2: 0.75	12wk Inventory of Interpersonal Problems (IIP) G1: 1.17 G2: 0.96 Time effect F=12.54, p=0.001; Table 1 appears to show no effect for treatment 12wk Beck Depression Inventory (BDI) G1: 9.17 G2: 7.88 Time effect F=10.72, p=0.002; Table 1 appears to show no effect for treatment 12wk Rosenberg Self-Esteem Scale (RSE) G1: 20.26 G2: 18.88 Time effect F=8.45, p=0.006; Table 1 appears to show no effect for treatment 12wk Global Severity Index of the SCL-90-R (GSI) G1: 0.52 G2: 0.47 Time effect F=3.84, p=0.06; Table 1 appears to show no effect for treatment

Evidence Table 25. Binge eating disorder behavioral treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Gorin, 2003[17]	BDI	BDI (m,sd): G1: 18.71 (8.89) G2: 20.41 (9.96) G3: 17.41 (9.93) (P = NS)	BDI (m,sd): Endpoint: G1: 14.76 (9.32) (P = NR) G2: 11.82 (9.42) (P = NR) G3: 16.77 (9.54) (P = NR) Difference between groups G1+G2 v G3 = p < .05 Difference between groups in change over time (P < .05) Follow Up G1: 12.89 (8.05) G2: 12.24 (9.23) Follow-up (no data reported for waitlist grp): G1: 12.89 (8.05) (P = NR) G2: 12.24 (9.23) (P = NR) Difference between groups (P = NR) Difference between groups in change over time (P = NS)
Grilo, 2013[18]	BDI	BDI: mean (SD) G1: 14.6 (8.5) G2: 16.1 (8.6) p = NS	BDI: mean (SD) 16 weeks, ITT analysis G1: 8.9 (7.7) G2: 12.0 (7.4) Effect size = 0.13 p = NR Group-by-time interaction p = 0.57

Evidence Table 25. Binge eating disorder behavioral treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Grilo, 2014[19]	BDI	G1: 17.0 (SD 11.6) G2: 13.6 (SD 11.2)	Posttreatment G1: 9.8 (SD 9.7) G2: 9.6 (SD 11.3) Hand calculated p = .949 6m G1: 10.3 (SD 10.6) G2: 8.7 (SD 9.9) Hand calculated p = .602 12m G1: 10.5 (SD 9.1) G2: 7.5 (SD 6.9) Hand calculated p = .219
Grilo, 2011[20] Grilo, 2011[21]	Beck Depression Inventory (BDI)	G1: 15.2 (SD 6.9) G2: 15.9 (SD 8.4) G3: 17.4 (SD 9.3)	Post-treatment G1: 10.1 (SD 8.8) G2: 11.1 (SD 8.3) G3: 9.7 (SD 9.2) p=NS, NR 6m G1: 8.1 (SD 7.3) G2: 11.1 (SD 8.7) G3: 10.1 (SD 9.9) p=NS, NR 12m G1: 9.1 (SD 7.9) G2: 9.6 (SD 7.7) G3: 9.7 (SD 9.3) p=NS, NR

Evidence Table 25. Binge eating disorder behavioral treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Grilo, 2005[22] Masheb, 2007[23]	Depression (BDI) Self-esteem (RSE)	Depression (BDI) mean (SD) G1: 15.6 (9.2) G2: 17.8 (9.7) G3: 14.5 (7.5) p=0.41 Self-esteem (RSE) mean (SD) G1: 28.6 (5.7) G2: 28.7 (5.0) G3: 30.3 (6.4) p=0.59	12wk Depression (BDI) mean (SD) G1: 9.5 (9.4) G2: 12.0 (10.3) G3: 11.4 (8.5) Omnibus analysis p=0.464 12wk Self-esteem (RSE) mean (SD) G1: 31.5 (5.6) G2: 31.0 (5.8) G3: 30.6 (6.2) Omnibus analysis p=0.09 G1 vs. G2 p=ns G2 vs. G3 p=0.03 G1 vs. G3 p=ns
Hilbert, 2004[24]	Measure 1: Depression (BDI)	Measure 1: Prettreatment G1: 19.0 (8.6) G2: 16.0 (7.7)	Measure 1: Posttreatment G1: 12.8 (8.8) G2: 12.7 (9.0) 4- month follow-up G1: 13.9 (8.7) G2: 12.3 (6.9) Repeated Measures (Analysis of time) F: 10.37 df: 2, 44 p: < 0.001

Evidence Table 25. Binge eating disorder behavioral treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Le Grange, 2002[25]	BDI RSE	BDI: mean (SD) G1: 20.1 (15.7) G2: 20.4 (11.5) p = NS RSE: mean (SD) G1: 26.6 (5.1) G2: 25.1 (5.1) p = NS	BDI, mean (SD) 12 weeks, ITT analysis G1: 15.7 (9.7) G2: 14.8 (10.3) p = >0.15 12 months, ITT analysis G1: 16.7 (9.3) G2: 15.1 (9.9) p = >0.15 RSE: mean (SD) 12 weeks, ITT analysis G1: 28.7 (5.7) G2: 26.4 (6.2) p = >0.15 12 months, ITT analysis G1: 28.5 (5.6) G2: 26.6 (6.3) p = >0.15
Masheb, 2011[26]	BDI	BDI G1: 2.6 (SE 0.1) G2: 2.8 (SE 0.1)	12m BDI G1: 1.9 (SE 0.2) G2: 1.8 (SE 0.2) Time x treatment F=1.58, p=0.187
Masson, 2013[27]	Difficulties in Emotional Regulation Scale (DERS)	Difficulties in Emotional Regulation Scale (DERS) G1: 100.02 (SD 26.38) G2: 100.97 (SD 23.36) Effect size d=0.04	Posttreatment Difficulties in Emotional Regulation Scale (DERS) G1: 84.39 (SD 26.81) G2: 104.03 (SD 24.64) Effect size d=0.76 Between group comparison B=-18.98, SE=4.87, t=-3.90, p<0.05 (95%CI -28.73, -9.27; sr2=0.21) 6m Difficulties in Emotional Regulation Scale (DERS) G1: 82.48 (SD 27.67) G2: NA Effect size (between BL and 6m, G2 only) d=0.65

Evidence Table 25. Binge eating disorder behavioral treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Munsch, 2007[28] Munsch, 2012[29]	Munsch, Biedert, Meyer, et al., 2007[28]: Beck Depression Inventory (BDI) Beck Anxiety Inventory (BAI) Munsch, Meyer, Biedert, et al., 2012[29]: Regular intake of medicine % of regularly taken medicine that is psychotropics Seeking additional psychological treatment after end of active therapy Negative affect (BDI >18) (0=no,1=yes)	Munsch, Biedert, Meyer, et al., 2007[28]: BDI G1 (n=37): 15.14 (SD 9.16) G2 (n=33): 11.82 (SD 6.72) BAI G1 (n=34): 13.79 (SD 12.95) G2 (n=34): 10.74 (SD 9.43)	Munsch, Biedert, Meyer, et al., 2007[28]: Post-treatment BDI, Completer G1 (n=31): 9.16 (SD 7.80) G2 (n=26): 9.19 (SD 6.54) F=1.30, p=0.26 12m BDI, Completer G1 (n=22): 8.23 (SD 11.31) G2 (n=21): 7.76 (SD 6.48) F=2.26, p=0.14 Post-treatment BAI, Completers G1 (n=32): 9.72 (SD 10.15) G2 (n=27): 11.07 (SD 9.46) F=1.67, p=0.20 12m BAI, Completers G1 (n=23): 6.30 (SD 10.10) G2 (n=21): 11.00 (SD 12.17) F=9.16, p=0.004
Pendleton, 2001[30]	BDI	BDI G1: 15.7 (SD 9.7) G2: 18.1 (SD 10.7) G3: 19.0 (SD 10.5) G4: 18.0 (SD 7.2) Exercisers (G1&G2): 16.8 (SD 10.1) Non-exercisers (G3&G4): 18.6 (SD 9.2) Maintenance (G1&G3): 17.3 (SD 10.1) No maintenance (G2&G4): 18.1 (SD 9.2)	4m BDI G1: 6.4 (SD 5.5) G2: 7.3 (SD 7.8) G3: 9.7 (SD 6.2) G4: 11.8 (SD 9.6) G1,2,3,4: F=NR Exercisers (G1&G2): 6.8 (SD 6.6) Non-exercisers (G3&G4): 10.6 (SD 7.8) Exercisers (G1&G2) vs. non-exercisers (G3&G4): F=7.7, p=0.007 Maintenance (G1&G3): 8.0 (SD 6.0) No maintenance (G2&G4): 9.4 (SD 8.9) Maintenance (G1&G3) vs. no maintenance (G2&G4): F=NR 10m BDI G1: 5.2 (SD 5.1) G2: 11.0 (SD 10.7) G3: 9.1 (SD 8.1) G4: 8.7 (SD 5.6) G1,2,3,4: F=NR

Evidence Table 25. Binge eating disorder behavioral treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Pendleton, 2001[30] (continued)			Exercisers (G1&G2): 7.8 (SD 8.5) Non-exercisers (G3&G4): 8.9 (SD 7.0) Exercisers (G1&G2) vs. non-exercisers (G3&G4): F=NR Maintenance (G1&G3): 7.1 (SD 6.9) No maintenance (G2&G4): 9.9 (SD 8.6) Maintenance (G1&G3) vs. no maintenance (G2&G4): F=NR G1 vs. G2: F=5.37, p=0.025 16m BDI G1: 5.1 (SD 5.9) G2: 8.2 (SD 8.6) G3: 8.0 (SD 7.7) G4: 10.4 (SD 8.2) G1,2,3,4: F=NR Exercisers (G1&G2): 6.5 (SD 7.3) Non-exercisers (G3&G4): 9.0 (SD 7.9) Exercisers (G1&G2) vs. non-exercisers (G3&G4): F=NR Maintenance (G1&G3): 6.5 (SD 6.9) No maintenance (G2&G4): 9.3 (SD 8.4) Maintenance (G1&G3) vs. no maintenance (G2&G4):F=NR Throughout the study: Exercisers (G1&G2) had higher BDI scores than non-exercisers (G3&G4) Maintenance (G1&G3) vs. no maintenance (G2&G4) was not significantly different: F=3.28, p=0.07

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Peterson, 1998[31] Peterson, 2001[32]	Peterson, 1998 Measure 1: HDRS Measure 2: RSEQ Measure 3: BSQ Peterson, 2001 Measure 4: BDI	Peterson, 1998 NR Peterson, 2001 Measure 1 Baseline G1: 13.3 (7.3) G2: 8.8 (6.9) G3: 7.7 (5.9) Measure 2 baseline G1: 27.4 (6.2) G2: 28.4 (6.9) G3: 26.9 (5.7) Measure 3 baseline G1: 140.6 (40.0) G2: 141.1 (28.0) G3: 127.7 (25.5) Measure 4 Baseline G1: 15.5 (9.9) G2: 11.1 (9.1) G3: 13.5 (9.5)	Peterson, 1998 Measure 1 Group differences F (3, 46): 2.68 p: 0.058 Measure 2 F(3, 45): 0.48 p: 0.697 Measure 3 F (3,47): 2.20 p: 0.101 Peterson, 2001 Measure 1 Posttreatment G1: 10.5 (7.3) G2: 4.8 (3.3) G3: 8.0 (6.4) 1 month G1: 7.6 (3.7) G2: 6.3 (4.9) G3: 7.0 (7.0) 6 month G1: 6.5 (4.4) G2: 7.7 (7.9) G3: 5.5 (4.6) 12 month G1: 9.9 (8.6) G2: 3.8 (3.9) G3: 6.2 (4.7) Time effect: F(4,138) = 3.06 p < .018

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Peterson, 1998[31] Peterson, 2001[32] (continued)			Group x Time interaction: NR, NS Measure 2 Posttreatment G1: 29.3 (6.7) G2: 31.4 (5.4) G3: 29.6 (5.3) 1 month G1: 31.9 (5.2) G2: 30.4 (4.4) G3: 31.2 (5.3) 6 month G1: 32.1 (5.3) G2: 32.6 (5.4) G3: 32.2 (5.1) 12 month G1: 30.9 (5.7) G2: 33.7 (4.0) G3: 31.7 (5.0) Time effect: F(4,132) = 10.16 p < .0001 Group x Time interaction: NR, NS

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Peterson, 2009[33]	IDS-SR: Depression symptoms Rosenberg Self-Esteem Questionnaire	IDS-SR: mean (SD) G1: 26.7 (11.2) G2: 20.4 (10.0) G3: 25.2 (10.9) G4: 26.4 (12.2) p = NS Rosenberg Self-Esteem Questionnaire: mean (SD) G1: 3.2 (2.1) G2: 2.3 (1.9) G3: 2.6 (1.9) G4: 2.8 (2.0) p = NS	NOTE: Ns and p values NR for all completers analyses at all post-treatment and follow-up timepoints IDS-SR, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 23.4 (13.4) G2: 17.7 (9.5) G3: 19.8 (11.3) G4: 23.3 (10.7) p = NS (adjusted for baseline value, site, and sex) 6m follow-up (44 weeks post-baseline): ITT analysis G1: 25.2 (12.8) G2: 17.0 (9.4) G3: 20.3 (11.7) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 23.8 (12.4) G2: 17.8 (10.0) G3: 20.8 (12.0) G4: NA p = NS (adjusted for baseline value, site, and sex)

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Ricca, 2010[34]	BDI State-trait anxiety inventory (STAI) SCL-90 GSI	BDI, median (quartiles) G1: 17.0 (11.0, 25.0) G2:17.0 (12.0, 24.0) State-trait anxiety inventory (STAI), median (quartiles) G1: 50.0 (40.0, 58.5) G2: 48.0 (40.0, 59.0) SCL-90 GSI, median (quartiles) G1: 1.2 (0.8, 1.7) G2: 1.18 (0.76, 1.62)	Posttreatment BDI, median (quartiles), p for within-group change BL to posttreatment G1: 17.0 (12.0, 23.0) , p<0.01 G2: 15.0 (9.0, 22.7), p<0.05 3y BDI, median (quartiles), p for within-group change posttreatment to 3y G1: 17.0 (11.7, 1.5), p=NR, NS G2: 14.0 (7.0, 22.0), p<0.05 BDI, repeated measures ANOVA for between-group comparison with covariate age F= 0.92 p=0.33 Posttreatment State-trait anxiety inventory (STAI), median (quartiles), p for within-group change BL to posttreatment G1: 40.5 (39.2, 56.5), p<0.05 G2: 48.0 (36.7, 55.0), p=NR, NS 3y State-trait anxiety inventory (STAI), median (quartiles), p for within-group change posttreatment to 3y G1: 40.5 (39.0, 59.5), p=NR, NS G2:47.0 (47.0, 55.0), p=NR, NS State-trait anxiety inventory (STAI), repeated measures ANOVA for between-group comparison with covariate age F= 0.01 p=0.99

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Riva, 2002[35]	Body image avoidance questionnaire -total score -eating restraint -clothing -grooming/weighing -social activities Body satisfaction scale (BSS) -total score -head -torso -limbs Contour drawing rating scale (CDRS) -real body -ideal body -body satisfaction index Figure rating scale (FRS) -real body -ideal body -body satisfaction index STAI-x2 total score Assertion Inventory (AI) -Anxiety -Ability	BIAQ-total score G1: 33.20 G2: 31.00 BIAQ-eating restraint G1: 3.00 G2: 4.40 BIAQ-clothing G1: 16.10 G2: 14.60 BIAQ-grooming/weighing G1: 4.10 G2: 3.20 BIAQ-social activities G1: 10.00 G2: 8.80 BSS-total score G1: 51.30 G2: 57.20 BSS-head G1: 11.80 G2: 15.10 BSS-torso G1: 19.30 G2: 20.30 BSS-limbs G1: 20.20 G2: 21.80 CDRS-real body G1: 7.80 G2: 8.40 CDRS-ideal body G1: 4.40 G2: 4.40 CDRS-body satisfaction index G1: 1.87 G2: 2.55	All outcomes are post-treatment BIAQ-total score G1: 32.40 G2: 29.50 G1 Mean difference before and after treatment: 0.80 G2 Mean difference before and after treatment:1.50 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS BIAQ-eating restraint G1: 5.20 G2: 5.00 G1 Mean difference before and after treatment: -2.20 G2 Mean difference before and after treatment:-0.60 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS BIAQ-clothing G1: 13.80 G2: 13.80 G1 Mean difference before and after treatment:2.30 G2 Mean difference before and after treatment:0.80 G1 before-after p=0.021 G2 before-after p=NS Between-group mean difference p=0.035 BIAQ-grooming/weighing G1: 5.30 G2: 4.10

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Riva, 2002[35] (continued)		FRS-real body G1: 6.90 G2: 6.80 FRS-ideal body G1: 3.80 G2: 3.80 FRS-body satisfaction index G1: 1.87 G2: 2.35 STAI-x2 total score G1: 47.80 G2: 39.20 AI Anxiety G1: 99.40 G2: 101.50 AI ability G1: 101.30 G2: 105.00	G1 Mean difference before and after treatment:-1.20 G2 Mean difference before and after treatment:-0.90 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS BIAQ-social activities G1: 8.10 G2: 6.60 G1 Mean difference before and after treatment:1.90 G2 Mean difference before and after treatment:2.20 G1 before-after p=0.07 G2 before-after p=NS Between-group mean difference p=NS BSS-total score G1: 47.60 G2: 53.70 G1 Mean difference before and after treatment:3.70 G2 Mean difference before and after treatment:3.50 G1 before-after p=0.06 G2 before-after p=NS Between-group mean difference p=NS BSS-head G1: 9.20 G2: 13.20 G1 Mean difference before and after treatment: 2.60 G2 Mean difference before and after treatment: 1.90 G1 before-after p=NS G2 before-after p=NS

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Riva, 2002[35] (continued)			Between-group mean difference p=NS BSS-torso G1: 18.10 G2: 19.90 G1 Mean difference before and after treatment: 1.20 G2 Mean difference before and after treatment:0.40 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS BSS-limbs G1: 20.30 G2: 20.60 G1 Mean difference before and after treatment:-0.10 G2 Mean difference before and after treatment:1.20 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS CDRS-real body G1: 8.10 G2: 8.00 G1 Mean difference before and after treatment:-0.30 G2 Mean difference before and after treatment:0.40 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS CDRS-ideal body G1: 5.10 G2: 4.80

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Riva, 2002[35] (continued)			G1 Mean difference before and after treatment:-0.70 G2 Mean difference before and after treatment:-0.40 G1 before-after p=0.035 G2 before-after p=NS Between-group mean difference p=NS CDRS-body satisfaction index G1: 1.66 G2: 2.29 G1 Mean difference before and after treatment:0.21 G2 Mean difference before and after treatment:0.26 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS FRS-real body G1: 6.80 G2: 6.60 G1 Mean difference before and after treatment:0.10 G2 Mean difference before and after treatment:0.20 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS FRS-ideal body G1: 3.90 G2: 3.80 G1 Mean difference before and after treatment:-0.10 G2 Mean difference before and after treatment:0.00 G1 before-after p=NS G2 before-after p=NS

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Riva, 2002[35] (continued)			Between-group mean difference p=NS FRS-body satisfaction index G1: 1.82 G2: 2.28 G1 Mean difference before and after treatment:5.60 G2 Mean difference before and after treatment:6.20 G1 before-after p=NS G2 before-after p=NS Between-group mean difference p=NS
Riva, 2003[36]	STAI BDI Rathus Assertiveness Schedule (RAS)	STAI, mean score G1: 49.44 G2: NR G3: 49.77 G4: NR BDI, mean score G1: 22.23 G2: 20.55 G3: NR G4: NR RSE, mean score G1: NR G2: NR G3: NR G4: NR RAS mean score G1: NR G2: NR G3: NR G4: NR	Posttreatment STAI, mean score, within-group change p-value G1: 36.77, p=0.018 G2: NR, p=NR, NS G3: 38.77, p=0.013 G4: NR, p=NR, NS 6m STAI G1: NR G2: NR G3: NR G4: NR Posttreatment BDI, mean score, within-group change p-value G1: 8.11, p=0.008 G2: 12.11, p=0.05 G3: NR, NS G4: NR, NS "Complete remission of depressive symptoms was observed only in G1." 6m BDI G1: NR G2: NR G3: NR G4: NR

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Riva, 2003[36] (continued)			Posttreatment RSE, mean score, within-group change p-value G1: NR, p=NR, significant improvement G2: NR, p=NR, significant improvement G3: NR, p=NR, significant improvement G4: NR, NS 6m RSE G1: NR G2: NR G3: NR G4: NR Posttreatment RAS, mean score, within-group change p-value G1: NR, p=NR, significant improvement G2: NR, NS G3: NR, NS G4: NR, NS 6m RAS G1: NR G2: NR G3: NR G4: NR

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	Measure 1: Beck Depression Inventory (BDI) Measure 2: Negative Mood Regulation Scale (NMR)	Measure 1: baseline G1: 17.94 (9.37) G2: 15.27 (6.83) Measure 2: baseline G1: 98.86 (19.24) G2: 100.31 (16. 26)	Measure 1: Posttreatment G1: 9.10 (9.21) G2: 10.84 (6.86) 12 month FU G1: 10.36 (9.97) G2: 10.04 (6.86) effect size posttreatment: 0.21 effect size 12 month FU: -0.04 Measure 2: Posttreatment G1: 99.54 (16.67) G2: 99.71 (13.35) 12 month FU G1: 108.40 (19.72) G2: 110. 12 (13.61) effect size posttreatment: 0.01 effect size 12 month FU: 0.10
Schlup, 2009[40]	BDI BAI	BDI 9.12 BAI 6.91	BDI (mean difference) G1: -1.86 G2: 0.96 p=0.064 BAI (mean difference) G1: -1.98 G2: -0.28 p=0.318
Schlup, 2010[41]	NR	NR	NR

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Tasca, 2006[42] Tasca, 2012[43]	Rosenberg Self-Esteem Scale (RSE) IIP total score and 8 subscales (Domineering/controlling, Vindictive/self-centered, Cold/distant, Socially inhibited, Non-assertive, Overly accommodating, Self-sacrificing, Intrusive/needy) IIP mean score CES-D	The following are from Tasca, Ritchie, Conrad, et al., 2006[42] Rosenberg Self-Esteem Scale (RSE) G1: 25.14 (SD 5.72) G2: 24.66 (SD 6.40) G3: 26.07 (SD 5.54) IIP mean score G1: 1.39 (SD 0.48) G2: 1.56 (SD 0.53) G3: 1.53 (SD 0.61) CES-D G1: 24.65 (SD 9.14) G2: 25.19 (SD 13.32) G3: 23.84 (SD 9.93) The following are from Tasca et al., 2012[42]: IIP Total Score (total score, not mean-item score): mean (SD) Overall: 96.06 (32.21) G1: 91.39 (29.46) G2: 100.82 (34.45) IIP Domineering/controlling (total score, not mean-item score): mean (SD) Overall: 7.39 (4.93) G1: 6.78 (4.94) G2: 8.00 (4.89) IIP Vindictive/self-centered (total score, not mean-item score): mean (SD) Overall: 7.35 (5.32) G1: 6.87 (5.31) G2: 7.84 (5.34)	The below are from Tasca et al., 2006[42]: Post-treatment RSE G1: 25.72 (SD 2.27) G2: 26.17 (SD 2.64) G3: 26.32 (SD 1.97) G2 vs. G3 Hierarchical linear modeling (HLM) coefficient: -0.32; t-value: -0.62, p=NR G1 vs. G3 Hierarchical linear modeling (HLM) coefficient: -0.40; t-value: -0.78, p=NR G2 vs. G1 Hierarchical linear modeling (HLM) coefficient: -0.09; t-value:-0.17, p=NR 6m RSE G1: 31.39 (SD 3.61) G2: 23.76 (SD 3.46) G3: 6m and 12m not measured for control group 12m RSE: not collected at 12m RSE Pre-treatment to follow-ups modeling Linear modeling coefficients: 4.44, t-value: 1.43, p=NR Treatments modeling: -2.87, t-value: -2.44, p=0.016 Quadratic modeling coefficients: -2.29, t-value: -2.44, p=0.016 Treatments modeling: 1.73, t-value: 3.80, p<0.001 "For self-esteem, the Treatment x Quadratic slope interaction suggested that patients improved by posttreatment and maintained improvements to six months posttreatment. However, the significant interaction indicated that the significant quadratic slope was due to improvements for patients in G1 only."

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Tasca, 2006[42] Tasca, 2012[43] (continued)		IIP Cold/distant (total score, not mean-item score): mean (SD) Overall: 9.34 (5.43) G1: 9.22 (5.71) G2: 9.46 (5.19) IIP Socially inhibited (total score, not mean-item score): mean (SD) Overall: 14.06 (6.45) G1: 12.96 (6.59) G2: 15.19 (6.17) IIP Non-assertive (total score, not mean-item score): mean (SD) Overall: 16.71 (7.42) G1: 15.84 (7.23) G2: 17.60 (7.60) IIP Overly accommodating (total score, not mean-item score): mean (SD) Overall: 15.41 (6.64) G1: 15.22 (5.84) G2: 15.60 (7.42) IIP Self-sacrificing (total score, not mean-item score): mean (SD) Overall: 16.14 (6.09) G1: 14.95 (5.71) G2: 17.35 (6.29) IIP Intrusive/needy (total score, not mean-item score): mean (SD) Overall: 9.46 (5.28) G1: 9.36 (5.09) G2: 9.56 (5.51)	Post-treatment IIP mean score G1: 1.23 (SD 0.52) G2: 1.29 (SD 0.61) G3: 1.50 (SD 0.67) G2 vs. G3 Hierarchical linear modeling (HLM) coefficient: -.15; t-value: -2.42, p=.016 G1 vs. G3 Hierarchical linear modeling (HLM) coefficient: -.14; t-value: -2.25, p=.024 G2 vs. G1 Hierarchical linear modeling (HLM) coefficient: .01; t-value: .19 6m IIP mean score G1: 1.13 (SD 0.54) G2: 1.29 (SD 0.63) G3: 6m and 12m not measured for control group 12m IIP mean score: not measured at 12m Linear modeling coefficients: -16, t-value: -2.69, p=.008 Treatments modeling: .02, t-value: .42 Quadratic modeling coefficients: .02, t-value: .23 Treatments modeling: .04, t-value: .91 "There was a significant linear slope for interpersonal problems, idicating that across both treatments there were reductions in these symptoms from pre-treatment to six months posttreatment (p.115)." Post-treatment CES-D G1: 16.81 (SD 13.13) G2: 19.03 (SD 13.62) G3: 23.30 (SD 12.28) G2 vs. G3 Hierarchical linear modeling (HLM) coefficient: -2.47; t-value: -1.60 G1 vs. G3 Hierarchical linear modeling (HLM) coefficient: -3.64; t-value: -2.36, p=0.018 G2 vs. G1 Hierarchical linear modeling (HLM) coefficient: -1.17; t-value: -0.79

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Tasca, 2006[42] Tasca, 2012[43] (continued)			6m CES-D G1: 17.81 (SD 6.55) G2: 19.61 (SD 11.30) G3: 6m and 12m not measured for control group 12m CES-D: not measured at 12m Linear modeling coefficients: -14.81, t-value: -2.51, p=0.014 Treatments modeling: -2.56, t-value: -0.87, p=NR Quadratic modeling coefficients: 2.70, t-value: 1.61, , p=NR Treatments modeling: 0.79, t-value: 0.88, p=NR "There was a significant linear slope for interpersonal problems, idicating that across both treatments there were reductions in these symptoms from pre-treatment to six months posttreatment (p.115)."

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Telch, 2001[44]	EES Anxiety EES Depression EES Anger BDI NMR PANAS Positive PANAS Negative RSE	EES, Anxiety (M,SD) G1: 2.3 (0.9) G2: 2.7 (0.6) (P = NS) EES Depression (M,SD) G1: 3.0 (0.7) G2: 3.3 (0.7) (P = NS) EES Anger (M,SD) G1: 2.5 (0.8) G2: 2.8 (0.6) BDI (M,SD) G1: 12.8 (7.4) G2: 13.8 (9.1) (P = NS) NMR (M,SD) G1: 99.8 (15.2) G2: 101.4 (15.7) PANAS Positive (M,SD) G1: 25.8 (7.5) G2: 31.9 (8.2) PANAS Negative (M,SD) G1: 23.6 (8.8) G2: 22.8 (7.3) RSE G1: 26.0 (6.8) G2: 28.9 (5.0)	EES Anxiety (M,SD) G1: 1.5 (0.9) (P = NR) G2: 2.4 (1.0) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P = NS) EES Depression (M,SD) G1: 2.4 (1.0) (P = NR) G2: 3.0 (0.8) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P = NS) BDI (M,SD) G1: 9.9 (10.0) (P = NR) G2: 12.8 (8.3) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P = NS) PANAS Positive G1: 30.0 (10.8) G2: 31.2 (7.8) p=NS PANAS Negative G1: 17.9 (6.7) G2: 20.6 (8.7) p=0.16 RSE (M,SD) G1: 29.4 (6.1) G2: 29.2 (4.5) p=0.07

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Wilfley, 2002[45] Hilbert, 2012[46]	Wilfley, Welch, Stein, et al., 2002[45]: Global Symptom Index (GSI) Rosenberg Self-Esteem Scale (RSE) Symptom Checklist 90-Revised Depression subscale (SCL Depression) Hilbert, Bishop, Stein, et al., 2012[46] Brief symptom inventory (BSI) -depression -anxiety	Wilfley, Welch, Stein, et al., 2002[45]: GSI G1: 43.3 (SD 7.8) G2: 42.0 (SD 8.9) RSE G1: 26.8 (SD 5.6) G2: 27.3 (SD 5.9) SCL Depression G1: 44.3 (SD 8.3) G2: 42.4 (SD 9.6) Hilbert, Bishop, Stein, et al., 2012[46] BSI-depression G1: 1.16 (SD 0.15) G2: 1.02 (SD 0.13) BSI-anxiety G1: 0.69 (SD 0.11) G2: 0.71 (SD 0.10)	Wilfley, Welch, Stein, et al., 2002[45]: "All other secondary outcomes showed a significant improbelemtn from pre-treatment to post-treatment (linear time effects, all p-values <0.001) except for BMI, which remained stable during the course of treatment." GSI Post-treatment G1: 32.8 (SD 8.8) G2: 32.3 (SD 8.5) GEE main effect of time indicated improvement from pretreatment to posttreatment (p<0.001) GSI 4-month G1: 33.0 (SD 8.4) G2: 33.2 (SD 10.9) GSI 8-month G1: 31.9 (SD 9.7) G2: 32.7 (SD 10.6) GSI 12-month G1: 32.0 (SD 8.9) G2: 30.7 (SD 10.6) No significant GEE main effects of time or treatment and no significant interaction across follow-up (e.g., stable during the follow-up period) RSE Post-treatment G1: 31.1 (SD 6.0) G2: 30.3 (SD 5.5) GEE main effect of time indicated improvement from pretreatment to posttreatment (p<0.001) RSE 4-month G1: 29.9 (SD 5.8) G2: 30.6 (SD 5.7) RSE 8-month G1: 30.5 (SD 6.1) G2: 30.9 (SD 5.6)

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Wilfley, 2002(#499) Hilbert, 2012[46] (continued)			RSE 12-month G1: 30.4 (SD 5.7) G2: 31.4 (SD 5.6) No significant GEE main effects of time or treatment and no significant interaction across follow-up (e.g., stable during the follow-up period) SCL Post-treatment G1: 34.8 (SD 7.9) G2: 33.6 (SD 8.6) GEE main effect of time indicated improvement from pretreatment to posttreatment (p<0.001) SCL 4-month G1: 34.2 (SD 8.3) G2: 34.6 (SD 10.6) SCL 8-month G1: 33.3 (SD 8.6) G2: 34.4 (SD 10.7) SCL 12-month G1: 33.1 (SD 8.2) G2: 32.2 (SD 10.3) No significant GEE main effects of time or treatment and no significant interaction across follow-up (e.g., stable during the follow-up period) Hilbert, Bishop, Stein, et al., 2012[46] ITT Post-treatment BSI-depression G1: 0.49 (SD 0.15) G2: 0.53 (SD 0.13) ITT 1y BSI-depression G1: 0.48 (SD 0.15) G2: 0.63 (SD 0.14) ITT Long-term BSI-depression G1: 0.70 (SD 0.15) G2: 0.64 (SD 0.14) ITT BSI-depression GEE treatment effect F=0.00 p=0.985

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Wilfley, 2002(#499) Hilbert, 2012[46] (continued)			ITT BSI-depression GEE time effect F=11.39 p<0.001 ITT GEE BSI-depression treatment x time effect F=0.65 p=0.587 Post-hoc analyses BSI-depression Significant improvements at post-treatment, 1y, and long-term follow-up when compared with pre-treatment (p<0.01) ITT Post-treatment BSI-anxiety G1: 0.33 (SD 0.12) G2: 0.50 (SD 0.10) ITT 1y BSI-anxiety G1: 0.35 (SD 0.12) G2: 0.48 (SD 0.11) ITT Long-term BSI-anxiety G1: 0.49 (SD 0.12) G2: 0.87 (SD 0.11) ITT GEE BSI-anxiety treatment effect F=2.52 p=0.119 ITT GEE BSI-anxiety time effect F=7.05 p<0.001 ITT GEE BSI-anxiety treatment x time effect F=1.28 p=0.283 Post-hoc analyses BSI-anxiety Significant improvements when compared with pre-treatment at post-treatment and 1y (p<0.01) but not at long-term follow-up (p>0.01)

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Wilson, 2010[47] Sysko, 2010[48]	Beck Depression Inventory (BDI) Rosenberg Self-Esteem (RSE)	BDI >18, % G1: 44% G2: 44% G3: 44% RSE G1: 23.4 (SD 6.2) G2: 22.8 (SD 5.3) G3: 23.7 (SD 5.4)	Post-treatment BDI G1: NR G2: NR G3: NR Mean change: NR p=NR, NS "No differences were found ... for BDI" 1y BDI G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 1y BDI 2y BDI G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 2y BDI Post-treatment RSE G1: NR G2: NR G3: NR Mean change: NR p=NR, NS "No differences were found ... for the self-esteem scale" 1y RSE G1: NR G2: NR G3: NR

Evidence Table 25. Binge eating disorder behavioral treatment - part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Wilson, 2010[47] Sysko, 2010[48] (continued)			Mean change: NR p=NR, no results are reported for the analysis of 1y RSE 2y RSE G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 2y RSE

Evidence Table E26. Binge eating disorder behavioral treatment – part 8

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Agras, 1995[5]	Weight (kg)	G1: 108 (SD 26.7) G2: 106.1 (SD 20.3)	12wk G1: 109.4 (SD 27.3) G2: 109.8 (SD 23.1) p = NR	NA	NA	NA
Allen, 1999[6]	Percent ideal body weight	G1: 122.82 (SD 22.86) G2: 116.50 (SD 21.98)	G1: 122.00 (SD 22.78) G2: 118.00 (SD 22.19) p=NR	NA	NA	NA
Carrard, 2011[7]	BMI	BMI G1: 29.8 (5.9) G2: 27.7 (5.5)	6-month BMI G1: 29.2 (6.0) G2: 27.9 (5.4) Mean Between-group difference (95% CI): p = 0.002 12-month BMI G1: 29.0 (6.3) G2: 27.6 (5.5) Mean Between-group difference (95% CI): p = NR Statistical significance of the 12-month results is unclear. Article (p.487) states: "The reduction of OBE (F(1,36)= .0,ns) and the decline in BMI (F(1,36)= .4, ns) were also maintained".	NA	NA	NA

Evidence Table E26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Carter, 1998[8]	BMI	G1: 30.6 (6.6) G2: 32.2 (6.4) G3: 31.5 (6.6)	After treatment Mean (SD) G1: 30.7 (6.6) G2: 31.7 (6.1) G3: 31.9 (7.4) 3-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment immediately post-treatment) G1: 29.4 (5.6) G2: 30.8 (5.9) 6-month follow-up Mean (SD) (sample includes G3 participants who were subsequently randomized to G1 or G2, for whom this is the assessment 3 months post-treatment) G1: 30.4 (6.5) G2: 31.6 (6.2) All analyses = NS	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Cassin, 2008[9]	None	None	None	None	None	None
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	Weight (kg) Change in weight	Overall: 106.95 (SD 6.95) G1: 107.37 (SD 6.83) G2: 106.53 (SD 7.14) p=NR, NS	6m weight G1: 94.73 G2: 88.40 Weight, change from BL to discharge G1: -6.3 (SD 2.36) G2: -7.12 (SD 2.02) Effect size (Hedges): -0.37 95% CI: -0.88, 0.14 p=0.152 Weight, change from BL to 6m G1: -11.92 (SD 16.9) G2: -16.93 (SD 5.51) Effect size (Hedges): -0.39 95% CI: -0.90, 0.12 p=0.128 Weight, change from discharge to 6m G1: -5.96 (SD 17.90) G2: -10.53 (SD 6.14) Effect size (Hedges): -0.34 95% CI: -0.85, 0.17 p=0.191	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Cesa, 2013[12]	Weight, using N=66 sample with missing 1y values imputed with 0.3kg per month weight regain BMI, using N=66 sample with missing 1y values imputed with 0.3kg per month weight regain	Weight (kg) G1: 103 (SD 18.2) G2: 106.6 (SD 8.9) G3: 111.7 (SD 22.9) p=0.223 BMI G1: 39.2 (SD 5.3) G2: 41.1 (SD 3.3) G3: 41.8 (SD 6.3) p=0.189	Post-treatment Weight (kg) G1: 96.9 (SD 16.7) G2: 99.5 (SD 7.9) G3: 105 (SD 21.8) p= 0.251 (p estimation across groups at each time point) Post-treatment change in weight (kg), within-group significance G1: -6.17 (CI -7, -5.3), p<0.001 G2: -7.1 (CI -7.9, -6.2), p<0.001 G3: -6.6 (CI -8.1 to -5.2), p<0.001 No significant between-group differences in weight loss Post-treatment BMI G1: 36.9 (SD 5) G2: 38.3 (SD 3) G3: 39.3 (SD 5.9) p= 0.228 (p estimation across groups at each time point)	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Cesa, 2013[12] (continued)			Significance of change in weight from post-treatment to 1y (kg): G1 p=NR, NS G2 p=NR, NS G3 weight gain significant at p<0.001 (within group difference) 1y Weight (kg) G1: 96 (SD 16.3) G2: 101 (SD 9.4) G3: 109.3 (SD 22.6) p=0.032 (p estimation across groups at each time point) "Statistically significant differences in... weight median scores at follow-up were found across the 3 groups in favor of G1. In fact, only G1 was effective in further improving weight loss at 1y follow-up" (So overall significant differences between groups, but p=NR as to which comparison(s) was significant)			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Cesa, 2013[12] (continued)			Significance of percentage Weight reduction at 1y follow-up from BL: p=0.052 (NS) in favor of G1 and G2 Post-hoc comparisons showed a significant difference between G1 and G2 (p=0.027) Percentage of participants who succeeded in improving or maintaining weight loss after treatment: G1: 44.4% G2: 40% G3: 10.5% G1 was significantly better after 1y in improving or maintaining weight loss after treatment than G3; OR 6.8, 95% CI 1.3-35.4, p=0.014 G2 was significantly better after 1y in improving or maintaining weight loss after treatment than G3; OR 5.7, 95% CI 1.09-31.5, p=0.035			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Cesa, 2013[12] (continued)			Participants achieving 5% weight loss G1: 55.6% G2: 50% G3: 31.6% no significant difference across groups, p=NR, NS 1y BMI G1: 36.6 (SD 5) G2: 39 (SD 3.6) G3: 40.9 (SD 6) p= 0.015 (p estimation across groups at each time point) "Statistically significant differences in... BMI median scores at follow-up were found across the 3 groups in favor of G1." Significance of percentage BMI reduction at 1y follow-up from BL: p=0.052 in favor of G1 and G2 Post-hoc comparisons showed a significant difference between G1 and G2 (p=0.027)			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Compare, 2013[13]	Weight loss at least 5%	G1: NR G2: NR G3: NR p=NR, NS	ITT Posttreatment ≥5% weight reduction, %, propensity-adjusted OR (95% CI) G1: 44.4%, OR ref G2: 61.9%, OR 2.03 (0.99-4.14) G3: 74.6% OR 3.71 (1.73-7.93) G2 vs. G3 (G2 ref): OR 1.82 (0.85-3.92) As treated Posttreatment ≥5% weight reduction, %, propensity-adjusted OR (95% CI) G1: 60.9%, OR ref G2: 70.9%, OR 1.57 (0.68-3.61) G3: 74.6%, 1.88 (0.82-4.28) G2 vs. G3 (G2 ref): OR 1.20 (0.53-2.72) ITT 6m ≥5% weight reduction, %, propensity-adjusted OR (95% CI) G1: 36.5%, OR ref G2: 79.4%, OR 6.77 (3.04-15.08) G3: 85.7%, OR 10.87 (4.49-26.35) G2 vs. G3 (G2 ref): OR 1.60 (0.63-4.10)	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Compare, 2013[13] (continued)			As treated ≥5% weight reduction, %, propensity-adjusted OR (95% CI) G1: 50.0%, OR ref G2: 90.9%, 9.99 (3.37-29.62) G3: 85.7%, OR 6.01 (2.40-15.04) G2 vs. G3 (G2 ref): OR 0.60 (0.19-1.93)			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
De Zwaan, 2005[14]	Weight (lbs.) Percentage of initial weight lost following VCLD N of patients who lost ≥10% of initial body weight Early substantial weight regain (i.e., regaining ≥50% of lost weight after VCLD) BMI (kg/m^2)	Mean weight (SD) (lbs.) Overall: NR G1: 217.3 (24.8) G2: 214.9 (27.9) p = NS Mean BMI (SD) (range) (kg/m^2) Overall: 36.1 (NR) (29.2-46.7) G1: 36.6 (3.2) G2: 35.7 (4.2) p = NS	Weight (lbs.): mean (SD) 12 weeks, ITT analysis G1: 188.3 (25.5) G2: 182.6 (25.1) p = <0.01 18 weeks, ITT analysis G1: 182.7 (26.6) G2: 179.1 (23.9) p = 0.17 24 weeks, ITT analysis G1: 183.1 (29.3) G2: 178.6 (25.0) p = 0.06 28 weeks (1 mo fu), ITT analysis G1: 182.2 (32.5) G2: 176.6 (23.4) p = NR 48 weeks (6 mo fu), ITT analysis G1: 196.8 (35.5) G2: 196.9 (30.8) p = .97 72 weeks (12 mo fu), ITT analysis G1: 204.9 (31.8) G2: 202.7 (30.3) p = .86	NR	NR	NR

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
De Zwaan, 2005[14] (continued)			Percentage of initial weight lost following VCLD (%) 24 weeks only, ITT analysis G1: 15.8 G2: 16.6 p = NS Percentage of patients who lost ≥10% of initial body weight (%) 72 weeks only, ITT analysis G1: NR G2: NR p = NS Percentage of patients experiencing early substantial weight regain (i.e., regaining ≥50% of lost weight after VCLD) (%) 48 weeks only, completers analysis (n=60) G1: 39.2 G2: 56.3 p = 0.19 BMI (kg/m^2): mean (SD)			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
De Zwaan, 2005[14] (continued)			12 weeks, ITT analysis G1: 31.7 (3.9) G2: 30.3 (3.9) p = <0.01 18 weeks, ITT analysis G1: 30.7 (3.6) G2: 29.8 (3.9) p = 0.96 24 weeks, ITT analysis G1: 30.7 (4.1) G2: 29.7 (4.2) p = 0.12 28 weeks, ITT analysis G1: 30.6 (4.3) G2: 29.1 (3.8) p = NR 48 weeks, ITT analysis G1: 32.8 (5.1) G2: 32.6 (5.0) p = NS 72 weeks, ITT analysis G1: 34.4 (4.3) G2: 33.8 (4.9) p = NS			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Dingemans, 2007[15]	NA	NA	NA	NA	NA	NA
Eldredge, 1997[16]	BMI	G1: 36.33 G2: 44.58	12wk G1: 36.29 G2: 44.73 Treatment condition effect F=5.38, p=0.03 Text reports "Neither group experienced a significant change in BMI," but table 1 seems to indicate that there is a significant difference between groups (p=0.03).	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Gorin, 2003[17]	BMI	BMI (m,sd) G1: 38.72 (8.78) G2: 40.51 (8.29) G3: 39.37 (7.53) (P = NS)	BMI (m,sd) Endpoint: G1: 38.65 (8.51) (P = NR) G2: 40.37 (8.33) (P = NR) G3: 39.73 (7.79) (P = NR) G1+G2 v G3 = p < .05 Difference between groups in change over time (P < .05) Follow-up (no data reported for waitlist grp): G1: 37.83 (8.84) (P = NR) G2: 39.74 (8.67) (P = NR) Difference between groups (P = NR) Difference between groups in change over time (P = NS)	NA	NA	NA
Grilo, 2013[18]	BMI (kg/m^2)	Mean BMI (SD) (kg/m^2) G1: 38.0 (5.4) G2: 37.2 (4.2) p = NS	BMI, mean (SD) 16 weeks, ITT analysis G1: 37.5 (5.3) G2: 37.4 (4.4) Effect size = 0.54 p = NR Group-by-time interaction p = 0.4	NR	NR	NR

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Grilo, 2014[19]	BMI Weight (pounds)	BMI G1: 36.5 (SD 5.3) G2: 39.3 (SD 5.5) Weight (pounds) G1: 229.6 (SD 41.9) G2: 244.5 (SD 41.4)	Posttreatment BMI G1: 35.9 (SD 5.6) G2: 39.6 (SD 5.7) Hand calculated p = .032 6m BMI G1: 35.3 (SD 5.2) G2: 38.8 (SD 5.1) Hand calculated p = .027 12m BMI G1: 35.4 (SD 5.9) G2: 39.5 (SD 5.9) Hand calculated p = .025 Posttreatment Weight (pounds) G1: 226.2 (SD 40.4) G2: 246.6 (SD 42.0) Hand calculated p = .102 6m Weight (pounds) G1: 223.4 (SD 40.4) G2: 239.9 (SD 38.0) Hand calculated p = .163 12m Weight (pounds) G1: 220.5 (SD 42.7) G2: 246.0 (SD 44.2) Hand calculated p = .057	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Grilo, 2011[20] Grilo, 2011[21]	BMI Weight (pounds) Weight loss (pounds) % BMI loss	BMI G1: 39.3 (6.1) G2: 38.0 (5.3) G3: 39.0 (6.1) Weight (pounds) G1: 250.1 (SD 52.6) G2: 242.7 (SD 45.8) G3: 237.2 (SD 42.8)	Post-treatment BMI G1: 38.5 (SD 5.7) G2: 35.7 (SD 5.9) G3: 38.9 (SD 6.2) 6m BMI G1: 38.7 (SD 5.7) G2: 36.6 (SD 6.8) G3: 38.2 (SD 5.3) 12m BMI G1: 38.3 (SD 6.0) G2: 36.6 (SD 6.5) G3: 38.7 (SD 5.6) Post-treatment Weight (pounds) G1: 248.5 (SD 49.3) G2: 221.1 (SD 43.4) G3: 230.4 (SD 40.9) Random intercept and slope model for the 3 groups on repeated measurements revealed a significant treatment-by-time interaction for weight (F=3.01, p=0.05) Tests of the slope differences indicated significantly faster improvements in G2 than G1 for weight (t=2.45, p=0.02) Intercept and slope models for G1&G2 revealed significant treatment-by-time interaction (F=5.53, p=0.02)	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Grilo, 2011[20] Grilo, 2011[21] (continued)			Post-hoc testing indicated that weight significantly decreased in G2 (t=-4.16, p<0.0001) but not in G1 (t=-0.97, p=0.33) 6m Weight (pounds) G1: 246.0 (SD 48.4) G2: 231.7 (SD 52.1) G3: 231.7 (SD 44.2) Mixed models analysis (considering baseline and post-treatment values) revealed significant time effects but no significant differences between the treatments for weight 12m Weight (pounds) G1: 243.4 (SD 50.6) G2: 230.6 (SD 49.1) G3: 229.9 (SD 39.0) Mixed models analysis (considering baseline and post-treatment values) revealed significant time effects but no significant differences between the treatments for weight			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Grilo, 2011[20] Grilo, 2011[21] (continued)			Post-treatment Weight loss (pounds) G1: 1.7 (SD 11.1) G2: 8.7 (SD 14.4) G3: 7.2 (SD 13.8) Random intercept and slope model for the 3 groups on repeated measurements revealed a non-significant treatment-by-time interaction for weight loss (F=1.95, p=0.15) Analyses indicated significant decreases in weight in G2 (t=-4.31, p<0.0001) and in G3 (t=2.46, p=0.02), but not in G1 (t=-0.99, p=0.32) There was significant absolute weight loss in G2 (t=3.56, p=0.0006) and G3 (t=2.57, p=0.01) but not in G1 (t=0.99, p=0.33). Tests of the slope differences indicated marginally significantly faster improvements in G2 than G1 for weight loss (t=-1.91, p=0.06).			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Grilo, 2011[20] Grilo, 2011[21] (continued)			Intercept and slope models for G1&G2 revealed trend treatment-by-time interaction (F=3.21, p=0.08) Post-hoc testing indicated that weight loss was significant in G2 (t=3.4, p=0.001) but not in G1 (t=0.99, p=0.33) 6m Weight loss (pounds) G1: 1.9 (SD 14.9) G2: 9.1 (SD 21.7) G3: 9.6 (SD 22.8) Mixed models analysis (considering baseline and post-treatment values) revealed significant time effects but no significant differences between the treatments for weight loss 12m Weight loss (pounds) G1: 3.1 (SD 18.7) G2: 5.4 (SD 21.2) G3: 6.2 (SD 24.5) between the groups			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Grilo, 2011[20] Grilo, 2011[21] (continued)			Mixed models analysis (considering baseline and post-treatment values) revealed significant time effects but no significant differences between the treatments for weight loss Post-treatment Percent BMI loss G1: -0.5 (SD 3.5) G2: -2.6 (SD 5.3) G3: -2.7 (SD 6.0) G2 had greater % BMI loss than G1, F=5.16, p=0.03 G3 had greater % BMI loss than G1, F=4.26, p=0.04 Random intercept and slope model: Treatment-by-time interaction at trend level (F=2.37, p=0.10) % BMI loss was significant in G2 (t=3.70, p0.0003) and in G3 (t=2.73, p=0.008) but not in G1 (t=0.88, p=0.38)			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Grilo, 2011[20] Grilo, 2011[21] (continued)			Tests of slope differences indicated improvement was significantly faster in G2 than G1 (t=2.08, p=0.04) during treatment. Intercept and slope models for G1&G2 revealed significant treatment-by-time interaction (F=3.82, p=0.05) Post-hoc testing indicated that % BMI loss was significant in G2 (t=3.54, p=0.0007) but not in G1 (t=0.90, p=0.37) 6m Percent BMI loss G1: -0.5 (SD 5.2) G2: -3.3 (SD 8.1) G3: -2.9 (SD 7.6) G2 had greater %BMI loss than G1 at a trend level, F=3.67, p=0.059			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Grilo, 2011[20] Grilo, 2011[21] (continued)			Random intercept and slope model: Mixed models analysis considering baseline and post-treatment values revealed significant time effects but no significant differences between the groups 12m Percent BMI loss G1: -0.9 (SD 6.7) G2: -2.1 (sd 8.5) G3: -1.5 (sd 7.4) Random intercept and slope model: Mixed models analysis considering baseline and post-treatment values revealed significant time effects but no significant differences			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Grilo, 2005[22] Masheb, 2007[23]	BMI	BMI mean (SD) G1: 33.4 (5.7) G2: 36.0 (6.6) G3: 36.2 (6.6) p=0.21	12wk BMI mean (SD) G1: 33.1 (5.8) G2: 34.5 (8.8) G3: 35.8 (7.0) Omnibus analysis p=0.570	NA	NA	NA
Hilbert, 2004[24]	Measure 1: Body Mass Index, Mean (SD)	Measure 1: Pretreatment G1: 34.0 (10.2) G2: 36.4 (10.4)	Measure 1: Posttreatment G1: 33.1 (10.4) G2: 37.2 (10.3) 4- month follow-up G1: 33.6 (11.0) G2: 36.4 (11.0) Repeated Measures (Analysis of time) F: 0.12 df: 2, 33 p: 0.810	NR	NR	NR
Le Grange, 2002[25]	BMI (kg/m^2)	Mean BMI (SD) (kg/m^2) G1: 35.5 (7.7) G2: 37.8 (8.2) p = <0.37	BMI, mean (SD) 12 weeks, ITT analysis G1: 36.2 (8.7) G2: 37.9 (8.4) p = >0.15 12 months, ITT analysis G1: 37.2 (9.3) G2: 39.9 (9.8) p = >0.15	NR	NR	NR

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Masheb, 2011[26]	BMI % of all participants who received at least 5% weight loss mean % weight loss	BMI G1: 39.2 (SD 6.9) G2: 39.0 (SD 6.5)	Change in BMI, BL to 6m, ITT analysis G1: 1.34 (SD 2.65) G2: 0.53 (SD 1.59) p=NR, NS Change in BMI, BL to 6m, completers G1: 1.77 (SD 2.80) G2: 0.55 (SD 1.65) p=NR, NS Change in BMI, BL to 12m, ITT analysis G1: 1.24 (SD 2.65) G2: 0.50 (SD 3.0) p=NR, NS Change in BMI, BL to 12m, completers G1: 1.59 (SD 2.86) G2: 0.52 (SD 3.13) p=NR, NS 6m ≥5% weight loss, ITT analysis G1: 32%, n=8 G2: 20%, n=5 chi-square=0.94, p=0.333 6m ≥5% weight loss, treatment completers G1 (n=20): 40%, n=8 G2 (n=23): 21.7%, n=5 chi-square=0.169, p=0.193	Total cholesterol HDL LDL Triglycerides (log-transformed) Waist circumference (inches) Systolic blood pressure Diastolic blood pressure	Total cholesterol G1: 201 (SE 6.3) G2: 193 (SE 6.3) HDL G1: 58 (SE 3.3) G2: 57 (SE 3.3) LDL G1: 119 (SE 5.4) G2: 110 (SE 5.4) Triglycerides G1: 4.7 (SE 0.1) G2: 4.8 (SE 0.1) Waist circumference G1: 45.7 (SE 1.4) G2: 47.2 (SE 1.4) Systolic blood press	6m Total cholesterol G1: 183 (SE 7.8) G2: 188 (SE 7.3) Time x treatment F=2.14, p=0.154 6m HDL G1: 56 (SE 3.4) G2: 56 (SE 3.4) Time x treatment F=0.71, p=0.408 6m LDL G1: 102 (SE 6.3) G2: 110 (SE 5.8) Time x treatment F=3.70, p=0.063 6m Triglycerides G

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Masheb, 2011[26] (continued)			12m ≥5% weight loss, ITT analysis G1: 28%, n=7 G2: 24%, n=6 chi-square=0.10, p=0.747 12m ≥5% weight loss, treatment completers G1 (n=20): 35%, n=7 G2 (n=23): 26%, n=6 chi-square=0.40, p=0.526 6m mean % weight loss, ITT analysis G1: 3.1% (SD 6.2) G2: 1.5% (SD 4.2) chi-square=NR, p=NR, NS 6m mean % weight loss, treatment completers G1 (n=20): 4.2% (SD 6.5) G2 (n=23): 1.6% (SD 4.5) chi-square=NR, p=NR, NS 12m mean % weight loss, ITT analysis G1: 2.8% (SD 6.1) G2: 1.4% (SD 7.6) chi-square=NR, p=NR, NS			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Masheb, 2011[26] (continued)			12m mean % weight loss, treatment completers G1 (n=20): 3.6% (SD 6.6) G2 (n=23): 1.4% (SD 7.9) chi-square=NR, p=NR, NS			
Masson, 2013[27]	NA	NA	NA	NA	NA	NA
Munsch, 2007[28] Munsch, 2012[29]	BMI	Munsch, Biedert, Meyer, et al., 2007[28]: BMI G1 (n=42): 33.66 (SD 4.31) G2 (n=33): 34.36 (SD 3.74)	Munsch, Biedert, Meyer, et al., 2007[28]: Post-treatment BMI, Completer G1 (n=30): 33.62 (SD 4.70) G2 (n=27): 33.08 (SD 3.69) chi-square=8.8, p=0.004 12m BMI, Completer G1 (n=23): 32.36 (SD 5.38) G2 (n=21): 33.62 (SD 3.99) chi-square=0.15, p=0.70 Post-treatment BMI, ITT G1 (n=44): 33.58 (SD 4.53) G2 (n=36): 32.29 (SD 4.00)	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Munsch, 2007[28] Munsch, 2012[29] (continued)			chi-square=17.5, p<0.001 12m BMI, ITT G1 (n=44): 33.10 (SD 5.04) G2 (n=36): 33.18 (SD 4.17) chi-square=2.3, p=0.13 Munsch, Meyer, Biedert, et al., 2012[29] 6y BMI G1: NR G2: NR G1 minus G2 posttreatment: 1.271 (0.457), effect size=0.67, p<0.01 G1 minus G2 6y: 0.342 (0.862), effect size=0.21, p=NR, NS			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Pendleton, 2001[30]	Change in BMI (mean, SD)	BMI Overall: 36.2 (SD 6.5, range 25.0-53.8) G1: NR G2: NR G3: NR G4: NR	Change in BMI: 4m G1: -1.04 (SD 2.1) G2: -0.46 (SD 1.3) G3: -0.11 (SD 1.2) G4: 0.77 (SD 1.3) G1,2,3,4: chi-square=NR, p=NR Exercisers (G1&G2): -0.77 (SD 1.7) Non-exercisers (G3&G4): 0.26 (SD 1.3) Exercisers (G1&G2) vs. non-exercisers (G3&G4): F=NR, p=NR Maintenance (G1&G3): -0.57 (SD 1.7) No maintenance (G2&G4): 0.10 (SD 1.4) Maintenance (G1&G3) vs. no maintenance (G2&G4): F=NR, p=NR Change in BMI: 10m G1: -2.53 (SD 4.0) G2: -0.12 (SD 16) (this SD may be a typo for 1.6) G3: -0.83 (SD 2.4) G4: 0.54 (SD 2.0) G1,2,3,4: chi-square=NR, p=NR	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Pendleton, 2001[30] (continued)			Exercisers (G1&G2): -1.41 (SD 3.3) Non-exercisers (G3&G4): -0.25 (SD 2.3) Exercisers (G1&G2) vs. non-exercisers (G3&G4): F=NR, p=NR Maintenance (G1&G3): -1.68 (SD 3.4) No maintenance (G2&G4): 0.18 (SD 1.8) Maintenance (G1&G3) vs. no maintenance (G2&G4): F=NR, p=NR Change in BMI: 16m G1: -2.26 (SD 3.9) G2: -0.75 (SD 2.4) G3: -0.24 (SD 3.0) G4: 1.33 (SD 2.0) G1,2,3,4: chi-square=NR, p=NR Exercisers (G1&G2): -1.58 (SD 3.3) Non-exercisers (G3&G4): 0.42 (SD 2.7) Exercisers (G1&G2) vs. non-exercisers (G3&G4): F=NR, p=NR			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Pendleton, 2001[30] (continued)			Maintenance (G1&G3): -1.25 (SD 3.6) No maintenance (G2&G4): 0.22 (SD 2.4) Maintenance (G1&G3) vs. no maintenance (G2&G4): F=NR, p=NR Repeated measures ANOVAs: Exercisers (G1&G2) vs. non-exercisers (G3&G4): F=8.77, p=0.004 Maintenance (G1&G3) vs. no maintenance (G2&G4): F=8.03, p=0.006 G1 vs. G4: F=6.34, p=0.001 Analyses indicated no interaction effect between exercise and maintenance			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Peterson, 1998[31] Peterson, 2001[32]	Measure 1: BMI	Peterson, 1998 NR Peterson, 2001 Measure 1: baseline G1: 32.6 (8.2) G2: 35.8 (8.0) G3: 33.6 (7.0)	Peterson, 1998 Measure 1: Group difference F (3, 43): 2.01 p: 0.127 Peterson, 2001 Measure 1: Posttreatment G1: 32.5 (8.9) G2: 36.2 (5.5) G3: 32.4 (7.2) 1 month G1: 31. 5(9.0) G2: 35.8 (5.7) G3: 33.3 (7.6) 6 month G1: 30.2 (7.7) G2: 36.2 (6.5) G3: 32.0 (8.6) 12 month G1: 31.2 (7.9) G2: 35.8 (7.0) G3: 32.8 (7.4) Time and Group x Time interaction: NR, NS	NR	NR	NR

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Peterson, 2009[33]	BMI (kg/m^2)	BMI: mean (SD) Overall: 39.0 (7.8) G1: 38.2 (7.2) G2: 40.7 (8.8) G3: 39.2 (8.3) G4: 38.1 (6.9) p = NS	NOTE: Ns and p values NR for all completers analyses at all post-treatment and follow-up timepoints BMI: mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 39.1 (10.6) G2: 40.8 (8.5) G3: 40.8 (11.7) G4: 38.3 (7.4) p = NS (adjusted for baseline value, site, and sex) 6m follow-up (44 weeks post-baseline): ITT analysis G1: 39.5 (14.8) G2: 40.6 (8.9) G3: 39.8 (10.0) G4: NA p = NS (adjusted for baseline value, site, and sex) 12m follow-up (72 weeks post-baseline): ITT analysis G1: 38.7 (10.6) G2: 40.4 (8.9) G3: 38.3 (8.5) G4: NA p = NS (adjusted for baseline value, site, and sex)	NR	NR	NR

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Ricca, 2010[34]	BMI Weight loss >5% of initial BMI Weight loss >10% of initial BMI	BMI, median (quartiles) G1: 38.0 (32.7, 43.2) G2: 38.2 (33.3, 42.1)	Posttreatment BMI, median (quartiles), p for within-group change BL to posttreatment G1: 36.5 (32.1, 42.3) G2: 37.4 (32.0, 40.1) 3y BMI, median (quartiles), p for within-group change posttreatment to 3y G1: 36.0 (31.0, 42.7) G2: 37.0 (31.9, 41.8) BMI, repeated measures ANOVA for between-group comparison with covariate age F= 0.11 p=0.91 Posttreatment Weight loss >5% of initial BMI G1: 22 (30.6%) G2: 18 (25.0%) p=NR, NS 3y Weight loss >5% of initial BMI G1: 27 (37.5%) G2: 23 (31.9%) p=NR, NS Posttreatment Weight loss >10% of initial BMI G1: 8 (11.1%) G2: 6 (8.3%) p=NR, NS	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Ricca, 2010[34] (continued)			3y Weight loss >10% of initial BMI G1: 13 (18.1%) G2: 12 (16.7%) p=NR, NS			
Riva, 2002[35]	NA	NA	NA	NA	NA	NA
Riva, 2003[36]	Weight (kg)	G1: 103.7 (SD 17.2) G2: 109.3 (SD 10.5) G3: 103.8 (SD 21.3) G4: NR	Posttreatment Weight (kg) mean, within-group change p-value G1: 97.2 (SD 15.6), p=NR, significant improvement G2: 102.1 (SD 9.14), p=NR, significant improvement G3: 103.8 (SD 21.3), p=NR, significant improvement G4: NR, p=NR No significant between-group differences 6m Weight (kg) G1: NR, "No differences were found.... all of the sample weighed 0.5-1.5kg more at the end of the treatment" G2: NR, "No differences were found.... all of the sample weighed 0.5-1.5kg more at the end of the treatment" G3: NR, "No differences were found.... all of the sample weighed 0.5-1.5kg more at the end of the treatment" G4: NR	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	Measure 1: Weight (lb) Measure 2:Body Mass Index, Mean (SD)	Measure 1: baseline G1: 216.19 (54.71) G2: 224.03 (55.29) Measure 2: baseline G1: 35.84 (9.35) G2: 39.90 (7.89)	Measure 1: Posttreatment G1: 212.61 (52.60) G2:221.87 (53.19) 12 month FU G1: 213.23 (52.73) G2: 221.61 (54.89) effect size posttreatment: 0.12 effect size 12 month FU: 0.16 Measure 2: Posttreatment G1: 35.13 (9.03) G2: 36.65 (7.64) 12 month FU G1: 35.29 (9.07) G2: 36.45 (7.53) effect size posttreatment: 0.13 effect size 12 month FU: 0.14	NR	NR	NR
Schlup, 2009[40]	BMI	BMI 32.97	BMI (mean difference) G1: 0.01 G2: 0.42 p=0.08	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Schlup, 2010[41]	BMI	Means denote estimates from a linear mixed model or generalized linear mixed model. Values were back-transformed if necessary. G1: 33.14 G2: 33.36 Effect size: 0.04 p=0.87	Means denote estimates from a linear mixed model or generalized linear mixed model. Values were back-transformed if necessary. End of treatment BMI G1: 33.13 G2: 33.15 Effect size: 0.005 p=0.98 12m BMI G1: 32.24 G2: 32.63 Effect size: 0.06 p=0.79	NA	NA	NA
Tasca, 2006[42] Tasca, 2012[43]	BMI	Baseline G1: 40.03 (SD 9.69) G2: 42.59 (SD 12.95) G3: 42.58 (SD 9.57)	Post-treatment G1: 39.85 (SD 9.37) G2: 42.65 (SD 12.82) G3: 41.63 (SD 9.57) G2 vs. G3 Hierarchical linear modeling (HLM) coefficient: 0.71 ; t-value: 0.80 G1 vs. G3 Hierarchical linear modeling (HLM) coefficient: 0.24; t-value: 0.28	none	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Tasca, 2006[42] Tasca, 2012[43] (continued)			G2 vs. G1 Hierarchical linear modeling (HLM) coefficient: -0.46; t-value:-0.55 6m G1: 38.09 (SD 8.75) G2: 41.32 (SD 13.06) G3: (6m and 12m not measured for control group) 12m G1: 37.67 (SD 8.93) G2: 41.02 (SD 12.61) G3: (6m and 12m not measured for control group) Linear modeling coefficients: 1.35; t-value: 0.56, p=NR Treatments modeling: -1.10; t-value: -0.75, p=NR Quadratic modeling coefficients: -0.29; t-value: -0.59, p=NR Treatments modeling: 0.14; t-value: 0.30, p=NR			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Telch, 2001[44]	Weight (lbs)	Wt, lbs (M,SD): G1: 214.7 (49.8) G2: 223.4 (37.1) (P = NS	Wt, lbs (M,SD): G1: 209.2 (49.0) (P = NR) G2: 223.8 (37.6) (P = NR) Diff between groups (P = NR) Diff between groups in change over time (P = 0.130)	NA	NA	NA
Wilfley, 2002[45] Hilbert, 2012[46]	BMI	Wilfley, Welch, Stein, et al., 2002[45]: G1: 37.4 (5.3) G2: 37.4 (5.1) Hilbert, Bishop, Stein, et al., 2012[46] BMI G1: 37.94 (SD 0.82) G2: 36.58 (SD 0.82)	Wilfley, Welch, Stein, et al., 2002[45]: "All other secondary outcomes showed a significant improbelemtn from pre-treatment to post-treatment (linear time effects, all p-values <0.001) except for BMI, which remained stable during the course of treatment." Post-treatment G1: 37.5 (SD 5.3) G2: 37.2 (SD 5.2) No significant GEE main effects of time (p=0.19) or treatment (p=0.98) and no significant interaction (p=0.97) for pretreatment to post-treatment (i.e., stable during the course of treatment).	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Wilfley, 2002(#499) Hilbert, 2012[46] (continued)			4-month G1: 37.4 (SD 5.3) G2: 36.6 (SD 5.3) 8-month G1: 37.5 (SD 5.1) G2: 36.4 (SD 5.5) 12-month G1: 37.2 (SD 5.1) G2: 36.3 (SD 5.4) The GEE linear main effect of time (p=0.008) indicates a decrease during the follow-up period. Hilbert, Bishop, Stein, et al., 2012[46] ITT Post-treatment BMI G1: 37.97 (SD 0.83) G2: 36.82 (SD 0.82) ITT 1y BMI G1: 37.61 (SD 0.85) G2: 36.47 (SD 0.83) ITT Long-term BMI G1: 37.36 (SD 0.89) G2: 35.90 (SD 0.86) ITT GEE treatment effect BMI F=1.34 p=0.250 ITT GEE time effect BMI F=0.92 p=0.433 ITT GEE treatment x time effect BMI F=0.16 p=0.921			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Wilson, 2010[47] Sysko, 2010[48]	BMI Weight (kg) 5% reduction in body weight Mean change in body weight	BMI G1: 36.8 (SD 5.5) G2: 36.2 (SD 4.3) G3: 36.3 (SD 5.1) Weight G1: 103.5 (SD 22.6) G2: 100.3 (SD 14.0) G3: 100.4 (SD 18.6) 5% Reduction in weight (%) G1: 0% G2: 0% G3: 0%	Post-treatment BMI G1: 35.4 (SD 5.7) G2: 36.1 (SD 4.4) G3: 35.9 (SD 5.3) Mean change: NR; G1 was significantly more effective in reducing BMI than G2 and G3, F=6.6 G1 vs. G2, d=0.741 G1 vs. G3, d=0.48 G2 vs. G3, d=0.15 p<0.005 1y BMI G1: 36.0 (SD 6.2) G2: 35.7 (SD 4.9) G3: 35.9 (SD 5.4) Mean change: NR; G1 showed significantly more BMI gain than G2, F=3.1 G1 vs. G2: d=0.52 G1 vs. G3: d=0.29 G1 vs. G3: d=0.20 p<0.05 2y BMI G1: 36.3 (SD 6.2) G2: 35.7 (SD 5.0) G3: 36.1 (SD 5.5) Mean change: p=NR, no results reported for the analysis of 2y BMI	NA	NA	NA

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Wilson, 2010[47] Sysko, 2010[48] (continued)			Post-treatment Weight G1: 99.8 (SD 23.2) G2: 100.0 (SD 14.1) G3: 99.1 (SD 18.3) Mean change: p=NR, no results reported for the analysis of post-treatment weight 1y Weight G1: 101.7 (SD 25.2) G2: 98.8 (SD 15.1) G3: 99.3 (SD 19.0) Mean change: NR p=NR, no results reported for the analysis of 1y weight 2y Weight G1: 102.1 (SD 24.6) G2: 99.3 (SD 15.6) G3: 99.5 (SD 18.7) Mean change: p=NR, NS, "G1 was no longer significantly different from the other treatments in terms of weight loss." Post-treatment 5% reduction in weight G1: 41% G2: 15% G3: 15%			

Evidence Table 26. Binge eating disorder behavioral treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Wilson, 2010[47] Sysko, 2010[48] (continued)			Mean change: NR; G1 produced a greater number of patients with a 5% reduction in body weight than G2 and G3 F=8.3 G1 vs. G2 OR: 3.9 G1 vs. G3 OR: 3.9 p<0.001 1y 5% reduction in weight G1: 27% G2: 26% G3: 21% Mean change:NR p=NR, , no results reported for the analysis of 1y reduction in weight 2y 5% reduction in weight G1: 27% G2: 23% G3: 21% Mean change: NR p=NR, NS, "G1 was no longer significantly different from the other treatments in terms of weight loss."			

Evidence Table E27. Binge eating disorder behavioral treatment – part 9

First Author's Last Name Year	Definition of Quality of Life	Quality of Life Baseline	Quality of Life Outcomes	Definition of Functional Capacity	Functional Capacity Baseline	Functional Capacity Outcomes
Agras, 1995[5]	NA	NA	NA	NA	NA	NA
Allen, 1999[6]	NA	NA	NA	NA	NA	NA
Carrard, 2011[7]	Impact of Weight on QOL Short Form (IWQOL-Lite total score)	G1: 66.9 (15.3) G2: 71.6 (16.3)	6m G1: 71.7 (16.7) G2: 71.8 (18.0) Mean Between-group difference (95% CI): NR p = 0.041 1y G1: 78.2 (14.8) G2: 76.0 (20.2) Mean Between-group difference (95% CI): NR p <0.001	NA	NA	NA
Carter, 1998[8]	NA	NA	NA	NA	NA	NA
Cassin, 2008[9]	Extended Satisfaction with Life Scale (ESWLS)	ESWLS 1. General life G1: 16.5 (7.8) G2: 17.1 (8.0) 2. Social life G1: 14.1 (8.0) G2: 15.8 (8.5) 3. Sex life G1: 12.0 (8.0) G2: 13.5 (8.7) 4. Self G1: 14.1 (6.5) G2: 16.0 (6.9) 5. Physical appearance G1: 7.1 (3.9) G2: 8.7 (4.9)	F stat calculated using repeated measures split-plot analysis of variance (i.e. did the experimental group change more over time than the control?) 16 week Follow Up ESWLS 1. General life G1: 21.9 (8.4) G2: 19.6 (8.4) F = 6.22, (p <0.05) 2. Social life G1: 18.5 (8.9) G2: 18.5 (10.3) F = 1.70, (p = NS)	None	None	None

Evidence Table E27. Binge eating disorder behavioral treatment – part 9 (continued)

First Author's Last Name Year	Definition of Quality of Life	Quality of Life Baseline	Quality of Life Outcomes	Definition of Functional Capacity	Functional Capacity Baseline	Functional Capacity Outcomes
Cassin, 2008[9] (continued)		6. Family G1: 19.5 (8.8) G2: 18.4 (10.1) 7. Relationships G1: 17.5 (10.1) G2: 19.2 (9.3)	3. Sex life G1: 15.9 (9.3) G2: 15.3 (9.1) F = 2.06, (p = NS) 4. Self G1: 20.4 (8.3) G2: 19.4 (7.5) F = 5.95, (p < 0.05) 5. Physical appearance G1: 10.6 (6.6) G2: 10.2 (6.0) F = 3.05, (p = NS) 6. Family G1: 23.8 (8.6) G2: 20.9 (9.3) F = 1.93, (p = NS) 7. Relationships G1: 22.1 (9.2) G2: 20.6 (9.2) F = 3.61, (p = NS)			
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	NA	NA	NA	NA	NA	NA
Cesa, 2013[12]	NA	NA	NA	NA	NA	NA
Compare, 2013[13]	NA	NA	NA	NA	NA	NA
De Zwaan, 2005[14]	NR	NR	NR	NR	NR	NR
Dingemans, 2007[15]	NA	NA	NA	NA	NA	NA
Eldredge, 1997[16]	NA	NA	NA	NA	NA	NA
Gorin, 2003[17]	NA	NA	NA	NA	NA	NA
Grilo, 2013[18]	NR	NR	NR	NR	NR	NR
Grilo, 2014[19]	NA	NA	NA	NA	NA	NA
Grilo, 2011[20] Grilo, 2011[21]	NA	NA	NA	NA	NA	NA
Grilo, 2005[22] Masheb, 2007[23]	NA	NA	NA	NA	NA	NA
Hilbert, 2004[24]	NR	NR	NR	NR	NR	NR

Evidence Table 27. Binge eating disorder behavioral treatment – part 9 (continued)

First Author's Last Name Year	Definition of Quality of Life	Quality of Life Baseline	Quality of Life Outcomes	Definition of Functional Capacity	Functional Capacity Baseline	Functional Capacity Outcomes
Le Grange, 2002[25]	NR	NR	NR	NR	NR	NR
Masheb, 2011[26]	NA	NA	NA	NA	NA	NA
Masson, 2013[27]	Eating Disorder Quality of Life Scale (EDQLS)	Eating Disorder Quality of Life Scale (EDQLS) G1: 118.93 (21.13) G2: 117.03 (SD 17.62) Effect size d=-0.10	Posttreatment Eating Disorder Quality of Life Scale (EDQLS) G1: 137.30 (SD 23.51) G2: 117.17 (SD 17.70) Effect size d=0.98 Between group comparison B=18.81, SE 4.12, t=4.56, p<0.05 (95% CI 10.55, 27.07; sr2=0.27)	NA	NA	NA

Evidence Table 27. Binge eating disorder behavioral treatment – part 9 (continued)

First Author's Last Name Year	Definition of Quality of Life	Quality of Life Baseline	Quality of Life Outcomes	Definition of Functional Capacity	Functional Capacity Baseline	Functional Capacity Outcomes
Munsch, 2007[28] Munsch, 2012[29]	Munsch, Biedert, Meyer, et al., 2007[28]: General self-efficacy scale -Jerusalem M, Schwarzer R. Skala zur Allgemeinen Selbstwirksamkeits erwartung (SWE). In: Schwarzer R, Jerusalem M, editors. Skalen zur Erfassung von Lehrer- und Schulermerkmalen. Dok	Munsch, Biedert, Meyer, et al., 2007[28]: Self-efficacy: G1 (n=39): 28.08 (SD 4.87) G2 (n=30): 26.03 (SD 5.74) Life satisfaction: G1 (n=39): 4.94 (SD 2.80) G2 (n=27): 5.13 (SD 2.93)	Munsch, Biedert, Meyer, et al., 2007[28]: 6m Self-efficacy, Completers G1 (n=32): 29.78 (SD 4.21) G2 (n=27): 28.85 (SD 4.11) F=0.53, p=0.49 12m Self-efficacy, Completers G1 (n=23): 31.91 (SD 4.81) G2 (n=21): 29.90 (SD 4.10) F=3.02, p=0.09 6m Life satisfaction, Completers G1 (n=25): 6.10 (SD 3.07) G2 (n=23): 5.55 (SD 2.97) F=0.62, p=0.81 12m Life satisfaction, Completers G1 (n=22): 7.81 (SD 3.92) G2 (n=20): 5.92 (SD 3.41) F=0.24, p=0.63	NA	NA	NA

Evidence Table 27. Binge eating disorder behavioral treatment – part 9 (continued)

First Author's Last Name Year	Definition of Quality of Life	Quality of Life Baseline	Quality of Life Outcomes	Definition of Functional Capacity	Functional Capacity Baseline	Functional Capacity Outcomes
Pendleton, 2001[30]	NA	NA	NA	NA	NA	NA
Peterson, 1998[31] Peterson, 2001[32]	NR	NR	NR	NR	NR	NR
Peterson, 2009[33]	IWQOL-Lite 24-item scale: Total score	IWQOL-Lite Total score: mean (SD) G1: 53.3 (21.4) G2: 52.0 (20.3) G3: 53.4 (17.5) G4: 55.3 (18.7) p = NS	NOTE: Ns and p values NR for all completers analyses at all post-treatment and follow-up timepoints IWQOL-Lite: Total score, mean (SD) Post-treatment (20 weeks post-baseline): ITT analysis G1: 58.6 (21.2) G2: 58.5 (21.4) G3: 58.7 (18.4) G4: 57.0 (18.1) p = NS (adjusted for baseline value, site, and sex) 6m follow-up (44 weeks post-baseline): ITT analysis G1: 60.3 (23.1) G2: 58.8 (21.8) G3: 60.1 (18.1) G4: NA p = NS (adjusted for baseline value, site, and sex)	NR	NR	NR

Evidence Table 27. Binge eating disorder behavioral treatment – part 9 (continued)

First Author's Last Name Year	Definition of Quality of Life	Quality of Life Baseline	Quality of Life Outcomes	Definition of Functional Capacity	Functional Capacity Baseline	Functional Capacity Outcomes
Peterson, 2009[33] (continued)			12m follow-up (72 weeks post-baseline): ITT analysis G1: 58.3 (22.8) G2: 57.6 (22.1) G3: 58.1 (20.7) G4: NA p = NS (adjusted for baseline value, site, and sex)			
Ricca, 2010[34]	NA	NA	NA	NA	NA	NA
Riva, 2002[35]	NA	NA	NA	NA	NA	NA
Riva, 2003[36]	NA	NA	NA	NA	NA	NA
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	NR	NR	NR	NR	NR	NR
Schlup, 2009[40]	SWE (self-efficacy) FLZ (life satisfaction)	SWE 27.33 FLZ 3.08	SWE (mean difference) G1: 0.12 G2: 0.96 p=0.395 FLZ (mean difference) G1: 0.95 G2: -0.01 p=0.297	NA	NA	NA

Evidence Table 27. Binge eating disorder behavioral treatment – part 9 (continued)

First Author's Last Name Year	Definition of Quality of Life	Quality of Life Baseline	Quality of Life Outcomes	Definition of Functional Capacity	Functional Capacity Baseline	Functional Capacity Outcomes
Schlup, 2010[41]	NA	NA	NA	NA	NA	NA
Tasca, 2006[42] Tasca, 2012[43]	NA	NA	NA	none	NA	NA
Telch, 2001[44]	NA	NA	NA	NA	NA	NA
Wilfley, 2002(#499) Hilbert, 2012[46]	NA	NA	NA	Inventory of Interpersonal Problems (IIP) Social Adjustment Scale (SAS)	IIP G1: 1.2 (SD 0.6) G2: 1.2 (SD 0.6) SAS G1: 2.1 (SD 0.5) G2: 2.1 (SD 0.6)	"All other secondary outcomes showed a significant improbelemtn from pre-treatment to post-treatment (linear time effects, all p-values <0.001) except for BMI, which remained stable during the course of treatment." IIP Post-treatment G1: 1.0 (SD 0.6) G2:
Wilson, 2010[47] Sysko, 2010[48]	NA	NA	NA	NA	NA	NA

Evidence Table E28. Binge eating disorder behavioral treatment – part 10

First Author's Last Name Year	Definition of Other	Other Baseline	Other Outcomes
Agras, 1995[5]	NA	NA	NA
Allen, 1999[6]	NA	NA	NA
Carrard, 2011[7]	NA	NA	NA
Carter, 1998[8]	Knowledge of the educational content of Overcoming Binge Eating, assessed by a 15-item true-false questionnaire before and after treatment	G1: 4.8 (2.8) G2: 4.6 (2.5) G3: 4.8 (3.1)	After treatment Mean (SD) G1: 9.7 (2.6) G2: 8.9 (3.5) G3: 5.4 (3.3)
Cassin, 2008[9]	NA	NA	NA
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	NA	NA	NA
Cesa, 2013[12]	NA	NA	NA
Compare, 2013[13]	NA	NA	NA
De Zwaan, 2005[14]	Multidimensional Personality Questionnaire (MPQ): Control/Impulsivity subscale	NR	No quantitative data reported for any of the three measures used to measure general psychopathology. Reason given by authors: "Because of missing data, particularly during the follow-up period, detailed statistical analyses were not conducted. The overall
Dingemans, 2007[15]	NA	NA	NA
Eldredge, 1997[16]	NA	NA	NA
Gorin, 2003[17]	NA	NA	NA
Grilo, 2013[18]	Knowledge Questionnaire	Knowledge Questionnaire, mean (SD) G1: 3.3 (1.9) G2: 3.4 (2.1) p = 0.81	Knowledge Questionnaire, mean (SD) 16 weeks, ITT analysis G1: 4.6 (1.9) G2: 3.8 (2.0) p = 0.14

Evidence Table E28. Binge eating disorder behavioral treatment – part 10 (continued)

First Author's Last Name Year	Definition of Other	Other Baseline	Other Outcomes
Grilo, 2014[19]	NA	NA	NA
Grilo, 2011[20] Grilo, 2011[21]	NA	NA	NA
Grilo, 2005[22] Masheb, 2007[23]	NA	NA	NA
Hilbert, 2004[24]	NR	NR	NR
Le Grange, 2002[25]	NR	NR	NR
Masheb, 2011[26]	Dietary outcomes, per 2 random 24h recall interviews over a 2wk period -Energy density -Energy intake (kcal) -Fruit and vegetable servings -Fat intake -Hunger (visual analog scale) (completed 1.5h after evening meal) -Satiety (visual analog scale) (comple	Energy density G1: 1.2 (SE 0.1) G2: 1.2 (SE 0.1) Energy intake (kcal) G1: 2844 (SE 259) G2: 2950 (SE 259) Fruit and vegetable servings G1: 3.7 (SE 0.5) G2: 5.2 (SE 0.5) Fat intake G1: 120.9 (SE 11.0) G2: 131.2 (SE 11.0) Hunger (visual analog scale) G	6m Energy density G1: 0.8 (SE 0.1) G2: 1.0 (SE 0.1) Time x treatment F=5.17, p=0.029 6m Energy intake (kcal) G1: 1674 (SE 128) G2: 1912 (SE 132) Time x treatment F=0.15, p=0.700 6m Fruit and vegetable servings G1: 7.0 (SE 0.6) G2: 5.0 (SE 0.6) Time x tr
Masson, 2013[27]	NA	NA	NA
Munsch, 2007[28] Munsch, 2012[29]	NA	NA	NA

Evidence Table 28. Binge eating disorder behavioral treatment – part 10 (continued)

First Author's Last Name Year	Definition of Other	Other Baseline	Other Outcomes
Pendleton, 2001[30]	Hours of self-reported physical activity	Hours of self-reported physical activity: Overall: NR G1: 2.2 (SD 2.7) G2: 2.6 (SD 2.8) G3: 2.8 (SD 3.3) G4: 1.9 (SD 2.5) No between-group differences at BL Exercisers (G1&G2): 2.4 (SD 2.7) Non-exercisers (G3&G4): 2.4 (SD 2.9) Maintenance (G1&G3): 2.5 (SD	4m Hours of self-reported physical activity: Overall: NR G1: 4.3 (SD 2.6) G2: 5.2 (SD 3.2) G3: 2.9 (SD 3.1) G4: 2.3 (SD 2.0) G1,2,3,4: NR Exercisers (G1&G2): 4.7 (SD 2.8) Non-exercisers (G3&G4): 2.6 (SD 2.6) Exercisers (G1&G2) vs. non-exercisers (G3&G4):
Peterson, 1998[31] Peterson, 2001[32]	NR	NR	NR
Peterson, 2009[33]	NA	NA	NA
Ricca, 2010[34]	NA	NA	NA
Riva, 2002[35]	University of Rhode Island Change Assessment Scale (URICA) -total score -precontemplation -contemplation -action -maintenance	URICA-total score G1: 107.30 G2: 116.40 URICA-precontemplation G1: 12.30 G2: 13.70 URICA-contemplation G1: 34.40 G2: 36.80 URICA-action G1: 31.60 G2: 34.00 URICA-maintenance G1: 29.00 G2: 31.90	URICA-total score G1: 112.50 G2: 114.20 G1 Mean difference before and after treatment:-5.20 G2 Mean difference before and after treatment:2.20 G1 before-after p=0.032 G2 before-after p=NS Between-group mean difference p=0.023 URICA-precontemplation G1: 1
Riva, 2003[36]	NA	NA	NA

Evidence Table 28. Binge eating disorder behavioral treatment – part 10 (continued)

First Author's Last Name Year	Definition of Other	Other Baseline	Other Outcomes
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	Measure 1: Rosenberg Self-Esteem Scale Measure 2: Disorders of Emotion Regulation (DERS) Measure 3: Positive and Negative Affect Scale (PANAS) - Poistive Measure 4: Postive and Negative Affect Scale (PANAS) - Negative	Measure 1: baseline G1: 25.72 (6.62) G2: 27.31 (5.59) Measure 2: baseline G1: 98.24 (20.80) G2: 94.08 (19.05) Measure 3: baseline G1: 25.04 (8.35) G2: 27.16 (6.91) Measure 4: baseline G1: 26.08 (9.45) G2: 24.82 (7.94)	NR
Schlup, 2009[40]	NA	NA	NA
Schlup, 2010[41]	NA	NA	NA
Tasca, 2006[42] Tasca, 2012[43]	none	NA	NA
Telch, 2001[44]	NA	NA	NA
Wilfley, 2002[45] Hilbert, 2012[46]	Hilbert, Bishop, Stein, et al., 2012[46] Health utilization: received treatment for eating or weight problems -any -psychotherapy -pharmacotherapy -consultation -alternative treatment	Hilbert, Bishop, Stein, et al., 2012[46] Between 1y and long-term follow-up: Health utilization-any G1: NR G2: NR Between 1y and long-term follow-up: Health utilization-psychotherapy G1: NR G2: NR Between 1y and long-term follow-up: Health utilization-	Hilbert, Bishop, Stein, et al., 2012[46] Between 1y and long-term follow-up: Health utilization-any G1: 80.0% G2: 84.4% Between 1y and long-term follow-up: Health utilization-psychotherapy G1: 44.0% G2: 37.5% Between 1y and long-term follow-up: Health
Wilson, 2010[47] Sysko, 2010[48]	NA	NA	NA

Evidence Table E29. Binge eating disorder behavioral treatment – part 11

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Agras, 1995[5]	Overall: 8; two of which dropped out before treatment began (group assignment NR) G1: 5 G2: 1 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Allen, 1999[6]	Overall: 9 G1: 4 G2: 5 Mean Between-group difference (95% CI): NR p = NR "When compared to those who completed treatment, participants who dropped out did not differ significantly on any of the pretreatment measures (including initial percent overweight)."	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table E29. Binge eating disorder behavioral treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Carrard, 2011[7]	G1: 23 did not complete all modules G2: 26 did not complete all modules Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Carter, 1998[8]	G1: 0 G2: 8 G3: 1 Mean Between-group difference (95% CI): NR p = NR (What constituted a dropout was necessarily different in G1 and G2. In G2, participants were considered to have dropped out if they attended fewer than six treatment sessions (i.e., they were treatment dropouts), whereas those in	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Carter, 1998[8] (continued)	G1 were classed as dropouts only if they declined to comply with the posttreatment assessment protocol (i.e., they were study dropouts) as there was no way of determining whether or not these participants had actually followed the program.)					
Cassin, 2008[9]	NA	NA	NA	NA	NA	NA
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Cesa, 2013[12]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR; "dropout rates were similar for each group"	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Compare, 2013[13]	Overall: 25 (13%) G1: 27% G2: 12.7% G3: 0% Mean Between-group difference (95% CI): NR chi-square=20.01 p <0.001 (higher dropout rate in G1 compared with G2 and G3) Post-hoc analysis showed that the group available at follow-up (N=164) was not different from dropouts on sex, age, and BMI, and no differences were observed across the treatment groups	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
De Zwaan, 2005[14]	24 weeks G1: 2 G2: 7 p = 0.07	NR	NR	NR	NR	NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Dingemans, 2007[15]	Participants who attended less than 67% (10) of sessions were considered treatment dropouts Overall: 2 G1: 2 G2: 0 Mean Between-group difference (95% CI): NR p = NR Dropouts and completers did not differ significantly regarding age and BMI	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Eldredge, 1997[16]	Overall: 9 (19.6%) G1: 19.4% dropped out during the 24-week period, 4 dropped out during the initial 12 weeks G2: 20% dropped out during the 24-week period, NR dropped out during the initial 12 weeks Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Gorin, 2003[17]	na	na	na	na	na	na
Grilo, 2013[18]	NR	NR	NR	NR	NR	NR
Grilo, 2014[19]	Completed treatments Overall: 77 (74%) G1: 21 (95.5%) G2: 14 (51.9%) Mean Between-group difference (95% CI): NR p = NR Across all 4 study groups: Post-treatment assessments were obtained for 84% of patients and follow-up assessments were obtained for 83% at 6m and 86% at 12m.	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Grilo, 2011[20] Grilo, 2011[21]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Grilo, 2005[22] Masheb, 2007[23]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Hilbert, 2004[24]	G1: 2 G2: 2	NR	NR	NR	NR	NR
Le Grange, 2002[25]	12 weeks G1: NR G2: NR p = NS 12 months G1: NR G2: NR p = NS	NR	NR	NR	NR	NR
Masheb, 2011[26]	Treatment completers (completed at least 14 of the 21 treatment sessions and either 6m or 12m assessments, or both) Overall: 43 (86%) G1: 20 (80%) G2: 23 (92%) chi-square=1.50 p = 0.221 6m data collected on 40 (80%) participants 12m data collected on 37 (74%) participants	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Masson, 2013[27]	Posttreatment G1: 30% G2: 10% Mean Between-group difference (95% CI): chi-square=3.75 p = 0.053 6m G1: 37% G2: NR Mean Between-group difference (95% CI): NA p = NA	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Munsch, 2007[28] Munsch, 2012[29]	Munsch, Biedert, Meyer, et al., 2007[28]: Dropped out during treatment Overall: 22 (27.5%) G1: 13 (29.5%) G2: 9 (25.0%) Mean Between-group difference (95% CI): NR p = NR Dropped out during 12m follow-up Overall: 7 G1: 3 G2: 4	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Munsch, 2007[28] Munsch, 2012[29]	Mean Between-group difference (95% CI): NR chi-square=0.001 p = 0.582 No significant differences between dropouts and completers on sex, age, BMI, BDI, BAI, EDE global score, and comorbid mental disorders Munsch, Meyer, Biedert, et al., 2012[29]: Participated in 6y follow-up Overall: G1: 26 (59%) G2: 26 (72%)					

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Pendleton, 2001[30]	Did not return for any assessment after BL: G1: 4 G2: 7 G3: 4 G4: 11 Mean Between-group difference (95% CI): p = no significant differences between dropouts and those who remained in binge eating (p=0.38), BMI (p=0.35), BDI (p=0.12), age (p=0.51), work status (p=0.26), single status (p=0.99), education (p=0.14), race (p=0.66), and use of alcohol (p=0.99) Did not complete all of the assessments: G1: 1 G2: 1 G3: 1 G4: 1 Mean Between-group difference (95% CI): p =	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Peterson, 1998[31] Peterson, 2001[32]	Peterson, 1998 NR Peterson, 2001 Overall: 7	NR	NR	NR	NR	NR
Peterson, 2009[33]	Post-treatment (20 weeks post-baseline) G1: 27 G2: 20 G3: 7 G4: 13 p = 0.001 (G3, G4 > G1, G2) 6m follow-up (44 weeks post-baseline) G1: 28 G2: 25 G3: 20 G4: NA 12m follow-up (72 weeks post-baseline) G1: 31 G2: 33 G3: 35 G4: NA	NR	NR	NR	NR	NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Ricca, 2010[34]	Dropped out during treatment, N (%) Overall: 7 G1: 3 (4.1%) G2: 4 (5.5%) Mean Between-group difference (95% CI): NR p = NR Lost to follow-up, N Overall: 3 G1: 1 G2: 2 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Riva, 2002[35]	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR Numbers of discontinuation are not explicitly reported, but the following sentences imply there were no dropouts: "All the 20 patients had achieved complete cessation of binge eating... at the end of treatment. This result was maintained in the first month after the end of therapy."	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Riva, 2003[36]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	Overall: 19 (18.8%) G1: 2 (4%) G2: 17 (33.3%)	NR	G2: 5	NR	NR	NR
Schlup, 2009[40]	Overall:5	NR	NR	NR	NR	NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Schlup, 2010[41]	12-month dropout Overall: 19 G1: 14 G2: 5 Mean Between-group difference (95% CI): NR p = 0.034 Article reports two conflicting statements about dropout rates: "Dropout rates differed between the 2 samples, with significantly more dropouts in G1 (14 or 35% of all participants) than in G2 (5 or 14% of all participants) between baseline and follow-up (p=0.034, chi-square test)." "During the 12-month follow-up period, there were no significant differences in the dropout rates between the two samples (2, or 5%, and 4, or 11% of all participants in G1 and G2, respectively; p=0.32)."	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Tasca, 2006[42] Tasca, 2012[43]	Dropouts: those who attended less than half of the sessions and who did not attend beyond the 12th session G1: 22.9% G2: 21.39% G3: 17.5% (did not return for the reassessment after the 16wk waiting period) Mean Between-group difference (95% CI): NR p = 0.82	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Telch, 2001[44]	G1: 4 G2: 6	NA	NA	NA	NA	NA

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Wilfley, 2002[45] Hilbert, 2012[46]	Wilfley, Welch, Stein, et al., 2002[45]: G1: 9 (11.1%) G2: 7 (8.6%) Mean Between-group difference (95% CI): NR p = 0.06 Hilbert, Bishop, Stein, et al., 2012[46] Did not complete original trial Overall: 7.8% G1: 6.7% G2: 8.9% Mean Between-group difference (95% CI): NR p = NR, NS Were not included in long-term follow-up assessment Overall: 35.6% G1: 44.4% G2: 26.7% Mean Between-group difference (95% CI): NR p = NR, NS	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 29. Binge Eating Disorder Behavioral Treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Wilson, 2010[47] Sysko, 2010[48]	Post-treatment dropout rates Overall: NR G1: 28% G2: 30% G3: 7% Mean Between-group difference (95% CI): NR, F=8.3 "G3 had a significantly lower attrition rate than either G1 or G2" p <0.001 Post-treatment assessment rates Overall: NR G1: 80% G2: 80% G3: 91% 2-year assessment rates: G1: 82% G2: 80% G3: 88%	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table E30. Binge eating disorder behavioral treatment – part 12

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
Agras, 1995[5]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Allen, 1999[6]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Carrard, 2011[7]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Carter, 1998[8]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Cassin, 2008[9]	NA	NA	NA	NA	NA	NA

Evidence Table E30. Binge eating disorder behavioral treatment – part 12

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Cesa, 2013[12]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Compare, 2013[13]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
De Zwaan, 2005[14]	NR	NR	NR	NR	NR	NR
Dingemans, 2007[15]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 30. Binge eating disorder behavioral treatment – part 12

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
Eldredge, 1997[16]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Gorin, 2003[17]	na	na	na	G1: 4 G2: 1	na	na
Grilo, 2013[18]	NR	NR	NR	NR	NR	NR
Grilo, 2014[19]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Grilo, 2011[20] Grilo, 2011[21]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Grilo, 2005[22] Masheb, 2007[23]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 30. Binge eating disorder behavioral treatment – part 12

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
Hilbert, 2004[24]	NR	NR	NR	NR	NR	NR
Le Grange, 2002[25]	NR	NR	NR	NR	NR	NR
Masheb, 2011[26]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Masson, 2013[27]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Munsch, 2007[28] Munsch, 2012[29]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 30. Binge eating disorder behavioral treatment – part 12

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
Pendleton, 2001[30]	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR
Peterson, 1998[31] Peterson, 2001[32]	NR	NR	NR	NR	NR	NR
Peterson, 2009[33]	NR	NR	NR	NR	NR	NR
Ricca, 2010[34]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Riva, 2002[35]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 30. Binge eating disorder behavioral treatment – part 12

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
Riva, 2003[36]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	NR	NR	NR	NR	NR	NR
Schlup, 2009[40]	NR	NR	NR	NR	NR	NR
Schlup, 2010[41]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Tasca, 2006[42] Tasca, 2012[43]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Telch, 2001[44]	NA	NA	NA	NA	NA	NA

Evidence Table 30. Binge eating disorder behavioral treatment – part 12

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
Wilfley, 2002[45] Hilbert, 2012[46]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Wilson, 2010[47] Sysko, 2010[48]	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table E31. Binge eating disorder behavioral treatment – part 13

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Agras, 1995[5]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Allen, 1999[6]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Carrard, 2011[7]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Carter, 1998[8]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Cassin, 2008[9]	NA	NA	NA	NA	NA	NA

Evidence Table E31. Binge eating disorder behavioral treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Cesa, 2013[12]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Compare, 2013[13]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
De Zwaan, 2005[14]	NR	NR	NR	NR	NR	NA
Dingemans, 2007[15]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA

Evidence Table 31. Binge eating disorder behavioral treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Eldredge, 1997[16]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Gorin, 2003[17]	na	G1: 4 G2: 3	na	na	Sedation G1: 8 G2:3 Decreased libido G1:3 G2:0	NA
Grilo, 2013[18]	NR	NR	NR	NR	NR	NA
Grilo, 2014[19]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Grilo, 2011[20] Grilo, 2011[21]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA

Evidence Table 31. Binge eating disorder behavioral treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Grilo, 2005[22] Masheb, 2007[23]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Article reports those not completing the treatments but not those discontinued from the study. Those completing the treatments were: Overall: 70 (78%) G1: 32 (87%) G2: 25 (66%) G3: 13 (87%) Completion rate was significantly higher for G1 than for G2 (p=0
Hilbert, 2004[24]	NR	NR	NR	NR	NR	NA
Le Grange, 2002[25]	NR	NR	NR	NR	NR	NA
Masheb, 2011[26]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Masson, 2013[27]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA

Evidence Table 31. Binge eating disorder behavioral treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Munsch, 2007[28] Munsch, 2012[29]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Pendleton, 2001[30]	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	
Peterson, 1998[31] Peterson, 2001[32]	NR	NR	NR	NR	NR	NA
Peterson, 2009[33]	NR	NR	NR	NR	NR	NA
Ricca, 2010[34]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA

Evidence Table 31. Binge eating disorder behavioral treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Riva, 2002[35]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: Simulation sickness G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	NA
Riva, 2003[36]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	NR	NR	NR	NR	NR	NR
Schlup, 2009[40]	NR	NR	NR	NR	NR	NR

Evidence Table 31. Binge eating disorder behavioral treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Schlup, 2010[41]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Dissatisfaction with treatment Overall: NR G1: 6 G2: 1 Mean Between-group difference (95% CI): NR p = NR Lack of time Overall: NR G1: 2 G2: 0 Mean Between-group difference (95% CI): NR p = NR Major depression Overall: NR G1: 1 G2: 0 Mean Between-grou	NA
Tasca, 2006[42] Tasca, 2012[43]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Telch, 2001[44]	NA	NA	NA	NA	NA	NA

Evidence Table 31. Binge eating disorder behavioral treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Wilfley, 2002[45] Hilbert, 2012[46]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	NA
Wilson, 2010[47] Sysko, 2010[48]	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	NA

Evidence Table E32. Binge eating disorder behavioral treatment – part 14

First Author's Last Name Year	Describe Subpopulation	Subpopulation Definition of Eating Related Measure(s)	Subpopulation Outcomes	Subpopulation Outcomes for Eating-Related Measures Continued	Subpopulation Definition of Psychological/ Psychiatric Measure(s)	Subpopulation Outcomes
Agras, 1995[5]	None	NA	NA	NA	NA	NA
Allen, 1999[6]	None	NA	NA	NA	NA	NA
Carrard, 2011[7]		None	NA	NA	NA	NA
Carter, 1998[8]	None	NA	NA	NA	NA	NA
Cassin, 2008[9]	None	NA	NA	NA	NA	NA
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	None	NA	NA	NA	NA	NA
Cesa, 2013[12]	None	NA	NA	NA	NA	NA
Compare, 2013[13]	None	NA	NA	NA	NA	NA
De Zwaan, 2005[14]	NA	NA	NA	NA	NA	NA
Dingemans, 2007[15]	None	NA	NA	NA	NA	NA
Eldredge, 1997[16]	None	NA	NA	NA	NA	NA
Gorin, 2003[17]	none	NA	NA	NA	NA	NA
Grilo, 2013[18]	NA	NA	NA	NA	NA	NA
Grilo, 2014[19]	None	NA	NA	NA	NA	NA
Grilo, 2011[20] Grilo, 2011[21]	Rapid responders (at least 70% reduction in binge eating by the 4th week) vs. those without rapid response. In G1, 30 (67%) were rapid responders; in G2, 21 (47%) were rapid responders (p=0.07)	Binge remission	NA	NA	NA	NA

Evidence Table E32. Binge eating disorder behavioral treatment – part 14 (continued)

First Author's Last Name Year	Describe Subpopulation	Subpopulation Definition of Eating Related Measure(s)	Subpopulation Outcomes	Subpopulation Outcomes for Eating-Related Measures Continued	Subpopulation Definition of Psychological/ Psychiatric Measure(s)	Subpopulation Outcomes
Grilo, 2005[22] Masheb, 2007[23]	Rapid responders (65% reduction in binge eating by the 4th week) vs. those without rapid response. In G1, N=23 were rapid responders; in G2, N=18 were rapid responders	Binge episodes per month (prospective self-monitoring) Binge episodes per month EDE-Q) Remission from binge eating (0 OBEs in the past 28 days per daily self-monitoring) Rapid response (65% reduction in binge eating by the 4th week)	EDE-Q-total, estimated marginal mean (SE) G1/[rapid responders]: 2.8 (0.2) G1/[no rapid response]: 3.2 (0.2) G2/[rapid responders]: 2.8 (0.2) G2/[no rapid response]:3.3 (0.2) Mean Between-group difference (95% CI): NR Main effect of rapid response: F=5.4	NA	EDE-Q -total -dietary restraint -eating concern -weight concern -shape concern TFEQ -hunger -cognitive restraint -disinhibition Beck Depression Inventory (BDI)	BMI total loss, estimated marginal mean (SE) G1/[rapid responders]: 0.0 (0.2) G1/[no rapid response]: 0.2 (0.2) G2/[rapid responders]: 0.5 (0.2) G2/[no rapid response]: 0.0 (0.2) Mean Between-group difference (95% CI): NR Main effect of rapid response: F
Hilbert, 2004[24]	NA	NA	NA	NA	NA	NA
Le Grange, 2002[25]	NA	NA	NA	NA	NA	NA
Masheb, 2011[26]	None	NA	NA	NA	NA	NA
Masson, 2013[27]	None	NA	NA	NA	NA	NA
Munsch, 2007[28] Munsch, 2012[29]	None	NA	NA	NA	NA	NA
Pendleton, 2001[30]	None	NA	NA	NA	NA	NA
Peterson, 1998[31] Peterson, 2001[32]	NA	NA	NA	NA	NA	NA
Peterson, 2009[33]	NA	NA	NA	NA	NA	NA
Ricca, 2010[34]	None	NA	NA	NA	NA	NA
Riva, 2002[35]	None	NA	NA	NA	NA	NA
Riva, 2003[36]	None	NA	NA	NA	NA	NA

Evidence Table 32. Binge eating disorder behavioral treatment – part 14 (continued)

First Author's Last Name Year	Describe Subpopulation	Subpopulation Definition of Eating Related Measure(s)	Subpopulation Outcomes	Subpopulation Outcomes for Eating-Related Measures Continued	Subpopulation Definition of Psychological/ Psychiatric Measure(s)	Subpopulation Outcomes
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	Safer_108: '- Subgroup 1: Intent to treat (last-observation-carried-forward) -Subgroup 2: Completer Safer and Joyce, 2011[38]: Rapid responders (at least 65% reduction in the frequency of days of binge eating by week 4) vs. non-rapid responders. 41	Safer, Robinson, and Jo, 2010[37]: Measure 1: Abstinence from binge eating (no binge within prior 28 days) **computed using a linear mixed model Measure 2: Days of objective binge eating (over the prior 28 days) Safer and Joyce, 2011[38]: Abstinenc	NR	Robinson and Safer, 2012[39]: Mean binge days over past 28 days x avoidant personality disorder G1 [avoidant personality disorder]: 1.13 (±1.73) G1 [no avoidant personality disorder]: 1.43 (±NR) G2 [avoidant personality disorder]: 11.25 (±9.78) G2 [no a	NR	NR
Schlup, 2009[40]	NA	NA	NA	NA	NA	NA
Schlup, 2010[41]	Responders (55% of all participants were classified as rapid responders, which is defined as those with a 65% or more decrease in binge eating within the first 4 weeks) Mixed dietary negative affect subtype (per K-means cluster analysis using the Quick C	EDE number OBEs	Percentage of rapid responders did not differ between the 2 treatment groups (chi-square 0.61, p=0.44) Rapid responders had lower values for EDE dietary restraint in G1 than non-responders, but almost identical in G2 EDE-dietary restraint averaged across	NA	EDE dietary restraint (reported for responders) EDE eating concern (reported for mixed dietary negative affect subtype)	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 32. Binge eating disorder behavioral treatment – part 14 (continued)

First Author's Last Name Year	Describe Subpopulation	Subpopulation Definition of Eating Related Measure(s)	Subpopulation Outcomes	Subpopulation Outcomes for Eating-Related Measures Continued	Subpopulation Definition of Psychological/ Psychiatric Measure(s)	Subpopulation Outcomes
Tasca, 2006[42] Tasca, 2012[43]	5 attachment styles assessed by the Attachment Styles Questionnaire: -Confidence in relationships -Preoccupied -Need for approval -Discomfort with closeness -Relationships as secondary	Residual change scores of days binged in the past 7 days from baseline to posttreatment (lower change scores indicate better outcomes)	NA	NA	NA	NA
Telch, 2001[44]	NA	NA	NA	NA	NA	NA
Wilfley, 2002(#499) Hilbert, 2012[46]	None	NA	NA	NA	NA	NA
Wilson, 2010[47] Sysko, 2010[48]	High vs. low negative affect (defined using BDI cutoff >18 at baseline) High vs. low frequency of binge days (>14 days vs. ≤14 days during the past 28 days) High vs. low global EDE score (median split of 2.675) High vs. low self-esteem score (median sp	BED remission rate, % Change in days of binge eating No longer meeting DSM-IV criteria for BED 2 post-treatment classes predicted by LCA -responder: OBEs, SBEs, and objective overeating episodes were fixed to zero -nonresponder: all others	NA	Probability of transitioning to responder group G1/[class 1]: 0.99 G1/[class 2]: 0.60 G1/[class 3]: 0.64 G1/[class 4]: 0.99 G2/[class 1]: 0.99 G2/[class 2]: 0.59 G2/[class 3]: 0.74 G2/[class 4]: 0.99 G3/[class 1]: 0.99 G3/[class 2]: 0.81 G3/[class 3]: 0.6	NA	NA

Evidence Table E33. Binge eating disorder behavioral treatment – part 15

First Author's Last Name Year	Subpopulation Definition of Weight Related Measure(s)	Subpopulation Outcomes	Subpopulation Definition of Biomarker Outcomes Other Than Weight	Subpopulation Outcomes	Subpopulation Quality of life	Subpopulation Functional Capacity
Agras, 1995[5]	NA	NA	NA	NA	NA	NA
Allen, 1999[6]	NA	NA	NA	NA	NA	NA
Carrard, 2011[7]	NA	NA	NA	NA	NA	NA
Carter, 1998[8]	NA	NA	NA	NA	NA	NA
Cassin, 2008[9]	NA	NA	NA	NA	NA	NA
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	NA	NA	NA	NA	NA	NA
Cesa, 2013[12]	NA	NA	NA	NA	NA	NA
Compare, 2013[13]	NA	NA	NA	NA	NA	NA
De Zwaan, 2005[14]	NA	NA	NA	NA	NA	NA
Dingemans, 2007[15]	NA	NA	NA	NA	NA	NA
Eldredge, 1997[16]	NA	NA	NA	NA	NA	NA
Gorin, 2003[17]	NA	NA	NA	NA	NA	NA
Grilo, 2013[18]	NA	NA	NA	NA	NA	NA
Grilo, 2014[19]	NA	NA	NA	NA	NA	NA
Grilo, 2011[20] Grilo, 2011[21]	NA	NA	NA	NA	NA	NA
Grilo, 2005[22] Masheb, 2007[23]	BMI total loss	BMI total loss, estimated marginal mean (SE) G1/[rapid responders]: 0.0 (0.2) G1/[no rapid response]: 0.2 (0.2) G2/[rapid responders]: 0.5 (0.2) G2/[no rapid response]: 0.0 (0.2) Mean Between-group difference (95% CI): NR Main effect of rapid response: F	NA	NA	NA	NA

Evidence Table E33. Binge eating disorder behavioral treatment – part 15 (continued)

First Author's Last Name Year	Subpopulation Definition of Weight Related Measure(s)	Subpopulation Outcomes	Subpopulation Definition of Biomarker Outcomes Other Than Weight	Subpopulation Outcomes	Subpopulation Quality of life	Subpopulation Functional Capacity
Hilbert, 2004[24]	NA	NA	NA	NA	NA	NA
Le Grange, 2002[25]	NA	NA	NA	NA	NA	NA
Masheb, 2011[26]	NA	NA	NA	NA	NA	NA
Masson, 2013[27]	NA	NA	NA	NA	NA	NA
Munsch, 2007[28] Munsch, 2012[29]	NA	NA	NA	NA	NA	NA
Pendleton, 2001[30]	NA	NA	NA	NA	NA	NA
Peterson, 1998[31] Peterson, 2001[32]	NA	NA	NA	NA	NA	NA
Peterson, 2009[33]	NA	NA	NA	NA	NA	NA
Ricca, 2010[34]	NA	NA	NA	NA	NA	NA
Riva, 2002[35]	NA	NA	NA	NA	NA	NA
Riva, 2003[36]	NA	NA	NA	NA	NA	NA
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	NR	NR	NR	NR	NR	NR
Schlup, 2009[40]	NA	NA	NA	NA	NA	NA
Schlup, 2010[41]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Tasca, 2006[42] Tasca, 2012[43]	NA	NA	NA	NA	NA	NA
Telch, 2001[44]	NA	NA	NA	NA	NA	NA
Wilfley, 2002[45] Hilbert, 2012[46]	NA	NA	NA	NA	NA	NA
Wilson, 2010[47] Sysko, 2010[48]	NA	NA	NA	NA	NA	NA

Evidence Table E34. Binge eating disorder behavioral treatment – part 16

First Author's Last Name Year	Subpopulation Overall Discontinuation From Study	Subpopulation Discontinuation Due to AEs	Subpopulation Discontinuation Due to Lack of Efficacy	Subpopulation Serious AEs (Define in Addition to Reporting Rates)	Subpopulation Any AE	Subpopulation Diarrhea
Agras, 1995[5]	NA	NA	NA	NA	NA	NA
Carrard, 2011[7]	NA	NA	NA	NA	NA	NA
Cassin, 2008[9]	NA	NA	NA	NA	NA	NA
Cesa, 2013[12]	NA	NA	NA	NA	NA	NA
De Zwaan, 2005[14]	NA	NA	NA	NA	NA	NA
Eldredge, 1997[16]	NA	NA	NA	NA	NA	NA
Grilo, 2013[18]	NA	NA	NA	NA	NA	NA
Grilo, 2011[20] Grilo, 2011[21]	NA	NA	NA	NA	NA	NA
Hilbert, 2004[24]	NA	NA	NA	NA	NA	NA
Masheb, 2011[26]	NA	NA	NA	NA	NA	NA
Munsch, 2007[28] Munsch, 2012[29]	NA	NA	NA	NA	NA	NA
Peterson, 1998[31] Peterson, 2001[32]	NA	NA	NA	NA	NA	NA
Ricca, 2010[34]	NA	NA	NA	NA	NA	NA
Riva, 2003[36]	NA	NA	NA	NA	NA	NA
Schlup, 2009[40]	NA	NA	NA	NA	NA	NA
Tasca, 2006[42] Tasca, 2012[43]	NA	NA	NA	NA	NA	NA
Wilfley, 2002(#499) Hilbert, 2012[46]	NA	NA	NA	NA	NA	NA

Evidence Table E35. Binge eating disorder behavioral treatment – part 17

First Author's Last Name Year	Subpopulation Dizziness	Subpopulation Headache	Subpopulation Insomnia	Subpopulation Nausea	Subpopulation Sexual Dysfunction	Subpopulation Cognitive Functioning
Agras, 1995[5]	NA	NA	NA	NA	NA	NA
Allen, 1999[6]	NA	NA	NA	NA	NA	NA
Carrard, 2011[7]	NA	NA	NA	NA	NA	NA
Carter, 1998[8]	NA	NA	NA	NA	NA	NA
Cassin, 2008[9]	NA	NA	NA	NA	NA	NA
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	NA	NA	NA	NA	NA	NA
Cesa, 2013[12]	NA	NA	NA	NA	NA	NA
Compare, 2013[13]	NA	NA	NA	NA	NA	NA
De Zwaan, 2005[14]	NA	NA	NA	NA	NA	NA
Dingemans, 2007[15]	NA	NA	NA	NA	NA	NA
Eldredge, 1997[16]	NA	NA	NA	NA	NA	NA
Gorin, 2003[17]	NA	NA	NA	NA	NA	NA
Grilo, 2013[18]	NA	NA	NA	NA	NA	NA
Grilo, 2014[19]	NA	NA	NA	NA	NA	NA
Grilo, 2011[20] Grilo, 2011[21]	NA	NA	NA	NA	NA	NA
Grilo, 2005[22] Masheb, 2007[23]	NA	NA	NA	NA	NA	NA
Hilbert, 2004[24]	NA	NA	NA	NA	NA	NA
Le Grange, 2002[25]	NA	NA	NA	NA	NA	NA
Masheb, 2011[26]	NA	NA	NA	NA	NA	NA
Masson, 2013[27]	NA	NA	NA	NA	NA	NA
Munsch, 2007[28] Munsch, 2012[29]	NA	NA	NA	NA	NA	NA
Pendleton, 2001[30]	NA	NA	NA	NA	NA	NA
Peterson, 1998[31] Peterson, 2001[32]	NA	NA	NA	NA	NA	NA
Peterson, 2009[33]	NA	NA	NA	NA	NA	NA
Ricca, 2010[34]	NA	NA	NA	NA	NA	NA
Riva, 2002[35]	NA	NA	NA	NA	NA	NA
Riva, 2003[36]	NA	NA	NA	NA	NA	NA
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	NR	NR	NR	NR	NR	NR

Evidence Table E35. Binge eating disorder behavioral treatment – part 17 (continued)

First Author's Last Name Year	Subpopulation Dizziness	Subpopulation Headache	Subpopulation Insomnia	Subpopulation Nausea	Subpopulation Sexual Dysfunction	Subpopulation Cognitive Functioning
Schlup, 2009[40]	NA	NA	NA	NA	NA	NA
Schlup, 2010[41]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Tasca, 2006[42] Tasca, 2012[43]	NA	NA	NA	NA	NA	NA
Telch, 2001[44]	NA	NA	NA	NA	NA	NA
Wilfley, 2002[45] Hilbert, 2012[46]	NA	NA	NA	NA	NA	NA
Wilson, 2010[47] Sysko, 2010[48]	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table E36. Binge eating disorder behavioral treatment – part 18

First Author's Last Name Year	Subpopulation Somnolence	Subpopulation Vomiting	Subpopulation Drug Interactions	Subpopulation Other
Agras, 1995[5]	NA	NA	NA	NA
Allen, 1999[6]	NA	NA	NA	NA
Carrard, 2011[7]	NA	NA	NA	NA
Carter, 1998[8]	NA	NA	NA	NA
Cassin, 2008[9]	NA	NA	NA	NA
Castelnuovo, 2011[10] Castelnuovo, 2011[11]	NA	NA	NA	NA
Cesa, 2013[12]	NA	NA	NA	NA
Compare, 2013[13]	NA	NA	NA	NA
De Zwaan, 2005[14]	NA	NA	NA	NA
Dingemans, 2007[15]	NA	NA	NA	NA
Eldredge, 1997[16]	NA	NA	NA	NA
Gorin, 2003[17]	NA	NA	NA	NA
Grilo, 2013[18]	NA	NA	NA	NA
Grilo, 2014[19]	NA	NA	NA	NA
Grilo, 2011[20] Grilo, 2011[21]	NA	NA	NA	NA
Grilo, 2005[22] Masheb, 2007[23]	NA	NA	NA	NA
Hilbert, 2004[24]	NA	NA	NA	NA
Le Grange, 2002[25]	NA	NA	NA	NA
Masheb, 2011[26]	NA	NA	NA	NA
Masson, 2013[27]	NA	NA	NA	NA
Munsch, 2007[28] Munsch, 2012[29]	NA	NA	NA	NA
Pendleton, 2001[30]	NA	NA	NA	NA
Peterson, 1998[31] Peterson, 2001[32]	NA	NA	NA	NA
Peterson, 2009[33]	NA	NA	NA	NA
Ricca, 2010[34]	NA	NA	NA	NA
Riva, 2002[35]	NA	NA	NA	NA
Riva, 2003[36]	NA	NA	NA	NA
Safer, 2010[37] Safer, 2011[38] Robinson, 2012[39]	NR	NR	NR	NR
Schlup, 2009[40]	NA	NA	NA	NA

Evidence Table E36. Binge eating disorder behavioral treatment – part 18 (continued)

First Author's Last Name Year	Subpopulation Somnolence	Subpopulation Vomiting	Subpopulation Drug Interactions	Subpopulation Other
Schlup, 2010[41]	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Tasca, 2006[42] Tasca, 2012[43]	NA	NA	NA	NA
Telch, 2001[44]	NA	NA	NA	NA
Wilfley, 2002[45] Hilbert, 2012[46]	NA	NA	NA	NA
Wilson, 2010[47] Sysko, 2010[48]	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	NA

Evidence Table E37. Binge eating disorder behavioral and drug treatment – part 1

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Agras, 1994[49] NA Examined the potential efficacy of a sequential treatment for binge eating and weight loss among obese binge eaters by comparing 1) weight loss therapy, 2) CBT + weight loss therapy, and 3) CBT + weight loss therapy + desipramine USA Government	randomized controlled trial NR NR 30 weeks By group: 3 months CBT + 6 months WL + desipramine 3 months CBT + 6 months WL 9 months WL only	N=108	G1: cognitive behavioral therapy followed by weight loss therapy and desipramine G2: cognitive behavioral therapy followed by weight loss therapy G3:weight loss therapy	Randomized:108 G1: 36 G2: 36 G3: 37 Analyzed during at end of treatment: G1: 28 G2: 30 G3: 27 Analyzed at 3 month FU G1: 25 G2: 25 G3: 21	1	Stanford, CA	Outpatient primary care (eg general practice)	Funding - NIH (MH 38637)

Evidence Table E37. Binge eating disorder behavioral and drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Brambilla, 2009[50] NA To evaluate whether a multivariate simultaneous approach for treating BED comprising nutritional rehabilitation, weight-directed pharmacotherapy, psychotherapy, and psychopharmacotherapy could significantly improve all the coexisting impairments in BED and prevent drop-out. Italy NR	randomized controlled trial NR NR 6 months	35	G1: 1700kcal, CBT, oral sertraline, topiramate G2: 1700kcal, CBT, oral sertraline, NO topiramate G3: CBT only	Randomized: G1: 10 G2: 10 G3: 10 Analyzed: G1: NR G2: NR G3: NR	1	Milan	inpatient	NA

Evidence Table 37. Binge eating disorder behavioral and drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Claudino, 2007[51] NA Evaluate the efficacy and tolerability of adjunctive topiramate compared to a placebo in reducing weight and binge eating in obese patients with BED receiving CBT Brazil Industry (Janssen-Cilag Pharmaceuticals)	randomized controlled trial all Sep 2003 - Apr 2005 21 weeks	73	G1: Topiramate G2: Placebo	Randomized G1: 37 G2: 36 Completed G1: 30 G2: 26	4	2 in Sao Paulo Rio de Janeiro Salvador	Outpatient	First 2-5 weeks of study were single-blind placebo run-in Placebo responders = did not present at least 2 binge episodes during the final week of the run-in phase; placebo responders were not randomized to treatment

Evidence Table 37. Binge eating disorder behavioral and drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Devlin, 2007[52] Devlin, 2005[53] NA To measure the added long-term benefit attributable to 2 adjunctive treatments, individual CBT and fluoxetine, when administered in the context of a group behavioral weight control treatment for BED (LEARN) NR Other	randomized controlled trial provider+patient NR 29 months	116	G1: Group behavioral weight program, individual CBT, Fluoxetine G2: Group behavioral weight program, individual CBT, Placebo G3: Group behavioral weight program, fluoxetine G4: Group behavioral weight program, Placebo	Randomized: 116 G1: NR G2: NR G3: NR G4: NR Analyzed for binge frequency: 116 at post-treatment, 88 at 6 months, 88 at 12 months, 87 at 18 months, 87 at 24 months. Sample size for secondary outcomes varies by outcome.	NR	NR	NR	Short-term effects of the two treatments in this study were reported in Devlin MD, Goldfein JA, Petkova E, et al. Cognitive behavioral therapy and fluoxetine as adjuncts to group behavioral therapy for binge eating disorder. Obes Res. 2005; 13: 1077-88. Note on blinding: 57 subjects had their blind broken at or before the end of the initial phase of treatment (including 42 initial phase dropouts). 33 subjects had their blind broken after the end of active treatment but before the 18-month follow-up visit, and 26 subjects had their blind broken at the

Evidence Table 37. Binge eating disorder behavioral and drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Devlin, 2007[52] Devlin, 2005[53] (continued)								18-month follow-up visit. Study arm information not specified. Note on additional treatments: Of the 116 subjects randomized, 55 had additional non-study treatment (either medication, psychosocial, or combination). Two patients had bariatric surgery. Study arm information not specified. Funding: NIMH grant MH54612, and Eli Lilly&Co. support for two authors in the form of the Prozac and matching placebo used in the study and for other unspecified support. IRB located in New York; presumably study conducted in New York

Evidence Table 37. Binge eating disorder behavioral and drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Golay, 2005[54] NA Determine the efficacy of 24 weeks of orlistat therapy in combination with a mildly reduced-calorie diet in obese patients with BED Switzerland Industry	randomized controlled trial all NR 24 weeks	89	G1: Orlistat G2: Placebo	Randomized G1: 44 G2: 45 Completed G1: 39 G2: 32 Analyzed G1: 39 G2: 34	2	NR	Outpatient	Roche Pharmaceuticals
Grilo, 2005[55] NA To determine whether adding Orlistat (a lipase inhibitor used for treating obesity) to CBT facilitates weight loss in obese individuals with BED USA Foundation/non-profit	randomized controlled trial assessor+patient NR 12 weeks	N=50	G1: Orlistat+ CBT G2: Placebo+ CBT	Randomized: G1: 25 G2: 25 Analyzed, ITT: G1:25 G2:25 Analyzed, completers: G1:19 G2:20	1	New Haven, CT	Outpatient specialty mental health (eg psychiatry practice)	NA

Evidence Table 37. Binge eating disorder behavioral and drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Grilo, 2013[56] NA To test the addition of orlistat to behavioral weight loss for obesity in Spanish-speaking-only Latino/as with versus without BED performed at a community mental health center serving educationally- and economically-disadvantaged patients US Other	randomized controlled trial provider+patient August 2007 through October 2009 10 months (4 months of intervention period followed by 6 months of follow-up)	40	G1: Orlistat G2: Placebo	Randomized: 40 G1: 20 G2: 20 Analyzed: 40 (ITT--missing values were imputed with baseline values carried forward) G1: 20 G2: 20	1	New Haven	a community mental health center serving educationally- and economically-disadvantaged patients	Foundation and Government: Donaghue Medical Research Foundation, NIH K24 DK070052 Part of this study involved comparison of participants with vs. without BED (intervention and control in each group). Only data on BED participants are abstracted here.

Evidence Table 37. Binge eating disorder behavioral and drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60] NA To test the efficacy of CBT and fluoxetine alone and in combination for BED. USA Government	randomized controlled trial provider+patient NR 16 weeks	N=108	G1: fluoxetine G2: Placebo G3: CBT + fluoxetine G4: CBT + Placebo	Randomized:108 G1: 27 G2: 27 G3: 26 G4: 28 Analyzed:86 (80%) G1: 21 (78%) G2: 23 (85%) G3: 20 (77%) G4: 22 (79%)	1	New Haven, CT	Outpatient primary care (eg general practice)	Site - University medical school (Yale) Funding - NIH - Grant DK4987, Lilly provided fluoxetine and matching placebo pills

Evidence Table 37. Binge eating disorder behavioral and drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Laederach-Hofmann, 1999[61] NA Compare diet counseling with psychological support and imipramine or placebo on binge eating, weight, and depression during an 8 -week tx phase. Switzerland NR	randomized controlled trial assessor+patient NR 8-weeks	N= 31	G1: Imipramine G2: Placebo	Randomized:31 G1: 15 G2: 16 Analyzed: 28 G1: 14 G2: 14	1	Berne, Switzerland	Outpatient primary care (eg general practice)	Setting: University of Berne

Evidence Table 37. Binge eating disorder behavioral and drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Lanzarone, 2014[62] To determine if patients who underwent CBT and pharmacotherapy with bio-equivalent doses of the SSRI Paroxetine or SNRI Venlafaxine obtained a considerable benefit from the pharmacotherapy on impulse regulation, on eating behavior, and on personality features compared to those who underwent CBT alone; and to verify if Paroxetine and Venlafaxine treatments were equally effective on impulse regulation, eating behavior, and personality characteristics. Italy NR	randomized controlled trial NR	30	G1: CBT alone G2: CBT + Paroxetine G3: CBT + Venlafaxine	Randomized: G1: 10 G2: 10 G3: 10	1	NR	Psychology Clinic for Eating Disorders	

Evidence Table 37. Binge eating disorder behavioral and drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Molinari, 2005[63] NA To compare different integrated therapeutic approaches (CBT alone, fluoxetine alone, CBT+fluoxetine) for the therapy of BED Italy Government	randomized controlled trial NR NR 52 weeks	65	G1: CBT only G2: Fluoxetine only G3: CBT + Fluoxetine	Randomized: G1: 22 G2: 22 G3: 21 Analyzed: G1: 20 G2: 20 G3: 20	1	Verbania	Inpatient and outpatient, nutritional rehabilitation unit of Istituto Auxologico Italiano	Research grant from the Italian Ministry of Health (RF 96)

Evidence Table 37. Binge eating disorder behavioral and drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Ricca, 2001[64] NA To evaluate the effectiveness of antidepressant drugs (fluoxetine and fluvoxamine), CBT, and combined treatments (CBT+FLX, CBT+FLV) in treating BED. Italy nr	randomized controlled trial NR 1/1/98 - 7/31/98 18 months (24 weeks of treatment and follow-up 1 year after end of treatment)	108	G1: CBT G2: CBT+Fluoxetine (FLX) G3: CBT+Fluvoxamine (FLV) G4: FLX G5: FLV	Randomized: G1: 20 G2: 22 G3: 23 G4: 21 G5: 22 Analyzed: Both ITT and as-treated analyses were conducted; as-treated N 24wk: G1: 17 G2: 16 G3: 18 G4: 16 G5: 16 Analyzed: Both ITT and as-treated analyses were conducted; as-treated N 1y post-treatment: G1:	2	Florence	2 outpatient ED clinics	NA

Evidence Table 37. Binge eating disorder behavioral and drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Ricca, 2009[65] NA To evaluate the efficacy of zonisamide as augmentation to individual CBT in the treatment of BED Italy Other	non-randomized trial NR April 1 to June 20, 2006, and between April 1 to June 30, 2007 18 months	52	G1: CBT only G2: CBT + zonisamide	Allocated (not randomized) G1: 24 G2: 28	1	Florence	University outpatient clinic for eating disorders	"There was no funding for the development and writing of this article" (not mentioned whether study was funded)

Evidence Table E38. Binge eating disorder behavioral and drug treatment – part 2

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Agras, 1994[49]	Proposed (DSM-IV) criteria for BED (Walsh, 1992) Currently involved in weight loss program Taking an antidepressant med Medication that might influence weight Suicidality (that might make outpatient treatment with despiramine dangerous) Drug or alcohol abuse History of purging in past 12 months BMI < 27	Women ages 22-65 years Onset of binge eating at mean of 19 (10.7) years Onset of overweight at 15.5 (10.2) years Overall: 22-65 years Overall mean: 45.0 (10) Groups NR P: NR	Overall: 100% NR Weight (KG) overall: 104.9(18.5) G1: 111.9(17.4) G2: 102.1(15.7) G3: 102.9 (15.8) p = NS *stated NR	Female	NR	BMI overall, mean (SD): 38.6 (6.6) NA	NA

Evidence Table E38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Brambilla, 2009[50]	DSM-IV criteria for BED General medical impairments, endocrine, metabolic and immune alterations other than those connected with BED, present or past pharmacological treatments of any kind in the past 6 months, axis 1 and 2 disorders other than comorbidities.	Inpatient women with BED and related obesity Years (SD) G1: 47 (8) G2: 45 (11) G3: 46 (8)	100 NR Weight (kg), mean (SD) G1: 105 (3) G2: 86 (14) G3: 88 (13) G1 patients had significantly higher weight and BMI than G2 & G3	Women admitted for assessment and treatment of BED and related obesity at study site	Major depressive disorders (N) G1: 2 G2: 4 G3: 4	Personality disorders (N) G1: 2 G2: 1 G3: 0 Obsessive compulsive disorder (N) G1: 0 G2: 1 G3: 0 Panic disorder (N) G1: 1 G2: 0 G3: 0 Age of BED onset, mean years (SD) G1: 32 (11) G2: 37 (15) G3: 31 (10) Duration of BED disease, mean years (SD) G1: 15 (10) G2: 9 (5) G3: 13 (6) none	NA

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Claudino, 2007[51]	Tool: SCID-I Criteria: DSM-IV-TR 1) Prior exposure or known contraindication of topiramate 2) Exposure to any other experimental drug within 1 year prior to enrollment 3) Women who were pregnant, lactating, or of childbearing potential not using a reliable contraceptive method 4) Clinically significant or unstable psychiatric disorders or medical illnesses 5) History of nephrolithiasis 6) Previous surgeries that cause weight loss 7) Recent smoking cessation or intention to quit 8) Regular use (within 3 months of study entry) of: antipsychotics, cyproheptadine, antiepileptics, systemic steroids (except for menopause hormone replacement therapy or contraception), antiobesity	Adults 18-60 diagnosed with BED (that is moderate to severe as chategorized by BES) with a BMI greater than or equal to 30 Years, mean (SD) G1: 41.1 (9.9) G2: 35.4 (10.7) p = 0.02	G1: 97.3 G2: 94.4 p = 0.54 G1: 47.9 G2: 47.2 p = 0.64 Weight, kg, mean (SD) G1: 96.6 (16.7) G2: 98.4 (10.9) p =0.23 Body Mass Index (BMI), mean (SD) G1: 37.4 (4.9) G2: 37.4 (3.5) p = (0.93)	1) 18-60 years old 2) BMI ≥ 30 3) BES score > 17	History of major depression G1: 43.2% G2: 27.8% p = 0.06 Beck Depression Inventory (BDI), mean (SD) G1: 16.8 (8.3) G2: 15.9 (9.4) p = 0.67	Binge Eating Scale, mean (SD) G1: 27.2 (6.5) G2: 26.5 (7.4) p = 0.67 None	NA

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Claudino, 2007[51] (continued)	agents, antidiabetes agents, and those that interfere with gastrointestinal movements or other agents. 9) Unstable use (within last 3 months) of antideppresants, lithium, or thyroid hormones 10) Enrollment in psychotherapy aimed at weight loss or eating disorder treatment within 3 months of entry to the study						
Devlin, 2007[52] Devlin, 2005[53]	DSM criteria for BED for at least 6 months (did not specify DSM-IV) Current medical illness not adequately controlled with diet or medication Certain current psychiatric disorders including bipolar, major depressive disorder with melancholic features, bulimia nervosa History of anorexia nervosa Substance use disorder past year Concurrent eating/weight control treatments Current use of antidepressants, mood stabilizers, or appetite suppressants	Adults age 18-70 with BED Years, mean (SD) Overall: 43 (12) G1: NR G2: NR G3: NR G4: NR	Overall: 78% G1: NR G2: NR G3: NR G4: NR Black Overall: 12% G1: NR G2: NR G3: NR G4: NR Hispanic Overall: 10% G1: NR G2: NR G3: NR G4: NR	Overweight or obese men and women Ages 18-70 Maximum weight 350 lbs (159 kg)	Current major depression G1: 2% G2: 3% G3: 3% G4: 2%	NR None	Further participant characteristics reported in Devlin 2005 article

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Devlin, 2007[52] Devlin, 2005[53] (continued)			Mixed/other Overall: 1% G1: NR G2: NR G3: NR G4: NR kg, mean (SD) Overall: 115.0 (21.8) G1: NR G2: NR G3: NR G4: NR				

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Golay, 2005[54]	Tool: NR, "semi-structured interview conducted by a trained clinician Criteria: DSM-IV Women who were pregnant, lactating, or of childbearing potential not using a reliable contraceptive method Hypersensitivity to Orlistat History or presence of significant medical disorders Active gastrointestinal disorder Pancreatic disease or enzyme deficiency History or current presence of pancreatitis Hypertensive at screening and/or baseline Myocardial infarction CABG or angioplasty within the last 6 months Evidence of heart failure Unstable angina pectoris within the last 3 months Drug-treated diabetis mellitus Abnormal lab test results of clinical significance in the clinical chemistry or hematology Excessive alcohol intake	Adults 18-65 diagnosed with BED with a BMI greater than or equal to 30 G1: 41.2 (6.2) G2: 40.6 (6.1) p = NR	G1: 91% G2: 91% p = NR Overall: 3%, group differences were not split out Weight G1: 96.9 (2.3) G2: 99.8 (2.1) p = NR BMI G1: 35.7 (0.5) G2: 37.3 (0.8)	Ages 18-65 BMI ≥ 30	Major Depression (measured in interview) G1: 14% G2: 22% p = NR	Generalized anxiety (measured in interview) G1: 46% G2: 58% p = NR None	

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Golay, 2005[54] (continued)	Smoking cessation in the last 6 months Previous participation in any clinical trial of Orlistat Taking antidepresssants, appetite suppressants, or tranquelizers Participating in psychology therapy or counseling Taking medications known to alter body weight History or presence of cancer History or presence of a pscyhological or sensory condition such as to interfere with the subject's ability to participate or give informed consent						

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Grilo, 2005[55]	DSM-IV research criteria for BED Concurrent treatment for eating, weight, or psychiatric illness; medical conditions (e.g., diabetes or thyroid problems, determined by lab testing) that influence weight ot earting; severe current psychiatric conditions requiring different treatment; pregnancy or lactation.	Adult 35-60 years old, BMI greater than or equal to 30, with BED 47.0 (35-58) G1: 45.2 (7.4) G2: 47.0 (7.0) p = 0.37	Overall: 44 (88%) G1: 21 (84%) G2: 23 (92%) p =0.38 G1: 3 (12%) G2: 3 (12) p = NS African American: Total Sample: 3 (6) G1: 1 (4%) G2: 2 (8%) Hispanic: Total Sample: 3 (6) G1: 2 (8%) G2: 1 (4%) Body mass index (BMI), mean (SD) Overall: 36.0 (4.7) G1: 36.2 (4.7) G2: 36.8 (5.1) p = NS	Age: 35-60 years old, BMI >30	Beck Depression Inventory (BDI), mean (SD) Overall: NR G1: 17.1 (8.9) G2: 20.6 (9.6) p = NS	Lifetime diagnosis: Any Axis I: G1: 52% G2: 68% p=NS Major depressive disorder: G1: 36% G2: 48% p=NS Dysthymic disorder: G1: 4% G2: 16% p=NS Anxiety Disorders: G1: 24% G2: 24% p=NS Substance Use Disorders: G1: 16% G2: 4% p=NS Age BED onset, mean (SD): G1: 23.5 (12.2) G2: 27.2 (14.0) p=NS	NA

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Grilo, 2013[56]	DSM-V criteria for BED severe mental illnesses (e.g., psychotic disorders, such as schizophrenia, or current severe bipolar illness, uncontrolled current substance dependence, or suicidality) unstable/changing medication regimens and current antipsychotic medications as well as cardiac and neurologic diseases	Spanish-speaking, obese adults with BED Overall: NR G1: 45.9 (SD 9.0) G2: 45.6 (SD 7.6) p=NR, NS	Overall: NR G1: 17 (85%) G2: 14 (70%) p=NR, NS Overall: 100% G1: 100% G2: 100% p=NR, NS Body mass index (BMI) Overall: NR G1: 39.0 (SD 7.0) G2: 37.2 (SD 5.3) p=NR, NS	obesity, defined as having a BMI of 30kg/m or greater Age 21-65 monolingual (Spanish speaking only)	Beck Depression Inventory (BDI), mean (SD) Overall: NR G1: 22.9 (12.0) G2: 25.7 (10.6) p = NS	Generalized anxiety (measured in interview) G1: 46% G2: 58% p = NR Lifetime axis 1 disorder Overall: NR G1: 16 (80%) G2: 19 (95%) p=NR, NS Lifetime mood disorder Overall: NR G1: 16 (80%) G2: 17 (85%) p=NR, NS Lifetime anxiety disorder Overall: NR G1: 10 (50%) G2: 9 (45%) p=NR, NS Lifetime substance disorder Overall: NR G1: 6 (30%) G2: 6 (30%) p=NR, NS	NA

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Grilo, 2013[56] (continued)						Current axis 1 disorder Overall: NR G1: 14 (7%) G2: 16 (80%) p=NR, NS none	

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60],	DSM-IV research criteria for BED Concurrent tx for eating, wt, or psychiatric problems Medical conditions (diabetes, thyroid problems, hypoglycemia) that influence wt/eating Severe psychiatric conditions requiring different tx's (psychosis, BPD) Pregnancy or lactation	Adults 21-59 yo Mostly female (78%) BED Overall: 44.0 (21-59) G1: 44.3 (9.5) G2: 43.6(8.5) G3: 44.7(8.1) G4: 43.6(8.5) F: 0.11 p=0.955	Overall:78 % G1: 19 (70.4%) G2: 23 (85.2%) G3: 20 (76.9%) G4: 22 (78.6%) F: 1.74 p=0.629 Overall Non-White: 12 of 108 (11%) White G1: 0% G2:25.9% G3:11.5% G4:7.1% F: 10.48 p=0.106 Body mass index (BMI) Overall: 36.3 (7.9) G1: 38.9 (9.5) G2: 35.7 (7.2)	Age 18-60 years 100% - 200% of ideal body weight based on 1959 metropolitan life insurance company table	Beck Depression Inventory (BDI) Overall: G1: 16.9 (8.4) G2: 18.7 (9.7) G3: 20.2 (12.1) G4: 16.5 (8.4) F: 0.83 p=0.480	DSM-IV Co-morbidity Lifetime, No (%) Any Axis I Disorder: G1: 20 (74.1) G2: 17 (63.0) G3: 21 (80.8 G4: 21 (75.0) F: 2.70 p=0.440 Major Depressive Disorder: G1: 11 (40.7) G2: 12 (44.4) G3: 14 (50.0 G4: 17 (60.7) F: 2.70 p=0.440 Anxiety disorders G1: 9 (33.3) G2: 10 (37.0%) G3: 8 (30.8%) G4: 13 (46.4%) F: 2.28 p=0.517 Alcohol use disorders G1: 4 (14.8%) G2: 7 (25.9%) G3: 9 (34.6%) G4: 6 (21.4%) F:3.01 p=0.391	NA

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60], (continued)			G3: 35.7 (8.3) G4: 35.0 (6.2) F: 1.30 p=0.279			Drug use disorders G1:4 (14.8%) G2: 5 (18.5%) G3:4 (15.4%) G4: 6 (21.4%) F: 0.53 p=0.912 Any axis II personality disorder G1: 7 (25.9%) G2: 12 (44.4%) G3: 8 (30.8%) G4: 7 (25.0%) F: 3.04 p= 0.385 Education, No (%) College G1: 14 (51.9%) G2: 13 (48.1%) G3: 11 (42.3%) G4: 14 (50.0%) Some college G1:11 (40.7%) G2:12 (44.4%) G3: 11 (42.3%) G4: 9 (32.1%)	

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60], (continued)						High school G1: 2 (7.4%) G2: 2 (7.4%) G3: 4 (15.4%) G4: 5 (17.9%) F: 3.16 p= 0.788 NA	
Laederach-Hofmann, 1999[61]	DSM-IV criteria for BED (APA, 1994) Endocrine disorders Diabetes mellitus Pregnancy Arterial hypertension Renal diseases Pulmonary diseases including chronic obstructive lung disease & bronchial astham Use of psychoactive medication or appetite suppressants Contraindications for drugs with anticholinergic side effects Cyclothymia Schizophrenia Major depression Personality disorders Concomitant psychotherapy Other eating disorders (esp. BN) or AN	Adults Majority females Obese/overweight BED Ovearll: NR Overall mean: NR G1: 40.7 (10.9) G2: 35.7 (10.3) p: NS	Overall: 87% NR Weight (KG) overall: NR G1: 96.0 (14.2) G2: 114.8 (29.5) p < 0.05 Body weight index (BMI)(kg/m^2) G1: 36.1 (6.3) G2: 43.2 (9.4) p <0.02	Overweight or obesity (defined as a BMI > 27.5 kg/m^2) 20-60 yo	Self-Rating Depression Scale (SDS) G1: 35.3 (6.3) G2: 35.0 (5.8) p=NS Hamilton Depression Scale (HAMD) G1: 22.6 (9.8) G2: 21.3 (12.0) p=NS	NA NA	NA

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Lanzarone, 2014[62]	Participants are described as having BED, but the measure / definition is not specified. Likely the EDI-2 or BES since those are the measures used for study outcomes. (Interview confirmed by personal communication with author). Diagnosed with binge eating less than 2 years ago Age >65 suffering from other debilitating or chronic diseases	Adults with BED and BMI 26-35 Overall: mean NR, range 22-52 G1: NR G2: NR G3: NR	Overall: NR G1: NR G2: NR G3: NR Overall: NR G1: NR G2: NR G3: NR BMI overall: mean NR, range 26-35 G1: NR G2: NR G3: NR	NR	Overall: NR G1: NR G2: NR G3: NR	Overall: NR G1: NR G2: NR G3: NR none	
Molinari, 2005[63]	DSM-IV Illiteracy Acute suicidal tendency Pregnancy either current or planned within the following 12 months History of alcohol or drug abuse within the last year Concurrent medical condition contradindicating antidepressant therapy Use of psychotropic drugs within the last year, except for low-dose benzodiazepines	Female severely obese patients age 20-45 with BED G1: 35.53 (SD 9.22) G2: 36.70 (SD 7.82) G3: 34.14 (SD 9.15)	100% NR BMI G1: 38.69 (SD 3.57) G2: 37.45 (SD 2.67) G3: 38.93 (SD 4.88)	Females who were consecutively hospitalized in 1998 at the study site, severely obese patients seeking inpatient treatment	NR	NR None	NA

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Ricca, 2001[64]	DSM-IV criteria for BED Diabetes mellitus, thyroid disorder, or any other disease interfering with eating behavior Contraindication to treatment with FLX or FLV Pregnancy or lactation	Adults 18-45 with BED Overall mean 25.9 (SD 6.8) years G1: 26.3 (SD 6.7) G2: 25.2 (SD 6.3) G3: 25.1 (SD 6.9) G4: 25.1 (SD 6.1) G5: 26.1 (SD 5.9)	Overall: 59% G1: 65% G2: 59% G3: 56% G4: 57% G5: 56% Overall: NR G1: NR G2: NR G3: NR G4: NR G5: NR BMI Overall: 32.3 (SD 5.8) G1: 32.0 (SD 6.0) G2: 31.7 (SD 5.6) G3: 32.5 (SD 6.1) G4: 32.1 (SD 3.8) G5: 32.7 (SD 4.1)	age 18-45 years	SCID Major depression overall: 6.4% G1: NR G2: NR G3: NR G4: NR G5: NR	SCID Dysthymia overall: 5.5% G1-G5: NR SCID Adaptation disorder with depressed mood: 3.6% G1-G5: NR SCID Obsessive-compulsive disorder: 1.8% G1-G5: NR SCID Panic disorder: 1.8% G1-G5: NR Age of BED onset (years) overall: NR G1: 19.9 (SD 2.3) G2: 24.4 (SD 3.2) G3: 20.5 (SD 3.6) G4: 21.2 (SD 3.1) G5: 22.1 (SD 3.6) Duration of BED (years) overall: 5.6 (SD 5.0) G1: 6.4 (SD 6.0) G2: 4.9 (SD 5.1) G3: 4.8 (SD 4.4) G4: 5.1 (SD 4.7) G5: 5.3 (SD 4.8) None	NA

Evidence Table 38. Binge eating disorder behavioral and drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC inclusion definition Exclusion criteria	Brief summary of population Mean age (Range)	% female % non-white Weight	Other inclusion criteria (in addition to BED or LOC eating criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) baseline depression score	Other relevant characteristics Subgroup analysis?	Population Comments
Ricca, 2009[65]	DSM-IV threshold or subthreshold BED, with binge minimum average frequency of once a week over the 6m period preceeding the interview any organic disease interfering with eating behavior illiteracy and mental retardation lifetime hx psychotic, bipolar, or substance abuse disorders hx seizures contraindication to treatment with zonisamide pregnancy or lactation	ED clinic patients age 18-60 with BED or subthreshold BED Overall: NR G1: 34.8 (SD 11.09) G2: 36.07 (SD 11.56)	Overall: NR G1: 83.3% G2: 82.1% Overall: NR G1: NR G2: NR BMI Overall: NR G1: 39.22 (SD 7.84) G2: 38.43 (SD 5.70)	Patients attending the outpatient ED clinic during recruitment period Age 18-60	Unipolar depression Overall: NR G1: 20.8% G2: 21.4%	Diagnosis of subthreshold BED Overall: NR G1: 58.3% G2: 57.1% Age onset BED Overall: NR G1: 27.17 (SD 4.85) G2: 28.14 (SD 6.07) Duration of illness Overall: NR G1: 7.67 (SD 3.07) G2: 6.06 (SD 3.96) Panic disorder Overall: NR G1: 12.5% G2: 14.2% Generalized anxiety disorder Overall: NR G1: 20.8% G2: 14.2% Obsessive compulsive disorder Overall: NR G1: 4.1% G2: 7.1% None	NA

Evidence Table E39. Binge eating disorder behavioral and drug treatment – part 3

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Agras, 1994[49]	NA	Cognitive-behavioral therapy (CBT) followed by desipramine + weight loss treatment 12 weekly sessions CBT based on Telch et al. (1990) in study of BED Desipramine (titrate from 25 mg depending on side effects as well as therapeutic effects to a max dose of 300 mg) mean dose =285 mg with a mean blood level of 212ng/mL; seen in small groups either before or immediately after WL groups on a weekly basis for the 1st 4 wks, biweekly for 4 wks, and then at 4 wk intervals 30, 90-minute group sessions, weekly sessions first 24 wks, biweekly last 6 wks, based on LEARN program for weight controll (Brownell, 1985) modified for population and extended to 30 wks. Material dealing with LOC/BE removed to avoid overlap with CBT	Cognitive-behavioral therapy (see group 1 description) followed by WL (see group 3 description)	Weight loss therapy (see group 1 for description)	NA	NA

Evidence Table E39. Binge eating disorder behavioral and drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Brambilla, 2009[50]	6-month course held in weekly sessions of group CBT according to the method of Garner et al. 1997 (Garner DM (1997). Psychoeducational principles in treatment. In: Garner DM, Garfinkel PE, ed. Handbook of treatment for Eating Disorders. New York: Guilford Press; pp 145-177).	Well-defined 1700-kcal diet consisting of 21% proteins, 27% lipids, 52% carbohydrates (29% bread, pasta, rice and 71% vegetables and fruits), divided into 3 meals (breakfast, lunch, dinner). Compliance with the diet was controlled by reviewing patients' reports at monthly psychiatric and/or nutritional interviews. Oral sertraline at starting dose of 50mg/day and increased up to 150mg over the next 6 months. Topiramate at starting dose of 25 mg/day increased up to 150mg/day over the next 6 months. CBT intervention.	Well-defined 1700-kcal diet consisting of 21% proteins, 27% lipids, 52% carbohydrates (29% bread, pasta, rice and 71% vegetables and fruits), divided into 3 meals (breakfast, lunch, dinner). Patients had monthly nutritional interviews, but psychiatric assessment arranged only as necessary. Oral sertraline at starting dose of 50mg/day and increased up to 150mg over the next 6 months. NO topiramate. CBT intervention.	CBT intervention only. No monthly psychiatric assessment; received nutritional advice but not a specific diet; no sertraline or topiramate.	NA	NA

Evidence Table 39. Binge eating disorder behavioral and drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Claudino, 2007[51]		Cognitive behavioral therapy (CBT) +Topiramate 19, 90-minute group sessions of CBT lead by a therapist and cotherapist, occurred weekly until the last 3 sessions which occurred every other week Topiramate, 1 dose per day at bedtime -First 2 weeks: 25mg -Doses were then increased by 25mg every two weeks up to 150mg -Doses were then increased weekly by 25mg up to 200mg -Patients with ≤ 5% reduction in baseline weight or <50% reduction in the number of days with binge episodes were prescribed additional 25mg increments, weekly, until reaching the maximum dose of 300mg -Dose reductions were allowed for subjects who could not tolerate their current dose (minimum dose required was 25mg)	CBT(see group 1 for description) + Placebo	NA	NA	NA

Evidence Table 39. Binge eating disorder behavioral and drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Devlin, 2007[52] Devlin, 2005[53]	During the 2-year maintenance phase, of the 116 randomized, 21 had medication treatment, 19 had psychosocial treatment such as weight management or self-help, and 15 had both medication and psychosocial treatment either in combination or at different time points. 29 of 36 who took medication reported taking antidepressants, 4 took weight loss agents, and 3 took in combination or at different time points.	Behavioral weight program + Individual CBT + Fluoxetine (see Devlin 2005 for more detailed description of study design and treatments) In the 5-month initial trial, all subjects received group behavioral weight control treatment based on the LEARN program (Brownell KD. The LEARN Program for Weight Control, 7th Ed. Dallas, TX: American Health; 1997.) The groups of participants used for the group CBT were randomized as a group to receive individual CBT (G1&G3) or no CBT (G2&G4), to avoid inadvertent dissemination of components of individual CBT to group co-members who were not assigned to individual CBT. After the initial trial, subjects who attained a reduction in the frequency of binge days of at least 75% were asked to enter a 2-year maintenance phase in which they attended monthly maintenance groups and continued double-blind study medication for 18 of the 24 months. Maintenance sessions were based on the LEARN program and focused on a different component each month (Lifestyle, Exercise, Attitudes, Relationships, Nutrition, Overview/Synthesis). Subjects also discussed progress toward individually set monthly goals. Those who continued medication met with their study doctor before each session for medication management.	Behavioral weight program + Individual CBT + Placebo (see Devlin 2005 for more detailed description of study design and treatments)	Behavioral weight program + Fluoxetine	Behavioral weight progrma + Placebo	NA

Evidence Table 39. Binge eating disorder behavioral and drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Golay, 2005[54]		Hypocaloric diet + Orlistat 120mg, taken three times daily with meals for 24 weeks All participants were prescribed a hypocaloric diet that was deisnged to reduce weight by 0.25 to 0.5 kg/wk, with about 30% of calories from fat, 50% from carbohydrates, and 20% from protein. Maximum daily cholesterol intake was 300mg. Diet required 3 meals a day and, if desired, a low fat snack. Caloric intake was adjusted after 12 weeks of treatment.	Hypocaloric diet (see group 1 for description) + Placebo	NA	NA	NA
Grilo, 2005[55]	diet: Instructed to eat 3 meals and 2-3 snacks per day; aim for modest balanced calorie diet with goals of 1200 kcal for women and 1500 kcal for men, limit fat to less than 30% of intake, and follow Food Guide Pyramid for balanced food choices and portion sizes.	Cognitive behavioral therapy (CBT) + Orlistat 120 mg, 3x's per day CBT (Fairburn, 1995 - Overcoming Binge Eating). 6 brief indiviudal meetings (15-20 minute session)	CBT + placebo	NA	NA	NA

Evidence Table 39. Binge eating disorder behavioral and drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Grilo, 2013[56]	Patients were given a once-daily multivitamin containing fat-soluble vitamins and instructed to take it 2 hours prior to the study medication at dinner. Taking at least 1 psych med Overall: NR G1: 15 (75%) G2: 18 (90%) p=NR, NS Taking at least 2 psych meds Overall: NR G1: 10 (50%) G2: 16 (80%) p=NR, NS Taking antidepressants Overall: NR G1: 14 (70%) G2: 15 (75%) p=NR, NS	Behavioral Weight Loss (BWL) + Orlistat: 120mg 3 times daily Behavioral weight loss (BWL) treatment: culturally enhanced adaptation of the Diabetes-Prevention-Program delivered in Spanish by fully bilingual Master's and doctoral-level clinicians at the community center. Focuses on goal-setting including reasonable weight loss, healthy eating behaviors and nutritional practices, lifestyle physical activity, and problem-solving. Adapted for the study to use handouts and examples geared to the Latino/a population of Connecticut, and culture-specific food props to teach healthy portion size and combinations. Following initial training in BWL and DPP methods, clinicians participated in the cultural adaptation process jointly with the investigators and subsequently received weekly supervision in BWL delivery by one of the investigators. When literacy was a concern, clinicians would read and reread the materials to participants.	BWL + Placebo: 3 times daily	NA	NA	NA

Evidence Table 39. Binge eating disorder behavioral and drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Grilo, 2013[56] (continued)		Medication treatments were administered 3 times daily fixed-dose throughout the 4-month treatment. Medication clinical management procedures for Orlistat were delivered in brief individual meetings by a bilingual psychiatrist at the community center who was trained by the investigators. Brief meetings with the study physician during the course of treatment were held as needed to review adherence, problem-solve issues of noncompliance, assess side effects, and if present, methods for coping with side effects.				
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	NA	Fluoxetine, 60 mg/day Instructed to take 3 pills each morning Minimal clincal management (< 15 mins; weekly during first 4 weeks, biweekly thereafter)	Placebo Identical capsules Instructed to take 3 pills each morning Minimal clinical management (< 15 mins; weekly during first 4 weeks, biweekly thereafter)	CBT+Fluoxetine, 60 mg/day (see Group 1 for details) CBT 16 weeks of individual, weekly, 60-minute sessions Followed Fairburn et al., 1993	CBT (see Group 3 for details) + Placebo (see Group 2 for details)	

Evidence Table 39. Binge eating disorder behavioral and drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Laederach-Hofmann, 1999[61]		Diet counseling + psychological support + Imipramine Diet counseling: 30 minutes of individual diet counseling by a dietitians on a biweekly basis. Psychological support: regularly scheduled behavioral-oriented psychological support. Sessions ranged from 15-35 minutes Imipramine, 25 mg 3 times/day	Diet counseling + psychological support + Placebo Identical capsules, 3 times/day	NA	NA	NA
Lanzarone, 2014[62]	One year of CBT. Methods do not provide any detail about frequency, duration, or number of sessions. Background states: "Psychotherapy treatment over a 1y period deals with binge symptoms and aims at reducing the possibility of relapse by gathering different techniques for the maintenance of long-term results through the use of specific individual intervention protocols. The main target of the intervention is to facilitate the management of no-control food intake episodes and of impulsivity through the alteration of behavior, and of cognitive and emotional factors related to eating disorders."	CBT only	CBT plus Paroxetine (dose not specified other than it was bio-equivalent to the Venlafaxine dose)	CBT plus Venlafaxine (dose not specified other than it was bio-equivalent to the Paroxetine dose)		

Evidence Table 39. Binge eating disorder behavioral and drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Molinari, 2005[63]	Inpatient phase lasted 4 weeks, outpatient phase lasted 48 weeks. Monthly sessions with physician and dietician and bimonthly sessions with clinical psychologist. Physician managed obesity-related medical conditions, monitored effectiveness of tx on weight and on number of binge episodes, adjusted fluoxetine dosage according to binge eating and side effects, and maintained contact with patient's general practitioner. Balanced diet was adopted during inpatient and outpatient phase. Group nutritional training (6 90m	Diet/nutritional counseling + CBT Individual 45m sessions held twice a month for 12 months by the clinical psychologist, based on CBT techniques and discussion of a daily eating record diary Balanced diet was adopted during inpatient and outpatient phase. Group nutritional training (6 90m sessions on obesity and its causes, nutrition and eating information, regulation of body weight, biological and social stimuli affecting food intake, strategies for exercise and weight, etc.) in the first 4 weeks of treatment, and individual monthly dietary counseling sessions (dietician verified patient compliance with the diet and reinforced both motivation and behavioral strategies) during the following 50 weeks.	Diet/nutritional counseling + Fluoxetine 20mg/day for 1 week, thereafter titrated progressivelyto 60mg if patients continued to present with high frequency of binge episodes. Dose was reduced in response to side effects.	Diet/nutritional counseling + CBT + Fluoxetine	NA	NA

	sessions on					

Evidence Table 39. Binge eating disorder behavioral and drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Molinari, 2005[63] (continued)	obesity and its causes, nutrition and eating information, regulation of body weight, biological and social stimuli affecting food intake, strategies for exercise and weight, etc.) in the first 4 weeks of treatment, and individual monthly dietary counseling sessions (dietician verified patient compliance with the diet and reinforced both motivation and behavioral strategies) during the following 50 weeks.					

Evidence Table 39. Binge eating disorder behavioral and drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Ricca, 2001[64]	NA	CBT: semi-structured intervention that applies validated behavioral and cognitive strategies, articulated in 3 distinct phases and consisting of 22 individual sessions of 50 minutes each for 24 weeks delivered by trained psychotherapists. Phase 1 aims (8 sessions): elimination of binge episodes and adoption of regular eating pattern. Phase 2 aims (8 sessions): reduction of food intake and modification of dysfunctional beliefs. Phase 3 aims (6 sessions): prevention of relapse and strategy planning.	CBT: semi-structured intervention that applies validated behavioral and cognitive strategies, articulated in 3 distinct phases and consisting of 22 individual sessions of 50 minutes each for 24 weeks delivered by trained psychotherapists. Phase 1 aims (8 sessions): elimination of binge episodes and adoption of regular eating pattern. Phase 2 aims (8 sessions): reduction of food intake and modification of dysfunctional beliefs. Phase 3 aims (6 sessions): prevention of relapse and strategy planning. Fluoxetine 20mg/day for first week, 40mg/day for second week, 60mg/day for following 20 weeks, in a single dose after breakfast	CBT: semi-structured intervention that applies validated behavioral and cognitive strategies, articulated in 3 distinct phases and consisting of 22 individual sessions of 50 minutes each for 24 weeks delivered by trained psychotherapists. Phase 1 aims (8	Fluoxetine 20mg/day for first week, 40mg/day for second week, 60mg/day for following 20 weeks, in a single dose after breakfast	Fluvoxamine 100mg/day after dinner for the first week, 100mg bid after lunch and dinner for the second week, 100mg tid after breakfast, lunch, and dinner for the subsequent 20 weeks

Evidence Table 39. Binge eating disorder behavioral and drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Ricca, 2009[65]	NA	CBT only: 22 individual sessions of 50m each for 24 weeks	CBT+zonisamide: 22 individual sessions of 50m each for 24 weeks Zonisamide: original dose of 25mg/day for first 7 days, then increased, as tolerated, by 50mg/day every seven days to a maximum of 100mg/day for those subjects with a BMI of <35 and to a maximum of 150mg/day for those subjects with a BMI>35. Mean (SD) daily dose (mg) = 112 (32). After the 24th week, psychotherapy ended. Zonisamide was progressively decreased to total discontinuation over a period of 5 weeks.	NA	NA	NA

Evidence Table E40. Binge eating disorder behavioral and drug treatment – part 4

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Agras, 1994[49]	NA	Adherence to desipramine: mean dose of desipramine in blood level 212 ng/mL	All data collected at baseine, 12 wks, 24 wks, 36 wks (posttreatment) Follow up assessment at 3 months post treatment (1 year after enrollment) Binge eating based on a 1-wk period of self-monitoring during which caloric intake and each binge episode were recorded by the participatnt, and by recall collected by an assessor for a second week. Wt collected on a balance beam scale w/ participant wearing indoor clothing w/o shoes All ofther measures collected by self-report
Brambilla, 2009[50]	Dietary adherence was queried but evidence = NR	NA	Outcomes were measured at baseline and then at monthly intervals for 6 months. Bingeing frequency was recorded from patients' spontaneous reports at assessment with psychiatrists and nutritionists. Psychopathology measures were assessed at baseline and 6 months.
Claudino, 2007[51]	1) All CBT sessions were taped and reviewed with a CBT specialist to ensure adherence to CBT manual 2) Patient's weight, food diary records, and homework were reviewed by therapists in each session to check for adherence to CBT	NA	Binge frequency was measured by food diary records considering the 7 days prior to each visit All measurements were taken at baseline, and at weeks: 3, 7, 13, 17, and 21
Devlin, 2007[52] Devlin, 2005[53]	Attendance at group therapy: 10.2 (4.8) sessions out of 16 possible Attendance at CBT: 13.0 (6.0) of 20 possible Mean fluoxetine dose: 51.8 mg/d	NA	Outcomes were assessed at pre-treatment, post-treatment, and at 6, 12, 18, and 24 months after cessation of treatment. Assessments were completed in-person for most subjects, or by telephone and mail for those not able to complete in person.

Evidence Table E40. Binge eating disorder behavioral and drug treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Golay, 2005[54]	Investigator meetings were held every 6 months to control and check the methodology (diagnostic tools, diet prescription, patient self-report scales) used in the two cetners. Participants were only randomized to drug treatments after a week of good compliance and if they lost >1 kg during the first week. Good compliance was when actual caloric intake deviated <30% from prescribed diet. Diet compliance was assessed at each visit by revieing the patient self-report diary for food intake docuemnted during the 3 days preceding the visit. Drug compliance was assessed by a pill count at each visit. When compliance was less than 75% of drug intake, the patient was trained and motivated to have better compliance	NA	Measures were taken at baseline and after 24 weeks with the following exceptions: Weight loss was measued every 2 weeks Energy and fat intakes were assessed by the dietician using the self-report diary at weeks 12 and 24 Number of binge episodes was recorded in a separate self-report journal throughout the study and was evalutated by the physician throughout the study to evaluate the duration of binge eating episodes Metabolic parameters were assessed at baseline, weeks 12 and 24 Measures of body composition were assessed by bioimpedencce and resting energy expenditure calculated using indirect calorimetry

Evidence Table 40. Binge eating disorder behavioral and drug treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Grilo, 2005[55]	Inter-rater reliability for the EDE based on 20% of interviews at baseline, post-treatment, and 3-month followup, kappa coefficient for BED diagnosis = 1.0	NA	Data collection occurred at baseline, monthly throughout the trial, and at 12-week follow-up
Grilo, 2013[56]	68% were compliant (defined as 75% or greater of pill dosages provided that were taken); for the entire study sample (BED and non-BED participants), this did not differ between G1 vs. G2 (p=0.86)	NA	Assessments were conducted at baseline, post-treatment (12 weeks), and 6 months after treatment
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	Fluoxetine and placebo: during clinical management, participants were interviewed about compliance and pill counts were taken CBT Delivered by doctoral-level research clinicians Monitored via audiotapes of sessions and supervision by the investigators Clinicans received extensive training in CBT	NA	Binge eating: mean (SD) - Daily self-monitoring: prosepctively daily record sheet, collected each week, no baseline measure - Self-report on EDE - baseline and follow-up - EDE-Q - Remission (zero objective binges past 28 days) Weight, ED psychpathology, psychopatholgy - All collected at baseline and follow-up - All self- report measures - Information on how weight/BMI were obtained was NOT reported
Laederach-Hofmann, 1999[61]	Adherence to medication was controlled by using the dosette system, checking for the tablets taken, and questioning the patients during the diet counseling sessions. Psychological support provided by an assistant dietitian and supervised by a physician.	NA	Self-report questionnaires taken at 0 , 4, 8, 16, and 32 wks Binge eating assessed by a semistructed interview during diet counseling session at preinclusion (-4 wks), 0, 2, 4, 6, 8 , 10, 12, 14, 16, 18, 20, 24, 28, 32 wks Weight assessed during medical visits at 0, 4, 8, 16, and 32 wks

Evidence Table 40. Binge eating disorder behavioral and drug treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Lanzarone, 2014[62]			Outcomes were assessed at baseline and post-intervention (timing unclear--states that follow-up was in the phase after the 1-year intervention period)
Molinari, 2005[63]	NR	NA	Assessments were completed at baseline, 3m, 6m, and 12m
Ricca, 2001[64]	NR	NA	EDE items were used to measure the frequency of binge eating and compensatory behaviors. Data for 24wk are presented for as-treated analysis although reported to be similar to the ITT analysis. Major Assessments at baseline, 6 months, and 1 year
Ricca, 2009[65]	NR	NA	Assessments were conducted at baseline, 24 weeks (after CBT treatment ended), and one year after end of treatment.

Evidence Table E41. Binge eating disorder behavioral and drug treatment – part 5

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Agras, 1994[49]	Binge days/week Abstinence	Binge days/week, mean (SD) Pretreatment G1: 5.1 (1.4) G2: 4.4 (1.4) G3: 4.5 (1.6)	Binge days/week, mean (SD) 12 wks G1: 1.8 (1.3) G2: 1.5 (1.4) G3: 2.5 (1.9) *After 12 weeks, G1 and G2 were combined and compared to G3 24 wks G1: 1.6 (1.8) G2: 1.1 (1.1) G3: 1.2 (1.2) 36 wks G1: 0.9 (0.9) G2: 1.2 (1.3) G3: 1.5 (.2) 3 month f/u (change from posttx (36 wk) to 3 mo f/u) G1: 1.5 binge days/week G2: 1.7 binge days/week G3: 2.0 binge days/week Omnibus group X time interaction, p< 0.01 Abstinence 36 wks G1: 41% abstinent G2: 37% abstinent G3: 19% abstinent p=NR, stated NS 3 month f/u (change from posttx (36 wk) to 3 mo f/u) G1: 32% abstinent G2: 28% abstinent G3: 14% abstinent p=NR

Evidence Table E41. Binge eating disorder behavioral and drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Brambilla, 2009[50]	Binge frequency/week	Binges/week, mean (SD) G1: 5 (3) G2: 6 (5) G3: 5 (2)	Binge/week, mean (SD) G1: 2 (1) G2: 5 (5) G3: 4 (4) Group X time, p=0.046
Claudino, 2007[51]	Binge day frequency - the number of days per week that a participant engaged in at least one binge episode Binge episode frequency per week Remission = absence of binge eating during last week of the trial (week 21)	Binge days/wk, mean (SD) G1: 4.2 (3.4) G2: 3.4 (1.3) p = 0.18 Binge episodes/wk, mean (SD) G1: 4.7 (3.3) G2: 3.8 (1.5) p = 0.13	Binge days/wk G1: 0.0 (0.2) G2: 0.3 (0.6) Group X time rate of change, p = 0.27 Binge episodes/wk G1: 0.0 (0.2) G2: 0.3 (0.8) Group X time rate of change, p = 0.18 Remission, % G1: 83.8% G2: 61.1% p = 0.03

Evidence Table 41. Binge eating disorder behavioral and drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Devlin, 2007[52] Devlin, 2005[53]	Binges past 28 days Binge abstinence	Binges past 28 days, mean (SD) G1: 16.1 (6.3) G2: 17.1 (3.7) G3: 16.4 (6.3) G4: 15.4 (6.0)	Binges past 28 days, mean (SD) Baseline G1: 2.2 (5.4) G2: 3.7 (6.8) G3: 4.9 (5.6) G4: 6.0 (7.8) Group X time, p=NS 6 month followup Overall: 1.8 (3.6) G1: NR G2: NR G3: NR G4: NR 12 month followup Overall: 3.3 (5.6) G1: NR G2: NR G3: NR G4: NR 18 month followup Overall: 2.2 (5.2) G1: NR G2: NR G3: NR G4: NR 24 month followup Overall: 1.6 (4.0) G1: NR G2: NR G3: NR G4: NR Estimated change in binge frequency over 24 months mean (SE):

Evidence Table 41. Binge eating disorder behavioral and drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Devlin, 2007[52] Devlin, 2005[53] (continued)			Overall rate ratio (outcome at 24m divided by outcome at post-treatment): 0.689 (0.049) G1: NR G2: NR G3: NR G4: NR Individual CBT (G1&G3 vs. G2&G4): F=10.45, p=0.002 Medication: (G1&G2 vs. G3&G4): F=1.20, p=0.277 Time: F=27.80, p<0.0001 CBT-by-time: NS Medication-by-time: NS Post-treatment binge abstinence N (%) Overall:54 (47%) G1: NR G2: NR G3: NR G4: NR 6 months binge abstinence N (%) Overall: 60 (68%) G1: NR G2: NR G3: NR G4: NR 12 months binge abstinence N (%) Overall: 54 (61%) G1: NR G2: NR G3: NR G4: NR

Evidence Table 41. Binge eating disorder behavioral and drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Devlin, 2007[52] Devlin, 2005[53] (continued)			18 months binge abstinence N (%) Overall: 61 (70%) G1: NR G2: NR G3: NR G4: NR 24 months binge abstinence N (%) Overall: 64 (74%) G1: NR G2: NR G3: NR G4: NR Estimated change in binge abstinence over 24 months mean (SE): Overall odds ratio (odds at 24m divided by odds at post-treatment): 1.373 (0.104) G1: NR G2: NR G3: NR G4: NR Individual CBT (G1&G3 vs. G2&G4): F=4.28, p=0.041 Medication: (G1&G2 vs. G3&G4): F=0.16, p=0.689 Time: F=17.52, p<0.0001 CBT-by-time: NS Medication-by-time: NS
Golay, 2005[54]	Binges/week % without BED diagnosis	Binges/week, mean G1: 5.4 G2: 6.2 p=NS	Binges/week, mean G1: 1.0 G2: 1.7 p=NR % without BED diagnosis: G1: 77% G2: 71% p=NS

Evidence Table 41. Binge eating disorder behavioral and drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Grilo, 2005[55]	Binge days/month (OBEs on EDE) for past 28 days Binge episodes/month (OBEs on EDE) for past 28 days Remission (0 binges over the past month)	Binge days/month G1: 15.3 (SD 6.6) G2: 12.8 (SD 5.4) p=0.15 Binge episodes/month G1: 16.4 (SD 8.0) G2: 13.5 (SD 6.6) p=0.16	Binge days/month G1: NR G2: NR Post-treatment Binge episodes/month G1: 3.2 (SD 5.5) G2: 3.6 (SD 5.2) F=0.24 p=0.62 3m Binge episodes/month G1: 3.4 (SD 6.5) G2: 2.8 (SD 5.3) F=0.03 p=0.87 Post-treatment remission, ITT analysis G1: 64% G2: 36% chi-square 3.920 p=0.048 3m remission, ITT analysis G1: 52% G2: 52% chi-square NR p=NR Post-treatment remission, completers G1: 79% G2: 45% chi-sqare 4.74 p=0.029 3m remission, completers G1: 68% G2: 60% chi-square 0.30 p=0.58

Evidence Table 41. Binge eating disorder behavioral and drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Grilo, 2013[56]	Remission from BED (0 OBEs in the past 28 days) (missing values at follow-up replaced with "failure to remit"), per the Spanish-EDE	NA	Post-treatment Remission from BED G1: 60% G2: 70% chi-square=0.44, p=0.51 6m remission from BED G1: 50% G2: 50% p=NR, NS
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	Measure 1: Daily self-monitoring: prosepctively daily record sheets each week Measure 2: Binge episodes/month (EDE-Q) Measure 3: Binge days/month (EDE) Measure 4: Binge episodes/month (EDE) Measure 5: Remission rates (from self-monitoring)	Self-minitoring episodes/month NR Binge episodes/month (EDE-Q) G1: 17.9 (12.2) G2: 13.2 (9.3) G3: 15.2 (7.7) G4: 16.6 (8.9) F: 1.62 p=0.188 Binge days/month (EDE) G1: 16.5 (7.6) G2: 13.5 (7.4) G3: 16.5 (7.2) G4: 17.4 (7.5) F: 1.41 p=0.245 Binge episodes/month EDE) G1: 20.0 (11.6) G2: 16.3 (11.9) G3: 22.7 (13.7) G4: 22.8 (14.7) F: 1.37 p=0.255 Remission rates (from self-monitoring) NA	Self-monitoring episodes/month G1: 11.0 (11.2) G2: 7.4 (10.2) G3: 4.2 (6.9) G4: 2.6 (5.8) ANCOVA p== 0.000 G2 v G1: p=ns G4 v G3: p=ns G4 v G2: p=0.004 G4 v G1: p=0.04 G3 v G2: p=0.05 G3 v G1: p=0.001 Binge episodes/month (EDE-Q) Post-treatment G1: 10.4 (1.6) G2: 7.2 (9.2) G3: 4.7 (11.9) G4: 1.8 (3.9) ANCOVA p=0.000 G2 v G1: p=ns G4 v G3: p=ns G4 v G2: p=0.002 G4 v G1: p=0.000 G3 v G2: p=0.02 G3 v G1: p=0.001

Evidence Table 41. Binge eating disorder behavioral and drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60] (continued)			6-month followup (estimated marginal means, SE) G1: 11.6 (2.4) G2: NR G3: 3.9 (1.6) G4: 5.7 (1.4) 12-month followup (estimated marginal means, SE) G1: 10.3 (11.1) G2: NR G3: 4.3 (1.6) G4: 2.3 (1.0) Mixed-model, p=NR, stated = significant G4 v G3: p=0.808 G4 v G1: p<0.001 G3 v G1: p<0.001 Binge days/month (EDE) NR Binge episodes/month (EDE) NR Remission rates (from self-monitoring) G1: 22% G2: 26% G3: 50% G4: 61% G1 v G2: NS G3 v G4: NS G4 v G2: p=0.008 G4 v G1: p=0.004 G3 v G2: p=0.05 G3 v G1: p=0.03

Evidence Table 41. Binge eating disorder behavioral and drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Laederach-Hofmann, 1999[61]	Binges/week	Binges/week, mean (SD) Baseline G1: 7.1 (4.1) G2: 7.1 (4.9) p=NS	Binges/week, mean (SD) 8 wks G1: 2.8 (3.0) G2: 5.4 (5.1) 32 wks G1: 4.1 (2.1) G2: 7.2 (4.3) Binges/week, % reduction 8 weeks: G1: 73% G2: 28% p<0.02 32 weeks: G1: NR (data in figure) G2: NR (dat in figure) p < 0.0001
Lanzarone, 2014[62]	Binge Eating Scale (BES) Score	BES, mean G1: 31.43 (SD 2.41) G2: 30.90 (SD 3.54) G3: 30.80 (SD 2.78) p=NS	BES, mean G1: 28.71 (SD 2.46) G2: 27.90 (SD 2.85) G3: 27.20 (SD 2.57) No statistical differences between groups: G1 v G2, p=0.50 G1 v G3, p=0.19 G2 v G3, p=0.53

Evidence Table 41. Binge eating disorder behavioral and drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Molinari, 2005[63]	Achieved reduction in binge episodes to <2/week Number of binge eating episodes per month	G1: NR G2: 15.19 (SD 5.99) G3: NR	3m Achieved reduction in binge episodes to <2/week G1: 100% G2: 100% G3: 100% 6m # binge episodes/month G1: 3.28 (SD 2.12) G2: 4.47 (SD 1.61) G3: 3.20 (SD 2.44) p=NR, NS 12m # binge episodes/month G1: 0.80 (SD 1.32) G2: 4.40 (SD 2.07) G3: 2.10 (SD 1.79) p=0.001
Ricca, 2001[64]	Frequency of binge eating episodes (episodes per month)	G1: 18 (SD 2.3) G2: 17 (SD 3.1) G3: 18 (SD 3.5) G4: 20 (SD 4.3) G5: 20 (SD 5.8)	24 weeks (end of treatment) G1: 8 (SD 3.9), p<0.001 vs. baseline G2: 6 (SD 4.6), p<0.001 vs. baseline G3: 8 (SD 3.2), p<0.001 vs. baseline G4: 19 (SD 3.5) G5: 18 (SD 2.4) Group X time, p=NR 1 year after end of treatment G1: 8 (SD 5.1), p<0.001 vs. baseline G2: 7 (SD 3.4), p<0.001 vs. baseline G3: 8 (SD 2.4), p<0.001 vs. baseline G4: 21 (SD 3.1) G5: 18 (SD 1.7) No differences were observed in the frequency of binge eating episodes in all 5 groups of patients when compared to 24wk

Evidence Table 41. Binge eating disorder behavioral and drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence etc.)	Binges Baseline	Binges Outcomes
Ricca, 2009[65]	Binges/month Binge eating scale (BES)	Binges/month: mean, 25th and 75th percentiles) G1: 5.0 (4.0-18.7) G2: 5.0 (4.0-15.0) Binge eating scale (BES): mean, 25th and 75th percentiles) G1: 15 (9.5-21.5) G2: 15 (11.0-18.0)	24wk Binge frequency / month: mean, 25th and 75th percentiles) G1: 2.0 (1.0-3.0) G2: 2.0 (0.0-5.0) p=NR 18m Binge frequency / month: mean, 25th and 75th percentiles) G1: 3.0 (2.0-3.0) G2: 2.0 (0.0-5.0) G2 had greater reduction, p<0.01 24wk Binge eating scale (BES): mean, 25th and 75th percentiles) G1: 10 (5.0-11.7) G2: 7 (3.0-16.0) G2 had greater reduction, p<0.05 18m Binge eating scale (BES): mean, 25th and 75th percentiles) G1: 9.0 (5.5-12.7) G2: 7 (2.0-16.0) G2 had greater reduction, p<0.01

Evidence Table E42. Binge eating disorder behavioral and drug treatment – part 6

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Agras, 1994[49]	Binge Eating Scale (BES) Disinhibition (TFEQ) Hunger (TFEQ) Restraint (TFEQ)+AU3	Disinhibition (TFEQ) Prettreatment G1: 14.6 (1.2) G2: 14.0 (1.1) G3: 13.7 (1.8) G1 > G3, p<0.05 Hunger (TFEQ) Pretreatment G1: 10.6 (2.6) G2: 9.1 (2.9) G3: 10.3 (2.9) p=NS Restraint (TFEQ) Pretreatment G1: 8.2 (3.6) G2: 6.6 (2.8) G3: 8.7 (4.5) G1 and G3 > G2, p<0.05	Disinhibition (TFEQ) 12 wks G1: 12.2 (2.3) G2: 12.7 (1.8) G3: 12.7 (2.6) p=NS 24 wks G1: 9.7 (3.5) G2: 10.8 (2.7) G3: 11.7 (3.0) G1 < G3, p<0.05 36 wks G1: 10.2 (4.2) G2: 10.8 (3.1) G3: 11.6 (2.6) p=NS Omnibus group X time, p<0.04 Hunger (TFEQ) 12 wks G1: 8.3 (2.4) G2: 7.8 (3.1) G3 9.4 (3.2) p=NS 24 wks G1: 5.8 (3.1) G2: 6.2 (2.9) G3: 8.5 (3.2) G1 and G2 < G3, p<0.05 36 wks G1: 7.2 (2.8) G2: 6.4 (3.2) G3: 8.4 (3.2) p=NS

Evidence Table E42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Agras, 1994[49] (continued)			Omnibus group X time, p<0.05 Restraint (TFEQ) 12 wks G1: 10.4 (0.5) G2: 8.5 (3.5) G3: 11.2 (5.1) p=NS 24 wks G1: 14.6 (3.3) G2: 10.8 (0.4) G3: 12.5 (5.1) p=NS 36 wk G1: 13.4 (3.4) G2: 10.9 (4.5) G3: 12.0 (5.1) p=NS

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Brambilla, 2009[50]	Eating Disorder Inventory (EDI)-2 (only report the subscale that showed significant within-group effects, which include bulimia, drive for thinness, maturity fear, ascetism, perfectionism, and social insecurity)	EDI-2 total score G1: 82 (SD 39) G2: NR G3: NR EDI-2 bulimia G1: 5 (SD 3) G2: NR G3: NR EDI-2 drive for thinness G1: 11 (SD 6) G2: NR G3: NR EDI-2 maturity fear G1: 7 (SD 6) G2: NR G3: NR EDI-2 ascetism G1: 7 (SD 4) G2: NR G3: NR EDI-2 Perfectionism G1: NR G2: NR G3: NR EDI-2 Social insecurity G1: NR G2: NR G3: NR	EDI-2 total scores G1: 64 (SD 36) G2: NR G3: NR Group X time, p=NR EDI-2 bulimia G1: 2 (SD 3) G2: NR G3: NR Group X time, p=NR EDI-2 drive for thinness G1: 7 (SD 8) G2: NR G3: NR Group X time, p=NR EDI-2 maturity fear G1: 6 (SD 6) G2: NR G3: NR Group X time, p=NR EDI-2 ascetism G1: 3 (SD 2) G2: NR G3: NR Group X time, p=NR EDI-2 Perfectionism G1: NR G2: NR G3: NR Group X time, p=NR EDI-2 Social insecurity G1: NR G2: NR G3: NR Group X time, p=NR

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Claudino, 2007[51]	Binge Eating Scale (BES)	BES, mean (SD) G1: 27.2 (6.5) G2: 26.5 (7.4) p = 0.67	BES, mean (SD) G1: 7.5 (7.1) G2: 8.6 (5.7) Group X time rate of change, p = 0.46
Devlin, 2007[52] Devlin, 2005[53]	Binge Eating Scale (BES) Body Shape Questionnaire (BSQ) Three-Factor Eating Questionnaire (TFEQ) -restraint -hunger -disinhibition	Pre-treatment BES mean (SD) G1: 31.5 (6.1) G2: 29.9 (8.8) G3: 30.8 (5.8) G4: 29.7 (7.4) Pre-treatment BSQ mean (SD) Overall: 132 (31.5) G1: 133.5 (30.4) G2: 127.8 (38.8) G3: 132.4 (25.9) G4: 133.7 (32.1) Pre-treatment TFEQ-restraint mean (SD) Overall: 7.28 (3.5) G1: 5.9 (2.8) G2: 7.2 (3.3) G3: 8.0 (3.9) G4: 7.8 (3.4) Pre-treatment TFEQ-hunger mean (SD) Overall: 10.2 (3.1) G1: 10.6 (3.4) G2: 10.7 (2.7) G3: 9.9 (2.9) G4: 9.5 (3.0) Pre-treatment TFEQ-disinhibition mean (SD) Overall: 13.4 (2.1) G1: 13.6 (1.4) G2: 13.6 (2.3) G3: 13.3 (2.0) G4: 13.0 (2.4)	Post-treatment BES mean (SD) G1: 17.6 (12.8) G2: 18.3 (10.5) G3: 20.7 (9.6) G4: 22.0 (10.7) Group X time, p=NS Post-treatment BSQ mean (SD) Overall: 106 (36.5) G1: 99.4 (36.2) G2: 105.5(36.1) G3: 103.7 (34.9) G4: 114.3 (38.9) Group X time, p=NS 6 months mean BSQ (SD) Overall: 98.6 (32.4) G1: NR G2: NR G3: NR G4: NR 12 months mean BSQ (SD) Overall: 101 (37.8) G1: NR G2: NR G3: NR G4: NR 18 months mean BSI (SD) Overall: 97.7 (33.2) G1: NR G2: NR G3: NR G4: NR

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Devlin, 2007[52] Devlin, 2005[53] (continued)			24 months mean BSI (SD) Overall: 94.5 (33.1) G1: NR G2: NR G3: NR G4: NR Estimated change in BSQ over 24 months mean (SE): Overall NR Individual CBT (G1&G3) Estimated change in BSQ over 24 months mean (SE): -0.302 (1.975) No individual CBT (G2&G4) Estimated change in BSQ over 24 months mean (SE): -2.642 (0.805) G1: NR G2: NR G3: NR G4: NR Individual CBT (G1&G3 vs. G2&G4): F=1.39, p=0.238 Medication: (G1&G2 vs. G3&G4): F=3.72, p=0.056 Time: F=10.77, p=0.001 CBT-by-time: F=4.00, p=0.046 Medication-by-time: NS Post-treatment mean TFEQ-restraint (SD) Overall: 10.8 (4.2) G1: 10.1 (4.6) G2: 10.1 (4.3) G3: 11.5 (4.1) G4: 11.3 (3.9) Group X time, p=NS 6 months TFEQ-restraint mean (SD) Overall: 11.6 (4.5) G1: NR G2: NR G3: NR G4: NR

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Devlin, 2007[52] Devlin, 2005[53] (continued)			12 months TFEQ-restraint mean (SD) Overall: 10.5 (4.5) G1: NR G2: NR G3: NR G4: NR 18 months TFEQ-restraint mean (SD) Overall: 10.2 (4.4) G1: NR G2: NR G3: NR G4: NR 24 months TFEQ-restraint mean (SD) Overall: 10.5 (4.7) G1: NR G2: NR G3: NR G4: NR Estimated change in TFEQ-restraint over 24 months mean (SE): Overall NR Fluoxetine (G1&G2) Estimated change in in TFEQ-restraint over 24 months mean (SE): -0.412 (0.368) Placebo (G3&G4) Estimated change in TFEQ-restraint over 24 months mean (SE): 0.065 (-0.153) G1: NR G2: NR G3: NR G4: NR Individual CBT (G1&G3 vs. G2&G4): F=1.84, p=0.166 Medication: (G1&G2 vs. G3&G4): F=0.73, p=0.392 Time: F=0.18, p=0.670

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Devlin, 2007[52] Devlin, 2005[53] (continued)			CBT-by-time: NS Medication-by-time: F=4.94, p=0.027 Post-treatment TFEQ-hunger mean (SD) Overall: 7.4 (3.9) G1: 7.6 (4.5) G2: 7.4 (4.0) G3: 7.2 (3.8) G4: 7.5 (3.3) Group X time, p=NS 6 months TFEQ-hunger mean (SD) Overall: 7.5 (3.9) G1: NR G2: NR G3: NR G4: NR 12 months TFEQ-hunger mean (SD) Overall: 7.5 (4.1) G1: NR G2: NR G3: NR G4: NR 18 months TFEQ-hunger mean (SD) Overall: 8.2 (3.9) G1: NR G2: NR G3: NR G4: NR 24 months TFEQ-hunger mean (SD) Overall: 8.2 (3.8) G1: NR G2: NR G3: NR G4: NR

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Devlin, 2007[52] Devlin, 2005[53] (continued)			Estimated change in TFEQ-hunger over 24 months mean (SE): Overall: 0.225 (0.075) G1: NR G2: NR G3: NR G4: NR Individual CBT (G1&G3 vs. G2&G4): F=0.39, p=0.536 Medication: (G1&G2 vs. G3&G4): F=0.63, p=0.427 Time: F=9.32, p=0.002 CBT-by-time: NS Medication-by-time: NS Post-treatment TFEQ-disinhibition mean (SD) Overall: 10.3 (4.1) G1: 9.6 (4.8) G2: 9.2 (4.1) G3: 11.0 (3.7) G4: 13.0 (2.4) Group X time, p=NS 6 months TFEQ-disinhibition mean (SD) Overall: 9.9 (3.6) G1: NR G2: NR G3: NR G4: NR 12 months TFEQ-disinhibition mean (SD) Overall: 10.3 (3.8) G1: NR G2: NR G3: NR G4: NR

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Devlin, 2007[52] Devlin, 2005[53] (continued)			18 months TFEQ-disinhibition mean (SD) Overall: 10.6 (3.4) G1: NR G2: NR G3: NR G4: NR 24 months TFEQ-disinhibition mean (SD) Overall: 10.5 (3.6) G1: NR G2: NR G3: NR G4: NR Estimated change in TFEQ-4 disinhibition from post-treatment to 24 months (mean, SE): Overall: 0.102 (0.091) G1: NR G2: NR G3: NR G4: NR Individual CBT (G1&G3 vs. G2&G4): F=2.00, p=0.159 Medication: (G1&G2 vs. G3&G4): F=0.13, p=0.720 Time: F=1.25, p=0.265 CBT-by-time: NS Medication-by-time: NS
Golay, 2005[54]	Eating Disorders Inventory (EDI) - 2	EDI-2, mean (SEM) G1: 68.0 (3.5) G2: 64.9 (3.4) p = NR	EDI-2, mean (SEM) G1: 50.0 (3.6) G2: 58.4 (4.7) p = 0.011 Data in figure only, G1 better than G2 in post-treatment EDI-2 subscales of perfectionism (p=0.037), interoceptive awarness, p=0.03)

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Grilo, 2005[55]	EDE -dietary restraint -eating concern -weight concern -shape concern -global score	EDE-dietary restraint G1: 2.0 (SD 1.4) G2: 2.1 (SD 1.4) p=0.72 EDE-eating concern G1: 2.6 (SD 1.3) G2: 2.7 (SD 1.1) p=0.83 EDE-weight concern G1: 3.9 (SD 0.8) G2: 3.7 (SD 0.7) p=0.29 EDE-shape concern G1: 4.3 (SD 0.8) G2: 4.4 (SD 0.8) p=0.64 EDE-global score G1: 3.2 (SD 0.9) G2: 3.2 (SD 0.7) p=0.92	Post-treatment EDE-dietary restraint G1: 2.1 (SD 2.3) G2: 2.0 (SD 1.1) F=0.39 p=0.54 3m EDE-dietary restraint G1: 2.1 (SD 1.3) G2: 2.3 (SD 1.3) F=0.01 p=0.92 Post-treatment EDE-eating concern G1: 0.9 (SD 1.0) G2: 1.0 (SD 1.0) F=0.13 p=0.73 3m EDE-eating concern G1: 1.1 (SD 1.3) G2: 1.2 (SD 1.4) F=0.12 p=0.73 Post-treatment EDE-weight concern G1: 2.8 (SD 1.1) G2: 3.0 (SD 0.7) F=1.67 p=0.20 3m EDE-weight concern G1: 2.9 (SD 1.3) G2: 2.7 (SD 1.1) F=0.20 p=0.66 Post-treatment EDE-shape concern G1: 2.8 (SD 1.4) G2: 3.3 (SD 1.1) F=1.05 p=0.31

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Grilo, 2005[55] (continued)			3m EDE-shape concern G1: 2.9 (SD 1.6) G2: 3.0 (SD 1.4) F=0.01 p=0.93 Post-treatment EDE-global score G1: 2.1 (SD 1.0) G2: 2.4 (SD 0.7) F=0.33 p=0.57 3m EDE-global score G1: 2.2 (SD 1.1) G2: 2.3 (SD 1.0) F=0.01 p=0.97
Grilo, 2013[56]	Eating Disorder Examination (EDE) -restraint -eating concern -shape concern -weight concern -total	EDE-restraint G1: 1.2 (SD 1.3) G2: 1.4 (1.1) EDE-eating concern G1: 1.8 (SD 1.6) G2: 2.0 (SD 1.5) EDE-shape concern G1: 3.8 (SD 1.3) G2: 4.0 (SD 1.5) EDE-weight concern G1: 3.2 (SD 1.0) G2: 3.5 (SD 1.0) EDE-total G1: 2.5 (SD 1.1) G2: 2.7 (SD 0.9)	Post-treatment EDE-restraint G1: 1.8 (SD 1.0) G2: 2.1 (SD 1.1) Groups did not differ significantly in improvements (p=NR, NS) 6m EDE-restraint G1: 1.1 (SD 1.1) G2: 1.2 (SD 1.3) Groups did not differ significantly in improvements (p=NR, NS) Post-treatment EDE-eating concern G1: 0.6 (SD 1.0) G2: 0.6 (SD 0.6) Groups did not differ significantly in improvements (p=NR, NS) 6m EDE-eating concern G1: 0.6 (SD 0.6) G2: 1.2 (SD 1.4) Groups did not differ significantly in improvements (p=NR, NS) Post-treatment EDE-shape concern G1: 2.2 (SD 1.5) G2: 2.6 (SD 1.4)

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Grilo, 2013[56] (continued)			Groups did not differ significantly in improvements (p=NR, NS) 6m EDE-shape concern G1: 2.2 (SD 1.4) G2: 2.7 (SD 1.6) Groups did not differ significantly in improvements (p=NR, NS) Post-treatment EDE-weight concern G1: 2.0 (SD 1.3) G2: 2.6 (SD 1.0) Groups did not differ significantly in improvements (p=NR, NS) 6m EDE-weight concern G1: 2.2 (SD 1.0) G2: 2.5 (SD 1.0) Groups did not differ significantly in improvements (p=NR, NS) Post-treatment EDE-total G1: 1.6 (SD 0.9) G2: 2.0 (SD 0.7) Groups did not differ significantly in improvements (p=NR, NS) 6m EDE-total G1: 1.5 (SD 0.8) G2: 1.9 (SD 1.0) Groups did not differ significantly in improvements (p=NR, NS)

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	Dietary Restraint (EDE-Q) Eating Concern (EDE-Q) Weight Concern (EDE-Q) Shape concern (EDE-Q) Global Score (EDE-Q) Hunger (TFEQ) Cognitive restraint (TFEQ) Disinhibition (TFEQ) Body Dissatisfaction (BSQ)	Dietary Restraint (EDE-Q) G1: 2.4 (1.7) G2: 2.2 (1.5) G3: 2.5 (1.4) G4: 2.6 (1.5) F: 0.38 p=0.771 Eating Concern (EDE-Q) G1: 4.0 (1.2) G2: 3.4 (1.4) G3: 3.9 (1.2) G4: 3.6 (1.2) F: 1.47 p=0.228 Weight Concern (EDE-Q) G1: 4.1 (0.9) G2: 3.9 (1.5) G3: 4.3 (0.9) G4: 4.0 (0.8) F: 0.75 p=0.525 Shape concern (EDE-Q) G1: 5.0 (0.8) G2: 4.5 (1.4) G3: 5.1 (0.7) G4: 5.0 (0.8) F: 1.69 p=0.174 Global Score (EDE-Q) G1: 3.9 (1.2) G2: 3.5 (1.5) G3: 4.0 (1.1) G4: 3.8 (1.1) F: 1.14 p=0.335	Dietary Restraint (EDE-Q) Post-treatment G1: 2.4 (1.6) G2: 1.8 (1.5) G3: 1.6 (1.4) G4: 1.4 (1.0) ANCOVA-p=0.01 G2 v. G1: p=ns G4 v. G3: p=ns G4 v. G2: p=ns G4 v. G1: p=0.002 G3 v. G2: p=ns G3 v. G1: p=0.01 6-month followup G1: 2.9 (0.3) G3: 1.7 (0.3) G4: 1.6 (0.3) 12-month followup G1: 2.4 (0.3) G3: 1.9 (0.3) G4: 2.4 (0.3) Mixed-model, p=NR, stated = significant G4 v. G3: p=0.847 G4 v. G1: p=0.012 G3 v. G1: p=0.009 Eating Concern (EDE-Q) G1: 2.8 (1.8) G2: 2.1 (1.5) G3: 1.5 (1.3) G4: 1.3 (0.7) ANCOVA-p=0.001 G2 v G1: p=ns G4 v G3: p=ns G4 v G2: p=0.01 G4 v G1: p=0.01 G3 v G2: p=0.007 G3 v G1: p=0.008

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60] (continued)		Hunger (TFEQ) G1: 10.1 (3.3) G2: 9.6 (3.9) G3: 10.0 (3.1) G4: 9.7 (3.2) F:0.16 p=0.925 Cognitive restraint (TFEQ) G1: 8.6 (4.0) G2: 8.1 (3.6) G3: 8.7 (4.5) G4: 7.8 (3.7) F: 0.33 p=0.801 Disinhibition (TFEQ) G1: 14.0 (1.3) G2: 13.9 (1.9) G3:14.0 (1.7) G4: 14.2 (1.6) F: 0.15 p=0.928 Body Dissatisfaction (BSQ) G1: 136.3 (26.0) G2: 135.4 (35.2) G3: 139.1 (28.8) G4: 133.5 (24.3) F: 0.18 p=0.913	6-month followup G1: 2.9 (0.3) G3: 2.1 (0.3) G4: 1.8 (0.3) 12-month followup G1: 2.9 (0.3) G3: 1.9 (0.3) G4: 2.0 (0.3) Mixed-model, p=NR, stated = significant G4 v. G3: p=0.808 G4 v. G1: p=0.002 G3 v. G1: p=0.004 Weight Concern (EDE-Q) G1: 3.3 (1.3) G2: 3.0 (1.5) G3: 2.4 (1.5) G4: 2.6 (1.0) ANCOVA - p=0.003 G2 v G1: p=ns G4 v G3: p=ns G4 v G2: p=ns G4 v G1: p=0.04 G3 v G2: p=0.01 G3 v G1: p=0.001 6-month followup G1: 3.9 (0.3) G3: 2.8 (0.3) G4: 2.9 (0.3) 12-month followup G1: 3.6 (0.3) G3: 2.6 (0.3) G4: 3.0 (0.3) Mixed-model, p=NR, stated = significant G4 v. G3: p=0.375 G4 v. G1: p=0.021 G3 v. G1: p=0.002

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60] (continued)			Shape concern (EDE-Q) G1: 3.9 (1.7) G2: 3.6 (1.8) G3: 3.1 (1.8) G4: 3.2 (1.4) ANCOVA p=0.005 G2 v G1: p=ns G4 v G3: p=ns G4 v G2: p=0.02 G4 v G1: p=0.04 G3 v G2: p=0.003 G3 v G1: p=0.007 6-month followup G1: 4.4 (0.3) G3: 3.2 (0.3) G4: 3.7 (0.3) 12-month followup G1: 4.4 (0.3) G3: 3.0 (0.3) G4: 3.6 (0.3) Mixed-model, p=NR, stated = significant G4 v. G3: p=0.148 G4 v. G1: p=0.019 G3 v. G1: p<0.001 Global Score (EDE-Q) G1: 3.1 (1.6) G2: 2.6 (1.6) G3: 2.2 (1.5) G4: 2.1 (1.0) ANCOVA p=0.005 G2 v G1: p=ns G4 v G3: p=ns G4 v G2: p=0.007 G4 v G1: p=0.004 G3 v G2: p=0.002 G3 v G1: p=0.001

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60] (continued)			6-month followup G1: 3.5 (0.3) G3: 2.5 (0.3) G4: 2.5 (0.2) 12-month followup G1: 3.3 (0.3) G3: 2.4 (0.2) G4: 2.7 (0.3) Mixed-mo2el, p=NR, stated = significant G4 v. G3: p=0.627 G4 v. G1: p=0.003 G3 v. G1: p=0.001 Hunger (TFEQ) G1: 8.9 (4.6) G2: 8.4 (4.3) G3: 5.7 (4.0) G4: 6.7 (3.3) ANCOVA p=0.01 G2 v G1: p=ns G4 v G3: p=ns G4 v G2: p=ns G4 v G1: p=ns G3 v G2: p=0.008 G3 v G1: p=0.004 Cognitive restraint (TFEQ) G1: 9.9 (4.7) G2: 9.9 (5.0) G3: 10.0 (4.1) G4: 10.1 (3.1) ANCOVA p=ns G2 v G1: p=na G4 v G3: p=na G4 v G2: p=na G4 v G1: p=na G3 v G2: p=na G3 v G1: p=na

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60] (continued)			Disinhibition (TFEQ) G1: 12.2 (3.6) G2: 12.1 (4.3) G3: 8.3 (4.8) G4: 9.3 (4.8) ANCOVA p=0.000 G2 v G1: p=ns G4 v G3: p=ns G4 v G2: p=0.001 G4 v G1: p=0.002 G3 v G2: p=0.000 G3 v G1: p=0.001 Body Dissatisfaction (BSQ) G1: 117.5 (41.5) G2: 123.6 (41.0) G3: 106.0 (40.2) G4: 100.9 (23.5) ANCOVA p=0.01 G2 v G1: p=ns G4 v G3: p=ns G4 v G2: p=ns G4 v G1: p=0.03 G3 v G2: p=0.05 G3 v G1: p=ns
Laederach-Hofmann, 1999[61]	NA	NA	NA

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Lanzarone, 2014[62]	Impulse regulation scale TFEQ-restrained eating TFEQ-uncontrolled eating TFEQ-emotional eating	Impulse regulation scale G1: 85.93 (SD 6.84) G2: 86.80 (SD 5.29) G3: 87.80 (SD 3.91) p=NS TFEQ-restrained eating G1: 6.64 (SD 1.28) G2: 6.50 (SD 1.43) G3: 6.10 (SD 1.11) p=NS TFEQ-uncontrolled eating G1: 14.71 (SD 1.07) G2: 14.10 (SD 1.11) G3: 13.90 (SD 1.37) p=NS TFEQ-emotional eating G1: 9.93 (SD 1.21) G2: 10.70 (SD 1.64) G3: 10.60 (SD 1.43) p=NS	**The results section of the paper presents these particular outcomes with very confusing wording. Would appreciate someone double-checking my interpretation of these results. Impulse regulation scale G1: 83.07 (SD 6.67) G2: 82.10 (SD 5.72) G3: 83.80 (SD 3.71) No statistical differences between groups: G1 v G2, p=0.58 G1 v G3, p=0.75 G2 v G3, p=0.44 TFEQ-restrained eating G1: 5.86 (SD 0.95) G2: 6.00 (SD 0.82) G3: 5.50 (SD 0.85) No statistical differences between groups: G1 v G2, p=0.62 G1 v G3, p=0.51 G2 v G3, p=0.25 TFEQ-uncontrolled eating G1: 12.93 (SD 1.21) G2: 11.60 (SD 1.07) G3: 11.40 (SD 1.17) G1 was less effective on reducing uncontrolled eating than G2 (p<0.02) and G3 (p<0.009) TFEQ-emotional eating G1: 8.57 (SD 1.22) G2: 9.80 (SD 1.03) G3: 9.10 (SD 1.19) G1 presented with less difficulties on emotional eating control than G2 (p<0.02) but achieved the same post-treatment score as G3 (p=0.31)

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Molinari, 2005[63]	EDI-2 -Bulimia -Impulsivity	EDI-2-Bulimia G1: 7.10 (SD 3.51) G2: 11.40 (SD 2.36) G3: 13.80 (SD 4.41) EDI-2-Impulsivity G1: 7.00 (SD 5.75) G2: 8.20 (SD 3.52) G3: 9.10 (SD 5.08)	EDI-2-Bulimia G1: 3.20 (SD 3.19) G2: 10.80 (SD 2.69) G3: 8.30 (SD 4.66) p=0.024 EDI-2-Impulsivity G1: 4.00 (SD 5.39) G2: 8.10 (SD 3.54) G3: 1.40 (SD 1.35) p=0.046

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Ricca, 2001[64]	EDE -total score -restraint -eating concern -weight concern -shape concern	EDE total score, median (25%-75%) G1: 3.8 (3.4-4.3) G2: 3.8 (3.3-3.9) G3: 4.0 (3.6-4.3) G4: 3.4 (3.5-4.3) G5: 3.8 (3.5-4.2) EDE restraint, median (25%-75%) G1: 3.8 (3.6-5.1) G2: 2.6 (2.0-3.3) G3: 3.3 (2.0-5.0) G4: 3.8 (3.3-4.2) G5: 3.5 (3.1-3.9) EDE eating concern, median (25%-75%) G1: 3.6 (2.4-4.4) G2: 3.6 (4.2-5.1) G3: 4.4 (3.4-5.4) G4: 4.0 (3.5-4.4) G5: 3.8 (3.2-4.3) EDE weight concern, median (25%-75%) G1: 4.4 (2.6-6.0) G2: 4.3 (3.6-5.3) G3: 4.2 (3.3-6.0) G4: 4.2 (3.6-4.5) G5: 4.3 (3.8-4.7) EDE shape concern, median (25%-75%) G1: 3.3 (2.9-4.3) G2: 3.2 (2.7-3.8) G3: 3.7 (2.5-4.5) G4: 3.6 (3.2-4.1) G5: 3.5 (3.1-4.1)	24wk EDE total score, median (25%-75%) G1: 3.4 (2.8-3.6), p<0.01 vs. baseline G2: 2.7 (2.6-3.0), p<0.01 vs. baseline G3: 2.7 (2.4-2.9), p<0.01 vs. baseline G4: 3.8 (3.4-4.2) G5: 3.8 (3.6-4.1) Change values from baseline to 24wk: G1: -0.7 (-0.8 to -0.3) G2: -0.8 (-1.1 to -0.6) G3: -1.1 (-1.4 to -1.0) G4: NR G5: NR Reduction in EDE total scores was significantly different in G1, G2, and G3 (p<0.05), with G3 showing significantly greater improvement than G1 and G2 1y post-treatment EDE total score, median (25%-75%) G1: 3.3 (2.9-3.4) G2: 2.7 (2.5-3.0) G3: 2.6 (2.4-2.9) G4: 3.9 (3.5-4.3) G5: 3.8 (3.5-4.0) No differences in scores were observed at 1y compared to 24wk 24wk EDE restraint, median (25%-75%) G1: 2.9 (1.9-3.6), p<0.01 vs. baseline G2: 2.7 (2.1-3.5) G3: 2.1 (1.8-3.2), p<0.01 vs. baseline G4: 3.9 (3.4-4.3) G5: 3.4 (3.0-3.9) Change values from baseline to 24wk: G1: -0.5 (-0.7 to -0.1) G2: 0.0 (-0.3 to +0.3) G3: -1.4 (-1.9 to -1.0) G4: NR G5: NR

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Ricca, 2001[64] (continued)			Reduction in EDEeating restraint was significantly different in G1, G2, and G3 (p<0.01), with G3 showing significantly greater improvement than G1 and G2 1y post-treatment EDE restraint, median (25%-75%) G1: 2.8 (2.0-3.4) G2: 2.7 (2.1-3.5) G3: 2.1 (1.8-3.1) G4: 3.9 (3.3-4.4) G5: 3.4 (3.0-3.8) No differences in scores were observed at 1y compared to 24wk 24wk EDE eating concern, median (25%-75%) G1: 3.3 (3.1-3.9), p<0.01 vs. baseline G2: 2.8 (2.1-3.3), p<0.01 vs. baseline G3: 2.8 (2.1-3.4), p<0.01 vs. baseline G4: 3.9 (3.4-4.4) G5: 3.7 (3.1-4.4) Change values from baseline to 24wk: G1: 0.7 (-1.0 to -0.2) G2: -1.6 (-2.0 to -0.6) G3: -1.6 (-2.1 to 1.1) G4: NR G5: NR Reduction in EDE eating concern was significantly different in G1, G2, and G3 (p<0.01), with G2 and G3 showing significantly greater improvement than G1 1y post-treatment EDE eating concern, median (25%-75%) G1: 3.3 (2.9-3.9) G2: 2.8 (2.1-3.4) G3: 2.1 (2.1-3.3) G4: 4.0 (3.5-4.4) G5: 3.7 (3.2-4.3)

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Ricca, 2001[64] (continued)			No differences in scores were observed at 1y compared to 24wk 24wk EDE weight concern, median (25%-75%) G1: 3.7 (2.6-4.4), p<0.01 vs. baseline G2: 2.9 (2.8-3.3), p<0.01 vs. baseline G3: 3.2 (2.6-3.6), p<0.01 vs. baseline G4: 4.1 (3.5-4.3) G5: 4.3 (3.7-4.6) No significant differences among the groups were observed in change in weight concern scores 1y post-treatment EDE weight concern, median (25%-75%) G1: 3.6 (2.6-3.4) G2: 2.9 (2.8-3.3) G3: 3.0 (2.6-3.6) G4: 4.0 (3.4-4.3) G5: 4.2 (3.6-4.5) No differences in scores were observed at 1y compared to 24wk 24wk EDE shape concern, median (25%-75%) G1: 3.2 (2.8-3.6), p<0.01 vs. baseline G2: 2.8 (2.1-3.3), p<0.01 vs. baseline G3: 2.9 (2.1-3.3), p<0.01 vs. baseline G4: 3.7 (3.1-4.3) G5: 3.6 (3.2-4.1) No significant differences among the groups were observed in change in shape concern scores

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Ricca, 2001[64] (continued)			1y post-treatment EDE shape concern, median (25%-75%)+H15 G1: 3.1 (2.8-3.6) G2: 2.2 (1.9-3.1) G3: 3.1 (2.1-3.3) G4: 3.8 (3.2-4.4) G5: 3.6 (3.2-4.1) No differences in scores were observed at 1y compared to 24wk
Ricca, 2009[65]	EDE-Q -total score -restraint -eating concern -weight concern -shape concern	EDE-Q: mean (25th and 75th percentiles) -total score G1: 2.8 (2.0-3.6) G2: 2.8 (2.0-3.6) EDE-Q-restraint: mean (25th and 75th percentiles) G1: 2.2 (0.9-2.6) G2: 2.0 (0.9-3.4) EDE-Q-eating concern: mean (25th and 75th percentiles) G1: 2.5 (1.2-3.5) G2: 2.5 (1.6-2.7) EDE-Q-weight concern: mean (25th and 75th percentiles) G1: 3.0 (2.1-4.1) G2: 3.2 (2.3-3.8) EDE-Q-shape concern: mean (25th and 75th percentiles) G1: 3.8 (2.5-4.5) G2: 4.0 (2.7-4.9)	24wk EDE-Q: mean (25th and 75th percentiles) -total score G1: 2.6 (1.8-3.1) G2: 2.1 (1.7-3.2) G2 had greater reduction, p<0.01 18m EDE-Q: mean (25th and 75th percentiles) -total score G1: 2.7 (1.9-3.0) G2: 2.2 (1.6-3.1) p=NR 24wk EDE-Q-restraint: mean (25th and 75th percentiles) G1: 2.2 (1.4-2.6) G2: 1.8 (0.6-2.8) p=NR 18m EDE-Q-restraint: mean (25th and 75th percentiles) G1: 2.2 (1.9-3.0) G2: 1.6 (0.6-2.5) G2 had greater reduction, p<0.01 24wk EDE-Q-eating concern: mean (25th and 75th percentiles) G1: 2.0 (1.2-3.2) G2: 1.8 (1.6-2.6) p=NR

Evidence Table 42. Binge eating disorder behavioral and drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI, etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Ricca, 2009[65] (continued)			18m EDE-Q-eating concern: mean (25th and 75th percentiles) G1: 1.9 (1.2-3.3) G2: 1.8 (1.4-3.6) p=NR 24wk EDE-Q-weight concern: mean (25th and 75th percentiles) G1: 2.9 (1.8-3.8) G2: 2.8 (1.8-3.2) G2 had greater reduction, p<0.01 18m EDE-Q-weight concern: mean (25th and 75th percentiles) G1: 2.9 (1.9-3.3) G2: 2.6 (1.9-3.4) p=NR 24wk EDE-Q-shape concern: mean (25th and 75th percentiles) G1: 3.1 (2.1-4.1) G2: 3.2 (2.1-4.7) G2 had greater reduction, p<0.05 18m EDE-Q-shape concern: mean (25th and 75th percentiles) G1: 3.1 (2.2-4.2) G2: 3.2 (2.1-4.7) p=NR

Evidence Table E43. Binge eating disorder behavioral and drug treatment – part 7

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Agras, 1994[49]	Beck Depression Inventory (BDI)	BDI, mean (SD) Pretreatment G1: 13.7 (8.1) G2: 13. 5 (7.8) G3: 12.9 (6.5) p=NS	BDI, mean (SD) 12 wks G1:10.8 (8.9) G2: 12.7 (9.2) G3: 11.6 (8.0) p=NS 24 wks G1: 8.6 (8.2) G2: 8.5 (6.5) G3: 11.2 (8.5) p=NS 36 wks G1: 7.8 (7.8) G2: 8.9 (7.6) G3: 11.3 (10.3) p=NS Omnibus group X time, p=NS

Evidence Table E43. Binge eating disorder behavioral and drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Brambilla, 2009[50]	Symptoms checklist-90-revised (SCL-90-R) -obsessive-compulsiveness -depression -anxiety -hostility -somatization Personality diagnostic questionnaire-4-revised (PDQ-4-R) (only report the specific personality characteristics that showed significant results, including shizotypic, schizoid, and dependent)	SCL-90-R total scores G1: 100 (SD 46) G2: NR G3: NR SCL-90-R somatization G1: 19 (SD 5) G2: NR G3: NR SCL-90-R depression G1: NR G2: 17 (SD 10) G3: NR SCL-90-R interpersonal relationships G1: NR G2: 10 (SD 6) G3: NR PDQ-4-R schizotypic personality G1: 2 (SD 1) G2: NR G3: NR PDQ-4-R dependent personality G1: 1 (SD 2) G2: NR G3: NR PDQ-4-R schizoid personality G1: NR G2: 32 (SD 1) G3: NR	SCL-90-R total scores G1: 65 (SD 72) G2: NR G3: NR Group X time, p=NR SCL-90-R somatization G1: 12 (SD 9) G2: NR G3: NR Group X time, p=NR SCL-90-R depression G1: NR G2: 12 (SD 7) G3: Group X time, p=NR SCL-90-R interpersonal relationships G1: NR G2: 8 (SD 6) G3: NR Group X time, p=NR PDQ-4-R schizotypic personality G1: 2 (SD 2) G2: NR G3: NR Group X time, p=NR PDQ-4-R dependent personality G1: 1 (SD 2) G2: NR G3: NR Group X time, p=NR PDQ-4-R schizoid personality G1: NR G2: 1 (SD 1) G3: NR Group X time, p=NR

Evidence Table 43. Binge eating disorder behavioral and drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Claudino, 2007[51]	Beck Depression Inventory (BDI)	G1: 16.8 (8.3) G2: 15.9 (9.4) p = 0.67	G1: 10.9 (7.0) G2: 9.2 (6.9) Group X time rate of change, p = 0.20
Devlin, 2007[52] Devlin, 2005[53]	Beck Depression Inventory (BDI) Brief Symptom Inventory (BSI)	Pre-treatment BDI mean (SD) Overall: 15.3 (9.0) G1: 16.9 (9.1) G2: 13.9 (10.6) G3: 14.5 (7.2) G4: 15.6 (9.3) Pre-treatment BSI mean (SD) Overall: 42.4 (29.7) G1: 45.4 (28.1) G2: 39.4 (32.4) G3: 38.8 (27.7) G4: 45.8 (31.3)	Post-treatment BDI mean (SD) Overall: 8.3 (8.4) G1: 6.3 (7.4) G2: 8.4 (9.9) G3: 7.5 (6.3) G4: 10.6 (9.6) Group X time, p=NS 6 months BDI mean (SD) Overall: 7.3 (6.8) G1: NR G2: NR G3: NR G4: NR 12 months BDI mean (SD) Overall: 7.6 (8.6) G1: NR G2: NR G3: NR G4: NR 18 months BDI mean (SD) Overall: 7.5 (7.8) G1: NR G2: NR G3: NR G4: NR 24 months BDI mean (SD) Overall: 7.6 (8.9) G1: NR G2: NR G3: NR G4: NR

Evidence Table 43. Binge eating disorder behavioral and drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Devlin, 2007[52] Devlin, 2005[53] (continued			Estimated change over 24 months mean (SE): Overall rate ratio (outcome at 24m divided by outcome at post-treatment): 0.967 (0.027) G1: NR G2: NR G3: NR G4: NR Individual CBT (G1&G3 vs. G2&G4): F=1.62, p=0.207 Medication: (G1&G2 vs. G3&G4): F=4.27, p=0.041 Time: F=1.43, p=0.235 CBT-by-time: NS Medication-by-time: NS Post-treatment BSI mean (SD) Overall: 25.6 (29.2) G1: 20.3 (26.1) G2: 25.9 (31.8) G3: 26.8 (29.5) G4: 28.8 (30.2) Group X time, p=NR, stated in text as significant; G1 > G2 and G3 and G4 6 months BSI mean (SD) Overall: 21.4 (26.2) G1: NR G2: NR G3: NR G4: NR 12 months BSI mean (SD) Overall: 22.5 (31.9) G1: NR G2: NR G3: NR G4: NR

Evidence Table 43. Binge eating disorder behavioral and drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Devlin, 2007[52] Devlin, 2005[53] (continued			18 months BSI mean (SD) Overall: 27.8 (32.2) G1: NR G2: NR G3: NR G4: NR 24 months BSI mean (SD) Overall: 22.8 (29.4) G1: NR G2: NR G3: NR G4: NR Estimated change in BSI over 24 months mean (SE): Overall rate ratio (outcome at 24m divided by outcome at post-treatment): 1.001 (0.035) G1: NR G2: NR G3: NR G4: NR Individual CBT (G1&G3 vs. G2&G4): F=0.60, p=0.441 Medication (G3&G4): F=3.16, p=0.078 Time: 0.00, p=0.967 CBT-by-time: NS CBT-by-time: NS Medication-by-time: NS

Evidence Table 43. Binge eating disorder behavioral and drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Golay, 2005[54]	Generalized Anxiety (measured in clinical interview) Major Depression (measured in clinical interview) Hamilton Anxiety Score (HAM-A) Hamilton Depression Score (HAM-D) Beck Depression Inventory (BDI)	Generalized anxiety G1: 46% G2: 58% p = NR Major Depression G1: 14% G2: 22% p = NR HAM-A, mean (SEM) G1: 18.4 (0.3) G2: 17.5 (0.5) p = NR HAM-D, mean (SEM) G1: 15.3 (0.3) G2: 16.1 (0.4) p = NR BDI, mean (SEM) G1: 10.8 (1.2) G2: 13.6 (1.3) p = NR	Generalized anxiety G1: 26% G2: 38% p = NS Major Depression G1: 3% G2: 12% p = NS HAM-A, mean (SEM) G1: 18.4 (0.4) G2: 18.3 (0.5) p = NS HAM-D, mean (SEM) G1: 15.6 (0.3) G2: 16.6 (0.4) p = NS BDI, mean (SEM) G1: 8.2 (0.8) G2: 11.6 (1.6) p = NS

Evidence Table 43. Binge eating disorder behavioral and drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Grilo, 2005[55]	Beck Depression Inventory (BDI) Rosenberg Self-Esteem Scale (RSE)	BDI G1: 17.1 (SD 8.9) G1: 20.6 (SD 9.6) p=0.19 RSE G1: 27.7 (SD 5.1) G2: 26.0 (SD 5.7) p=0.28	Post-treatment BDI G1: 10.1 (SD 7.7) G2: 14.7 (SD 9.0) F=2.00 p=0.16 3m BDI G1: 9.9 (SD 8.6) G2: 14.6 (SD 10.9) F=1.35 p=0.25 Post-treatment RSE G1: 30.7 (SD 5.6) G2: 28.0 (SD 5.6) F=1.68 p=0.20 3m RSE G1: 30.4 (SD 5.7) G2: 28.3 (SD 5.2) F=0.72 p=0.40
Grilo, 2013[56]	Beck Depression Inventory (BDI)	BDI, mean G1: 22.9 (SD 12.0) G2: 25.7 (10.6) p=NR, NS	Post-treatment BDI G1: 11.4 (SD 12.0) G2: 17.7 (SD 12.0) Groups did not differ significantly in improvements (p=NR, NS) 6m BDI G1: 10.3 (SD 10.1) G2: 20.9 (SD 11.9) Groups did not differ significantly in improvements (p=NR, NS)

Evidence Table 43. Binge eating disorder behavioral and drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	Beck Depression Inventory (BDI), mean	BDI, mean (SD G1: 16.9 (8.4) G2: 18.7 (9.7) G3: 20.2 (12.1) G4: 16.5 (8.4) F:0.83 p=0.480	BDI, mean (SD): G1: 11.8 (9.8) G2: 11.7 (10.3) G3: 9.2 (7.3) G4: 6.5 (6.8) ANCOVA p=0.03 G2 v G1: p=ns G4 v G3: p=ns G4 v G2: p=0.04 G4 v G1: p=0.01 G3 v G2: p=ns G3 v G1: p=0.04 6-month followup G1: 14.4 (1.7) G3: 10.7 (1.6) G4: 10.2 (1.5) 12-month followup G1: 12.9 (1.6) G3: 11.2 (1.6) G4: 11.3 (1.5) Mixed-model, p=NR, stated = significant G4 v. G3: p=0.821 G4 v. G1: p=0.030 G3 v. G1: p=0.058

Evidence Table 43. Binge eating disorder behavioral and drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Laederach-Hofmann, 1999[61]	Self-Rating Depression Scale (SDS) Hamilton Depression Scale (HAMD)	Self-Rating Depression Scale (SDS), mean (SD) G1: 35.3 (6.3) G2: 35.0 (5.8) p=NS Hamilton Depression Scale (HAMD), mean (SD) G1: 22.6 (9.8) G2: 21.3 (12.0) p=NS	Self-Rating Depression Scale (SDS), mean (SD) 8 wks G1: 28.9 (5.8) G2: 30.8 (7.3) p=NR 32 wks G1: 32.2 (4.9) G2: 33.1 (6.8) p=NR Hamilton Depression Scale (HAMD), mean (SD) 8 wks G1: 9.8 (7.0) G2: 16.0 (10.3) % change (data in figure), p=0.02 32 wks G1: 12.6 (5.8) G2: 19.2 (8.7) % change (data in figure), p=0.01

Evidence Table 43. Binge eating disorder behavioral and drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Lanzarone, 2014[62]	MMPI-2 Psychopathic Deviate Scale MMPI-2 Depression scale MMPI-2 Hypomania scale	MMPI-2 Psychopathic Deviate Scale G1: 74.1 (SD 5.02) G2: 74.8 (SD 3.97) G3: 76.20 (SD 5.41) p=NS MMPI-2 Depression scale G1: 72.50 (SD 5.58) G2: 70.80 (SD 3.91) G3: 70.80 (SD 4.76) p=NS MMPI-2 Hypomania scale G1: 62.00 (SD 8.15) G2: 60.30 (SD 7.94) G3: 60.10 (SD 10.67) p=NS	MMPI-2 Psychopathic Deviate Scale G1: 66.0 (SD 5.38) G2: 71.40 (SD 3.72) G3: 72.90 (SD 5.06) G1 showed a greater reduction compared to G2 (p<0.005) and G3 (p<0.005). G2 and G3 were not significantly different (p=0.53) MMPI-2 Depression scale G1: 69.86 (SD 5.39) G2: 67.80 (SD 3.58) G3: 66.60 (SD 4.69) No significant differences between groups; p=NS MMPI-2 Hypomania scale G1: 59.50 (SD 7.29) G2: 54.10 (SD 8.08) G3: 54.0 (SD 10.27) No significant differences between groups; p=NS

Evidence Table 43. Binge eating disorder behavioral and drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Molinari, 2005[63]	Minnesota Multiphasic Personality Inventory-2 -Hypochondriasis -Depression -Conversion hysteria -Psychasthenia -Schizophrenia -Type A personality -Family problems -Work problems	MMPI2-Hypochondriasis G1: 68.00 (SD 16.91) G2: 61.0 (SD 7.45) G3: 73.20 (SD 10.65) MMPI2-Depression G1: 66.20 (SD 7.20) G2: 64.90 (SD 3.75) G3: 67.60 (SD 10.73) MMPI2-Conversion hysteria G1: 63.00 (SD 11.88) G2: 55.00 (SD 6.37) G3: 63.70 (SD 8.34) MMPI2-Psychasthenia G1: 71.90 (SD 7.20) G2: 56.50 (SD 10.1) G3: 64.90 (SD 11.97) MMPI2-Schizophrenia G1: 64.80 (SD 4.26) G2: 62.20 (SD 6.19) G3: 64.50 (SD 8.54) MMPI2-Type A personality G1: 56.10 (SD 11.85) G2: 59.20 (SD 8.49) G3: 48.50 (SD 12.68) MMPI2-Family problems G1: 60.00 (SD 11.07) G2: 54.80 (SD 19.03) G3: 56.10 (SD 10.3) p=0.004 MMPI2-Work problems G1: 65.90 (SD 8.54) G2: 63.90 (SD 9.08) G3: 64.60 (SD 11.19) p=0.046	MMPI2-Hypochondriasis G1: 61.80 (SD 18.50) G2: 60.3 (SD 6.94) G3: 64.70 (SD 6.27) p=0.031 MMPI2-Depression G1: 56.60 (SD 9.26) G2: 65.1 (SD 3.92) G3: 61.80 (SD 5.35) p=0.006 MMPI2-Conversion hysteria G1: 54.80 (SD 13.68) G2: 55.10 (SD 5.34) G3: 60.30 (SD 8.55) p=0.046 MMPI2-Psychasthenia G1: 57.40 (SD 12.24) G2: 56.40 (SD 9.00) G3: 61.60 (SD 11.14) p=0.002 MMPI2-Schizophrenia G1: 57.00 (SD 8.47) G2: 61.80 (SD 4.66) G3: 60.80 (SD 6.69) p=0.009 MMPI2-Type A personality G1: 47.50 (SD 10.64) G2: 58.70 (SD 7.91) G3: 46.10 (SD 12.42) p=0.05 MMPI2-Family problems G1: 52.20 (SD 9.98) G2: 54.30 (SD 18.52) G3: 54.80 (SD 7.99) p=0.004

Evidence Table 43. Binge eating disorder behavioral and drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Molinari, 2005[63] (continued)			MMPI2-Work problems G1: 56.50 (SD 10.69) G2: 63.50 (SD 7.15) G3: 57.80 (SD 9.40) p=0.046
Ricca, 2001[64]	State-trait anxiety inventory (STAI)-1 STAI-2 Beck Depression Inventory (BDI)	STAI-1, median (25%-75%) G1: 46 (42-52) G2: 47.5 (36.5-53.7) G3: 52 (41-55) G4: 46.2 (41.1-51.6) G5: 48.2 (43.7-52.4) STAI-2, median (25%-75%) G1: 48 (44-55) G2: 48 (36-57) G3: 52 (44-55) G4: 47.5 (42.3-52.4) G5: 49.6 (43.4-52.6) BDI, median (25%-75%) G1: 22 (13.5-26) G2: 16.5 (12.2-29.2) G3: 22 (18-24) G4: 20 (14-25) G5: 21 (11-25.3)	24wk STAI-1, median (25%-75%) G1: 37 (34.5-45.7), p<0.01 vs. baseline G2: 45 (36-52.5) G3: 32 (28.0-36.0), p<0.01 vs. baseline G4: 44.8 (40.6-50.7) G5: 34.1 (29.2-38.8), p<0.01 vs. baseline Change values from baseline to 24wk: G1: -6.0 (-8.5 to -4.0) G2: NR G3: -16.0 (-22 to -9.0) G4: NR G5: NR Reduction in STAI-1 was significantly greater (p<0.01) in G3 than G1, and reduction in G5 was not significantly greater than G1 1y post-treatment STAI-1, median (25%-75%) G1: 40 (36-44) G2: 48 (41.0-56.0) G3: 32 (26.7-34.3) G4: 50.5 (44.0-53.9), p<0.01 vs. 24wk G5: 36.1 (30.7-39.3) Scores were significantly increased at 1y in G4 compared with 24wk 24wk STAI-2, median (25%-75%) G1: 44.5 (36-51.2), p<0.01 vs. baseline G2: 46 (38.2-52.8) G3: 36 (33.0-40.1), p<0.01 vs. baseline G4: 46.8 (41.7-50.9) G5: 35 (29.6-39.1), p<0.01 vs. baseline

Evidence Table 43. Binge eating disorder behavioral and drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Ricca, 2001[64] (continued)			Change values from baseline to 24wk: G1: Article reports conflicting data on p.302: -10.0 (-11.5 to -6.0) AND -3.5 (-10.5 to -3.3) G2: NR G3: -17.5 (-22.2 to -12.5) G4: NR G5: -14.6 (-15.1 to -12.0) Reduction in STAI-2 was significantly greater (p<0.01) in G3 than G1, and reduction in G5 was significantly greater than G1 1y post-treatment STAI-2, median (25%-75%) G1: 44 (36-48.7) G2: 48 (41.0-56.0) G3: 36 (33.8-41.5) G4: 47.1 (42.3-51.1) G5: 34.9 (29.5-38.9) No differences in scores were observed at 1y compared to 24wk 24wk BDI, median (25%-75%) G1: 14 (12-16.5), p<0.01 vs. baseline G2: 10.5 (8.0-13.5), p<0.01 vs. baseline G3: 10 (7.5-12.0), p<0.01 vs. baseline G4: 15 (10.1-19.2), p<0.01 vs. baseline G5: 14 (11.1-18.8), p<0.01 vs. baseline Reductions in BDI scores were not significantly different among the groups 1y post-treatment BDI, median (25%-75%) G1: 14 (9.7-15.5) G2: 10.5 (7.0-12.5) G3: 10 (8.0-13.0) G4: 16 (11.2-20.7) G5: 14 (11.2-18.4) No differences in scores were observed at 1y compared to 24wk

Evidence Table 43. Binge eating disorder behavioral and drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Ricca, 2009[65]	Beck Depression Inventory (BDI) State Trait Anxiety Inventory (STAI)	BDI: mean (25th and 75th percentiles) G1: 19.5 (16.2-26.0) G2: 20 (14.0-27.0) STAI: mean (25th and 75th percentiles) G1: 46 (39.0-52.7) G2: 43 (38.0-52.0)	24wk BDI: mean (25th and 75th percentiles) G1: 14.5 (11.0-21.7) G2: 16 (11.0-20.0) G2 had greater reduction, p<0.05 18m BDI: mean (25th and 75th percentiles) G1: 17.5 (13.0-22.0) G2: 16.0 (14.0-20.0) p=NR 24wk STAI: mean (25th and 75th percentiles) G1: 40 (38.5-44.0) G2: 40 (32.0-45.0) p=NR 18m STAI: mean (25th and 75th percentiles) G1: 42 (38.5-45.5) G2: 38 (30.0-44.0) G2 had greater reduction, p<0.05

Evidence Table E44. Binge eating disorder behavioral and drug treatment – part 8

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Agras, 1994[49]	Weight, kg	Weight, mean (SD) Pretreatment G1: 111.9 (17.4) G2: 102.1 (15.7) G3: 102.9 (15.8) p=NS	Weight, mean (SD) 12 wks G1: 112.7 (18.5) G2: 102.7 (16.5) G3: 100.9 (16.8) G1 and G2 < G3, p<0.05 24 wks G1: 107.0 (20.1) G2: 100.7 (16.7) G3: 100.4 (17.3) p=NS 36 wks G1: 105.9 (20.5) G2: 100.5 (17.6) G3: 99.2 (16.9) p=NS % Weight change, group X time, p<0.001 3 month f/u G1: Lost 4.8 kg from baseline G2: No change in weight from baseline G3: Lost 4.15kg from baseline p=NS	NR	NR	NR

Evidence Table E44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Brambilla, 2009[50]	NA	BMI, mean (SD) G1: 39 (6) G2: 34 (6) G3: 34 (5) Weight (kg), mean (SD) G1: 105 (13) G2: 86 (14) G3: 88 (13)	BMI, mean (SD) G1: 35 (6) G2: 32 (8) G3: 34 (8) Group X time, p=0.01 Weight (kg), mean (SD) G1: 93 (12) G2: 84 (16) G3: 87 (13) Group X time, p=0.00	6m BMI G1: 35 (SD 6), r=0.91 (table 2 reports significance as r) G2: 32 (SD 8), r=NS (table 2 reports significance as r) G3: 34 (SD 8), r=NS One-way ANOVA showed significant decrease in BMI (p=0.00001) in G1 only Two-way ANOVA for repeated measures showed significant effect of group (p=0.03, F=3.2), time (p=0.01, F=2.26) and group per time (p=0.01, F=2.26) on changes in BMI in the 3 groups 6m Weight (kg) G1: 93 (SD 12), r=0.91 (table 2 reports significance as r) G2: 84 (SD 16), r=NS (table 2 reports significance as r)	NA	NA

Evidence Table 44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Brambilla, 2009[50] (continued)				G3: 87 (SD 13), r=NS (table 2 reports significance as r) One-way ANOVA showed significant decrease in weight (p=0.00001) in G1 only Two-way ANOVA for repeated measures showed significant effect of group (p=0.05, F=2.99), time (p=0.00003, F=5.45) and group per time (p=0.0017, F=3.42) on changes in weight in the 3 groups Correlation analysis (Spearman's test): G1: reduction in weight correlated negatively with change in EDI-2 perfectionism (p=0.04, T=-2.4), social insecurity (p=0.01, T=-3.0), and PDQ-4-R negativism (p=0.05, T=-2.25)		

Evidence Table 44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Brambilla, 2009[50] (continued)				G2: reduction in weight correlated positively with EDI-2 ineffectiveness (p=0.02, T=2.86) G3: reduction in weight correlated negatively with SCL-90-R obsessivity-compulsivity (p=0.05, T=-2.5) and psychoticism (p=0.02, T=-3.2) Article also states that "no correlations emerged between weight changes and PDQ-4-R data," although this contradicts the significant correlation found between G1 and PDQ-4-R negativism		

Evidence Table 44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Claudino, 2007[51]	Weight, kg Body Mass Index (BMI)	Weight, mean (SD) G1: 96.6 (16.7) G2: 98.4 (10.9) p = 0.23 BMI, mean (SD) G1: 37.4 (4.9) G2: 37.4 (3.5) p = 0.93	Weight, mean (SD) G1: 89.8 (13.4) G2: 97.5 (10.5) Group X time rate of change, p < 0.001 BMI, mean (SD) G1: 35.0 (3.5) G2: 36.7 (4.7) Group X time rate of change, p = 0.0002	NA	NA	NA
Devlin, 2007[52] Devlin, 2005[53]	Weight (kg)	Pre-treatment weight (kg) mean (SD) Overall: 115 (21.8) G1: 116.9 (20.8) G2: 116.5 (22.2) G3: 113.8 (22.9) G4: 113.5 (22.2)	Post-treatment weight (kg) mean (SD) Overall: 113 (23.6) G1: 112.8 (22.7) G2: 114.6 (23.0) G3: 111.9 (27.1) G4: 111.1 (21.9) Group X time, p=NS 6 months weight (kg) mean (SD) Overall: 111 (23.2) G1: NR G2: NR G3: NR G4: NR 12 months weight (kg) mean (SD) Overall: 111 (23.2) G1: NR G2: NR G3: NR G4: NR	NA	NA	NA

Evidence Table 44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Devlin, 2007[52] Devlin, 2005[53] (continued)			18 months weight (kg) mean (SD) Overall: 113 (23.2) G1: NR G2: NR G3: NR G4: NR 24 months weight (kg) mean (SD) Overall: 115 (23.6) G1: NR G2: NR G3: NR G4: NR Estimated change in weight over 24 months mean (SE): 0.484 (0.309) G1: NR G2: NR G3: NR G4: NR Individual CBT (G1&G3 vs. G2&G4): F=0.01, p=0.911 Medication: (G1&G2 vs. G3&G4): F=0.01, p=0.914 Time: F=2.46, p=0.119 CBT-by-time: NS Medication-by-time: NS			

Evidence Table 44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Golay, 2005[54]	Body fat mass-bioelectrical impedence, % Waist circumference, cm Hip circumference, cm Total energy expenditure [kcal/d]	Body fat mass-bioelectrical impedence G1: 44.6 (0.9) G2: 44.7 (1.0) p = NR Waist circumference, mean (SEM) G1: 103.7 (1.8) G2: 107.0 (1.6) p = NR Hip circumference, mean (SEM) G1: 121.1 (9.2) G2: 120.3 (9.5) p = NR Total energy expenditure, mean (SEM) G1: 2275 (344.7) G2: 2385 (356.0) p = NR	Body fat mass-bioelectrical impedence, % G1: 41.3 (1.0) G2: 43.1 (1.0) p = 0.023 Waist circumference, mean (SEM) G1: 96.5 (1.8) G2: 101.0 (1.5) p = 0.005 Hip circumference, mean (SEM) G1: 114.5 (8.2) G2: 116.6 (9.3) p < 0.001 Total energy expenditure, mean (SEM) G1: 2158 (327.0) G2: 2238 (334.0) p = NS	Total cholesterol, mM Low-density cholesterol (LDL), mM High-density cholesterol (HDL), mM Triglycerides, mM Systolic Blood Pressure (SBP), mmHg Diastolic BP (DBP), mmHg Glucose, mg/dL Insulin, pM Leptin, micrograms/L	Total cholesterol, mean (SEM) G1: 5.8 (0.9) G2: 5.8 (0.9) p = NR LDL, mean (SEM) G1: 3.5 (0.5) G2: 3.6 (0.5) p = NR HDL, mean (SEM) G1: 1.5 (0.2) G2: 1.4 (0.2) p = NR Triglycerides, mean (SEM) G1: 1.7 (0.2) G2: 1.8 (0.3) p = NR SBP, mean (SEM) G1: 123.2 (18.6) G2: 122.1 (18.2) p = NR DBP, mean (SEM) G1: 81.1 (12.3) G2: 80.5 (12.0) p = NR Glucose, mean (SEM) G1: 5.8 (0.9) G2: 6.0 (0.9) p = NR Insulin, mean (SEM) G1: 147.0 (22.3) G2: 137.5 (20.5) p = NR	Total cholesterol, mean (SEM) G1: 5.3 (0.8) G2: 5.7 (0.9) p = 0.029 LDL, mean (SEM) G1: 3.4 (0.5) G2: 3.6 (0.5) p = 0.090 HDL, mean (SEM) G1: 1.4 (0.2) G2: 1.4 (02) p = NS Triglycerides, mean (SEM) G1: 1.2 (0.2) G2: 1.5 (0.2) p = 0.067 SBP, mean (SEM) G1: 122.0 (18.2) G2: 121.5 (18.0) p = NS DBP, mean (SEM) G1: 78.0 (11.8) G2: 81.7 (12.4) p = 0.048 Glucose, mean (SEM) G1: 5.5 (0.8) G2: 5.9 (0.9) p = 0.070 Insulin, mean (SEM) G1: 114.5 (17.3) G2: 144.4 (21.5) p = 0.045

Evidence Table 44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Golay, 2005[54] (continued)					Leptin, mean (SEM) G1: 28.8 (4.4) G2: 27.1 (4.0) p = NR	Leptin, mean (SEM) G1: 23.6 (3.6) G2: 23.9 (3.6) p = NS
Grilo, 2005[55]	BMI Weight loss Percentage weight loss 5% weight loss	BMI G1: 36.2 (SD 4.7) G2: 36.8 (SD 5.1) p=0.67	Post-treatment BMI G1: NR G2: NR p=NR 3m BMI G1: NR G2: NR p=NR Post-treatment Weight loss (kg) G1: 3.5 (SD 3.5) G2: 1.6 (SD 2.4) F=5.57 p=0.02 3m Weight loss (kg), mean G1: 3.4 (SD 5.0) G2: 1.3 (SD 3.1) F=3.05 p=0.09 Post-treatment % weight loss G1: 3.3 (SD 3.3) G2: 1.6 (SD 2.4) F=4.52 p=0.04 3m % weight loss G1: 3.3 (SD 5.0) G2: 1.3 (SD 3.0) F=2.69 p=0.10	NA	NA	NA

Evidence Table 44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Grilo, 2005[55] (continued)			Post-treatment 5% weight loss, ITT analysis G1: 36% G2: 8% chi-square=5.711 p=0.017 3m 5% weight loss, ITT analysis G1: 32% G2: 8% chi-square=4.50 p=0.034 Post-treatment 5% weight loss, completers G1: 47% G2: 10% chi-square=6.72 p=0.01 3m 5% weight loss, completers G1: 42% G2: 10% chi-square=5.27 p=0.022			

Evidence Table 44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Grilo, 2013[56]	Body Mass Index (BMI)	BMI, mean G1: 39.0 (SD 7.0) G1: 37.2 (SD 5.3) p=NR, NS	Post-treatment BMI G1: 37.9 (SD 6.9) G2: 36.0 (SD 5.0) Groups did not differ significantly in improvements (p=NR, NS) 6m BMI G1: 37.6 (SD 5.7) G2: 36.7 (SD 5.3) Groups did not differ significantly in improvements (p=NR, NS)	NA	NA	NA
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	Body Mass Index (BMI) Weight loss, lbs	BMI, mean (SD) G1: 38.9 (9.5) G2: 35.7 (7.2) G3: 35.7 (8.3) G4: 35.0 (6.2) F:1.30 p=0.279	BMI, mean (SD): G1: 38.1 (9.6) G2: 35.7 (7.5) G3: 34.9 (7.9) G4: 34.2 (5.8) ANCOVA p=ns G2 v G1: p=na G4 v G3: p=na G4 v G2: p=na G4 v G1: p=na G3 v G2: p=na G3 v G1: p=na 6-month followup G1: 36.1 (0.6) G3: 36.9 (0.6) G4: 35.9 (0.5) 12-month followup G1: 36.2 (0.6) G3: 35.8 (0.6) G4: 34.8 (0.5)	NR	NR	NR

Evidence Table 44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60] (continued)			Mixed-model, p=NR, stated = significant G4 v. G3: p=0.253 G4 v. G1: p=0.313 G3 v. G1: p=0.908 Weight loss, estimated marginal mean(SE) Post-treatment G1: -4.8 (3.0) G3 -5.6 (2.9) G4 -5.0 (2.8) 6-month followup G1: -2.3 (3.6) G3: -2.8 (3.1) G4: -2.8 (3.1) 12-month followup G1: -1.5 (3.5) G3: -4.1 (3.6) G4: -9.8 (3.2) Mixed-model, p=NR, stated = significant G4 v. G3: p=0.350 G4 v. G1: p=0.405 G3 v. G1: p=0.929			

Evidence Table 44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Laederach-Hofmann, 1999[61]	Weight, kg Body mass index (BMI)	Weight, mean (SD) G1: 96.0 (14.2) G2: 114.8 (29.5) p<0.05 BMI, mean (SD) G1: 36.1 (6.3) G2: 43.2 (9.4 p<0.02	Weight, mean (SD) 8 wks G1: 93. 8(14.4) G2: 113.0 (29.4) % change (data in figure), p < 0.05 32 wks G1: 90.8 (13.5) G2: 117.0 (29.2) % change (data in figure), p=0.0003 BMI, mean (SD) NR	Waist to hip ratio Blood pressure, systolic (mmHg) Blood pressure, diastolic (mmHg) Serum glucose (mmol/l) Total serum cholesterol (mmol/l)	Waist to hip ratio, mean (SD) G1: 0.96 (0.007) G2: 1.01 (0.07) p=NS Blood pressure, systolic (mmHg): G1: 132.2 (18.0) G2: 131.4 (13.5) p=NS Blood pressure, diastolic (mmHg) G1: 87.0 (9.4) G2: 87.5 (9.1) p=NS Serum glucose (mmol/l) G1: 5.6 (1.2) G2: 5.7 (1.3) p=NS Total serum cholesterol (mmol/l) G1: 5.3 (1.1) G2: 5.5 (0.9) p=NS	"Systolic and diastolic blood pressure, serum cholesterol, and gluclose concentration as well as the other hematochemical parameters and wait-to-hip ratio remained stable during the 8-week study in both groups."
Lanzarone, 2014[62]	Percentage weight loss					

Evidence Table 44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Molinari, 2005[63]		n/a	3m achieved weight loss of at least 5% of initial weight G1: 100% G2: 100% G3: 100% 6m % weight loss G1: 5.25 (SD 1.30) G2: 6.62 (SD 2.74) G3: 7.32 (SD 0.88) p=NR, NS 12m % weight loss G1: 7.53 (SD 3.57) G2: 0.19 (SD 2.74) G3: 6.78 (SD 3.94) p=0.001	NA	NA	NA

Evidence Table 44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Ricca, 2001[64]	5% weight loss	BMI Overall: 32.3 (SD 5.8) G1: 32.0 (SD 6.0) G2: 31.7 (SD 5.6) G3: 32.5 (SD 6.1) G4: 32.1 (SD 3.8) G5: 32.7 (SD 4.1)	24 weeks (end of treatment) (presented in bar graph only so means not discernable) G1: NR, p<0.01 vs. baseline G2: NR, p<0.01 vs. baseline G3: NR, p<0.01 vs. baseline G4: NR G5: NR 1 year after end of treatment (presented in bar graph only so means not discernable) G1: NR, p<0.01 vs. baseline G2: NR, p<0.01 vs. baseline G3: NR, p<0.01 vs. baseline G4: NR G5: NR G1, G2, and G3 showed increased BMI compared with 24wk but significantly lower than baseline; G4 and G5 showed no significant difference in 1y vs. baseline	NA	NA	NA

Evidence Table 44. Binge eating disorder behavioral and drug treatment – part 8 (continued)

First Author's Last Name Year	Definition Of Weight Related Measure(S)	Weight Related Baseline	Weight Related Outcomes	Definition Of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Ricca, 2009[65]	Body mass index (BMI)	BMI G1: 39.21 (SD 7.82) G2: 38.43 (SD 5.70)	24wk BMI G1: 38.41 (SD 7.67) G2: 36.77 (SD 5.84) G2 had greater reduction, p<0.01 18m BMI G1: 38.99 (SD 7.02) G2: 36.49 (SD 5.96) p=NR	NA	NA	NA

Evidence Table E45. Binge eating disorder behavioral and drug treatment – part 9

First Author's Last Name Year	Definition of Quality of Life	Quality of Life Baseline	Quality of Life Outcomes	Definition of Functional Capacity	Functional Capacity Baseline	Functional Capacity Outcomes
Agras, 1994[49]	NR	NR	NR	NR	NR	NR
Brambilla, 2009[50]	NA	NA	NA	NA	NA	NA
Claudino, 2007[51]	NA	NA	NA	NA	NA	NA
Devlin, 2007[52] Devlin, 2005[53]	NA	NA	NA	NA	NA	NA
Golay, 2005[54]	Nottingham Health Profile (NHP) questionnaire	NHP, mean (SEM) G1: 7.1 (0.8) G2: 10.8 (1.2) p = NR	NHP, mean (SEM) G1: 5.4 (0.8) G2: 6.8 (1.2) p = NS	NA	NA	NA
Grilo, 2005[55]	NA	NA	NA	NA	NA	NA
Grilo, 2013[56]	NA	NA	NA	NA	NA	NA
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	NR	NR	NR	NR	NR	NR
Laederach-Hofmann, 1999[61]	NA	NA	NA	NA	NA	NA
Lanzarone, 2014[62]						
Molinari, 2005[63]	NA	NA	NA	NA	NA	NA
Ricca, 2001[64]	NA	NA	NA	NA	NA	NA
Ricca, 2009[65]	NA	NA	NA	NA	NA	NA

Evidence Table E46. Binge eating disorder behavioral and drug treatment – part 10

First Author's Last Name Year	Definition of Other	Other Baseline	Other Outcomes
Agras, 1994[49]	NR	NR	NR
Brambilla, 2009[50]	NA	NA	NA
Claudino, 2007[51]	NA	NA	NA
Devlin, 2007[52] Devlin, 2005[53]	Rosensberg Self-Esteem (RSE) Scale Inventory ofInterpersonal Problems (IIP)	RSE, mean (SD) G1: 24.6 (4.2) G2: 22.2 (4.9) G3: 22.8 (4.3) G4: 23.6 (4.9) IIP, mean (SD) G1: 10.0 (4.4) G2: 8.8 (5.2) G3: 10.8 (4.5) G4: 10.5 (5.5)	Post-treatment RSE, mean (SD) G1: 20.7 (4.6) G2: 20.7 (5.1) G3: 20.3 (4.5) G4: 20.9 (5.6) Group X time, p=NS Post-treatment IIP, mean (SD) G1: 7.1 (4.5) G2: 6.5 (5.2) G3: 8.4 (5.5) G4: 7.9 (4.9) Group X time, p=NS These outcomes not reported during maintenance phase followup
Golay, 2005[54]	NA	NA	NA
Grilo, 2005[55]	NA	NA	NA
Grilo, 2013[56]	NA	NA	NA
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	NR	NR	NR
Laederach-Hofmann, 1999[61]	NA	NA	NA
Lanzarone, 2014[62]			
Molinari, 2005[63]	NA	NA	NA
Ricca, 2001[64]	NA	NA	NA
Ricca, 2009[65]	NA	NA	NA

Evidence Table E47. Binge eating disorder behavioral and drug treatment – part 11

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Agras, 1994[49]	Drop-out during tx, N (%): G1: 8 (23%) G2: 6 (17%) G3: 10 (27%) (P = NS) Drop out during 3-mth FU, N: G1: 3 G2: 5 G3: 6	G1: "24% of participants in this group discontinued desipramine before the posttreatment assessment because of side effects."	NR	NR	NR	NR
Brambilla, 2009[50]	5 dropped out, 4 at the beginning due to "lack of motivation" and 1 during treatment for unspecified reasons. G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR
Claudino, 2007[51]	G1: 7 G2: 10 p = 0.37	G1: 1 G2: 0	NR	None	Overall: G1: 127 G2: 98 Mean Between-group difference (95% CI): NR p = NR	Overall: G1: 2 G2: 7 Mean Between-group difference (95% CI): NR p = NS

Evidence Table E47. Binge eating disorder behavioral and drug treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Devlin, 2007[52] Devlin, 2005[53]	Post-treatment dropout Overall: 42 (36%) G1: NR G2: NR G3: NR G4: NR G1+G2: N = 32% G3+G4: N = 40% G1+G3: N = 28% G2+G4: N = 45% G1+G3 v. G2+G4, p=NS Mean Between-group difference (95% CI): NR p = NR Assessed at 6 months: N=88 Assessed at 12 months: N=88 Assessed at 18 months: N=87 Assessed at 24 months: N=87 Number of follow-up assessments completed did not differ by treatment	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR 1 taking fluoxetine, but not clear if G1 or G3	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR Overall: 15 dropped because treatment not helping or no longer interested; 2 assigned to placebo due to unimproved depression symptoms but not clear if G2 or G4	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 47. Binge eating disorder behavioral and drug treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Golay, 2005[54]	G1: 5 (11%) G2: 13 (29%) Mean Between-group difference (95% CI): NR p = NR	Overall: G1: 0 G2: 4 Mean Between-group difference (95% CI): NR p = NR	Overall: G1: 0 G2: 2 Mean Between-group difference (95% CI): NR p = NR	NR	NR	NR
Grilo, 2005[55]	G1: 6 G2: 5 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 2 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 1 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR "The overall frequency of reported side effects (at any time during the study) was only slightly higher in G1 than G2, although reports of certain GI events known to be due to orlistat's mode of action were higher for G1. In almost all cases, these events occurred early in treatment, tended to be mild, and were transient."	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 47. Binge eating disorder behavioral and drug treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Grilo, 2013[56]	Overall: N=11 G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	Post-treatment Overall: 22 (20%) G1: 22% G2: 15% G3: 23% G4: 21% Did not complete 6 month followup G1: 41% G3: 35% G4: 25% Did not complete 12 month followup G1: 37% G3: 27% G4: 21%	NR	NR	NR	NR	NR
Laederach-Hofmann, 1999[61]	Overall: 2 G1: 1 G2: 1	G1: 1 G2: 1	NR	NR	G1: 1 G1: 1	NR

Evidence Table 47. Binge eating disorder behavioral and drug treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Lanzarone, 2014[62]	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR
Molinari, 2005[63]	Overall: 5 (8%) G1: 2 G2: 1 G3: 2 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 47. Binge eating disorder behavioral and drug treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Ricca, 2001[64]	Overall: 25 G1: 3 G2: 6 G3: 5 G4: 5 G5: 6 Mean Between-group difference (95% CI): NR Number of dropouts in the 5 groups were not significantly different. Patients who dropped out were not significantly different from those who completed treatment for age, BMI, psychiatric comorbidity, and baseline scores of psychometric tests. p = NR, NS	Overall: NR G1: 0 G2: 3 G3: 3 G4: 2 G5: 4 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR G4: NR G5: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR G4: NR G5: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 0 G2: 6 G3: 6 G4: 7 G5: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 0 G2: 0 G3: 1 G4: 0 G5: 0 Mean Between-group difference (95% CI): NR p = NR
Ricca, 2009[65]	G1: 8 (33%) G2: 14 (50%) Mean Between-group difference (95% CI): NR p = NR, NS	Overall: NR G1: NR G2: 6 Mean Between-group difference (95% CI): NR p = NR	Overall: 1 G1: 0 G2: 1 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table E48. Binge eating disorder behavioral and drug treatment – part 12

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
Agras, 1994[49]	NR	NR	NR	NR	NR	NR
Brambilla, 2009[50]	G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR
Claudino, 2007[51]	Overall: G1: 11 G2: 7 Mean Between-group difference (95% CI): NR p = NS	Overall: G1: 19 G2: 19 Mean Between-group difference (95% CI): NR p = NS	Overall: G1: 1 G2: 6 Mean Between-group difference (95% CI): NR p < (0.05)	Overall: G1: 8 G2: 3 Mean Between-group difference (95% CI): NR p = NS	NR	Confusion G1: 5 G2: 4 Mean Between-group difference (95% CI): NR p = NS
Devlin, 2007[52] Devlin, 2005[53]	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR
Golay, 2005[54]	NR	NR	NR	NR	NR	NR
Grilo, 2005[55]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table E48. Binge eating disorder behavioral and drug treatment – part 12 (continued)

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
Grilo, 2013[56]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	NR	NR	NR	NR	NR	NR
Laederach-Hofmann, 1999[61]	NR	NR	NR	NR	NR	NR
Lanzarone, 2014[62]	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR
Molinari, 2005[63]	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: 1 G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table 48. Binge eating disorder behavioral and drug treatment – part 12 (continued)

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
Ricca, 2001[64]	Overall: NR G1: 0 G2: 0 G3: 0 G4: 0 G5: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 0 G2: 0 G3: 0 G4: 3 G5: 2 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 0 G2: 3 G3: 0 G4: 1 G5: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 0 G2: 4 G3: 5 G4: 4 G5: 5 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 0 G2: 1 G3: 0 G4: 0 G5: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 0 G2: 0 G3: 0 G4: 0 G5: 0 Mean Between-group difference (95% CI): NR p = NR
Ricca, 2009[65]	Overall: 2 G1: 0 G2: 2 Mean Between-group difference (95% CI): NR p = NR	Overall: 2 G1: 0 G2: 2 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: 2 G1: 0 G2: 2 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table E49. Binge eating disorder behavioral and drug treatment – part 13

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Agras, 1994[49]	NR	NR	NR	NR	NR	NA
Brambilla, 2009[50]	G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR	G1: NR G2: NR G3: NR	NA
Claudino, 2007[51]	Overall: G1: 8 G2: 10 Mean Between-group difference (95% CI): NR p = NS	NR	NR	NR	Paresthesia G1: 18 G2: 4 p < 0.05 Taste Perversion G1: 9 G2: 0 p < 0.05 Dysuria G1: 5 G2: 0 p < 0.05 Leg Pain G1: 4 G2: 0 p < 0.05 Nervousness G1: 4 G2: 7 p =NS Back pain G1: 4 G2: 8 p =NS Tooth pain G1: 6 G2: 2 p =NS	Adverse events only reported if occurred in 10% or more of subjects

Evidence Table E49. Binge eating disorder behavioral and drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Claudino, 2007[51] (continued)					Constipation G1: 5 G2: 2 p =NS Gases G1: 1 G2: 4 p =NS Edema G1: 3 G2: 4 p =NS Eye Pain G1: 6 G2: 2 p =NS Malaise G1: 5 G2: 4 p =NS	
Devlin, 2007[52] Devlin, 2005[53]	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	NA
Golay, 2005[54]	NR	NR	NR	NR	NR	Further detail on adverse events was not provided. The 12 other participants dropped out due to: lack of cooperation and failure to return

Evidence Table 49. Binge eating disorder behavioral and drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Grilo, 2005[55]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Anxiety problems G1: 1 G2: 0 Mean Between-group difference (95% CI): NR p = NR	
Grilo, 2013[56]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall frequency of reported side effects was only slightly higher in G1 than G2, although reports of minor GI events known to be due to orlistat's mechanism of action (e.g., flatus with discharge, fatty or oily stools) were higher for G1. Nearly all events occurred early in treatment, were generally mild, and resolved spontaneously.
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	NR	NR	NR	NR	NR	NR

Evidence Table 49. Binge eating disorder behavioral and drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Laederach-Hofmann, 1999[61]	NR	NR	NR	NR	"…anticholinergic effects (constipation, dry mouth, blurred vision) were most often reported in the imipramine group (seven vs. three times, p <0.05)"	"One male patient, who had compained of hunger, sweating, palpitations, arrhythmia, and general malaise during the first 10 days of treatment, consequently dropped out of the placebo group." " One female patient discontinued active medication due to skin eruptions and an aversion to tablet intake."
Lanzarone, 2014[62]	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	

Evidence Table 49. Binge eating disorder behavioral and drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Molinari, 2005[63]	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR G3: NR Mean Between-group difference (95% CI): NR p = NR	Increased anxiety Overall:NR G1: NR G2: NR G3: 1 Mean Between-group difference (95% CI): NR p = NR Unable to attend sessions due to work or family problems Overall: 3 G1: 2 G2: 0 G3: 1 Mean Between-group difference (95% CI): NR p = NR	NA

Evidence Table 49. Binge eating disorder behavioral and drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Ricca, 2001[64]	Overall: NR G1: 0 G2: 0 G3: 2 G4: 0 G5: 3 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 0 G2: 0 G3: 0 G4: 0 G5: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 0 G2: 0 G3: 0 G4: 2 G5: 2 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 0 G2: 0 G3: 0 G4: 0 G5: 0 Mean Between-group difference (95% CI): NR p = NR	Vomiting Overall: NR G1: 0 G2: 1 G3: 0 G4: 0 G5: 2 Mean Between-group difference (95% CI): NR p = NR Anorgasmia Overall: NR G1: 0 G2: 1 G3: 0 G4: 0 G5: 0 Mean Between-group difference (95% CI): NR p = NR Hypersomnia Overall: NR G1: 0 G2: 0 G3: 2 G4: 0 G5: 3 Mean Between-group difference (95% CI): NR p = NR	NA

Evidence Table 49. Binge eating disorder behavioral and drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug Interactions	Harms Other	Harms Comments
Ricca, 2009[65]	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Difficulties with protocol adherence Overall: 7 G1: 0 G2: 7 Mean Between-group difference (95% CI): NR p = NR Lost to follow-up Overall: 7 G1: 3 G2: 4 Mean Between-group difference (95% CI): NR p = NR	NA

Evidence Table E50. Binge eating disorder behavioral and drug treatment – part 14

First Author's Last Name Year	Describe Subpopulation	Subpopulation Definition of Eating Related Measure(s)	Subpopulation Outcomes	Subpopulation Outcomes for Eating-Related Measures Continued	Subpopulation Definition of Psychological/ Psychiatric Measure(s)	Subpopulation Outcomes
Agras, 1994[49]	NA	NA	NA	NA	NA	NA
Brambilla, 2009[50]	None	NA	NA	NA	NA	NA
Claudino, 2007[51]	None	NA	NA	NA	NA	NA
Devlin, 2007[52] Devlin, 2005[53]	None	NA	NA	NA	NA	NA
Golay, 2005[54]	None	NA	NA	NA	NA	NA
Grilo, 2005[55]	None	NA	NA	NA	NA	NA
Grilo, 2013[56]	None	NA	NA	NA	NA	NA
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	NA	NA	NA	NA	NA	NA
Laederach-Hofmann, 1999[61]	None	NA	NA	NA	NA	NA
Lanzarone, 2014[62]	None					
Molinari, 2005[63]	None	NA	NA	NA	NA	NA
Ricca, 2001[64]	None	NA	NA	NA	NA	NA
Ricca, 2009[65]	None	NA	NA	NA	NA	NA

Evidence Table E51. Binge eating disorder behavioral and drug treatment – part 15

First Author's Last Name Year	Subpopulation Definition of Weight Related Measure(s)	Subpopulation Outcomes	Subpopulation Definition of Biomarker Outcomes Other Than Weight	Subpopulation Outcomes	Subpopulation Quality of Life	Subpopulation Functional Capacity
Agras, 1994[49]	NA	NA	NA	NA	NA	NA
Brambilla, 2009[50]	NA	NA	NA	NA	NA	NA
Claudino, 2007[51]	NA	NA	NA	NA	NA	NA
Devlin, 2007[52] Devlin, 2005[53]	NA	NA	NA	NA	NA	NA
Golay, 2005[54]	NA	NA	NA	NA	NA	NA
Grilo, 2005[55]	NA	NA	NA	NA	NA	NA
Grilo, 2013[56]	NA	NA	NA	NA	NA	NA
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	NA	NA	NA	NA	NA	NA
Laederach-Hofmann, 1999[61]	NA	NA	NA	NA	NA	NA
Lanzarone, 2014[62]						
Molinari, 2005[63]	NA	NA	NA	NA	NA	NA
Ricca, 2001[64]	NA	NA	NA	NA	NA	NA
Ricca, 2009[65]	NA	NA	NA	NA	NA	NA

Evidence Table E52. Binge eating disorder behavioral and drug treatment – part 16

First Author's Last Name Year	Subpopulation Overall Discontinuation From Study	Subpopulation Discontinuation Due to AEs	Subpopulation Discontinuation Due to Lack of Efficacy	Subpopulation Serious AEs (Define in Addition to Reporting Rates)	Subpopulation any AE	Subpopulation Diarrhea
Agras, 1994[49]	NA	NA	NA	NA	NA	NA
Brambilla, 2009[50]	NA	NA	NA	NA	NA	NA
Claudino, 2007[51]	NA	NA	NA	NA	NA	NA
Devlin, 2007[52] Devlin, 2005[53]	NA	NA	NA	NA	NA	NA
Golay, 2005[54]	NA	NA	NA	NA	NA	NA
Grilo, 2005[55]	NA	NA	NA	NA	NA	NA
Grilo, 2013[56]	NA	NA	NA	NA	NA	NA
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	NA	NA	NA	NA	NA	NA
Laederach-Hofmann, 1999[61]	NA	NA	NA	NA	NA	NA
Lanzarone, 2014[62]						
Molinari, 2005[63]	NA	NA	NA	NA	NA	NA
Ricca, 2001[64]	NA	NA	NA	NA	NA	NA
Ricca, 2009[65]	NA	NA	NA	NA	NA	NA

Evidence Table E53. Binge eating disorder behavioral and drug treatment – part 17

First Author's Last Name Year	Subpopulation Dizziness	Subpopulation Headache	Subpopulation Insomnia	Subpopulation Nausea	Subpopulation Sexual Dysfunction	Subpopulation Cognitive Functioning
Agras, 1994[49]	NA	NA	NA	NA	NA	NA
Brambilla, 2009[50]	NA	NA	NA	NA	NA	NA
Claudino, 2007[51]	NA	NA	NA	NA	NA	NA
Devlin, 2007[52] Devlin, 2005[53]	NA	NA	NA	NA	NA	NA
Golay, 2005[54]	NA	NA	NA	NA	NA	NA
Grilo, 2005[55]	NA	NA	NA	NA	NA	NA
Grilo, 2013[56]	NA	NA	NA	NA	NA	NA
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	NA	NA	NA	NA	NA	NA
Laederach-Hofmann, 1999[61]	NA	NA	NA	NA	NA	NA
Lanzarone, 2014[62]						
Molinari, 2005[63]	NA	NA	NA	NA	NA	NA
Ricca, 2001[64]	NA	NA	NA	NA	NA	NA
Ricca, 2009[65]	NA	NA	NA	NA	NA	NA

Evidence Table E54. Binge eating disorder behavioral and drug treatment – part 18

First Author's Last Name Year	Subpopulation Somnolence	Subpopulation Vomiting	Subpopulation Drug Interactions	Subpopulation Other
Agras, 1994[49]	NA	NA	NA	NA
Brambilla, 2009[50]	NA	NA	NA	NA
Claudino, 2007[51]	NA	NA	NA	NA
Devlin, 2007[52] Devlin, 2005[53]	NA	NA	NA	NA
Golay, 2005[54]	NA	NA	NA	NA
Grilo, 2005[55]	NA	NA	NA	NA
Grilo, 2013[56]	NA	NA	NA	NA
Grilo, 2005[57] Grilo, 2012[58] Grilo, 2012[59] Grilo, 2006[60]	NA	NA	NA	NA
Laederach-Hofmann, 1999[61]	NA	NA	NA	NA
Lanzarone, 2014[62]				
Molinari, 2005[63]	NA	NA	NA	NA
Ricca, 2001[64]	NA	NA	NA	NA
Ricca, 2009[65]	NA	NA	NA	NA

Evidence Table E55. Binge eating disorder drug treatment – part 1

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Arnold, 2002[66] A Placebo Controlled, Randomized Trial of Fluoxetine in the Treatment of Binge Eating Disorder To assess the efficacy and safety of fluoxetine in the tx of BED USA Industry	randomized controlled trial all February 1998 to June 2000 6 wks	n=60 randomized	G1: Fluoxotine G2: Placebo	Randomized: G1: 30 G2: 30 Analyzed: G1: 23 G2: 13	1	Cincinnati, Ohio	Outpatient primary care (eg general practice)	NA
Brownley, 2013[67] NA Pilot trial to determine the effects of chromium for BED. USA Foundation/non-profit	randomized controlled trial all NR 6 months	N= 24	G1: High doses of CrPic (1000 mcg/day) G2: Low dose of CrPic (600 mcg/day) G3: Placebo	Randomized:24 G1: 8 G2: 9 G3: 7 Analyzed: 21 G1: 7 G2: 8 G3: 6	1	Chapel Hill, NC	Outpatient primary care (eg general practice)	Funding: Brain & Behavior Resesarch Foundation

Evidence Table E55. Binge eating disorder drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Guerdjikova, 2009[68] Lamotrigine in the treatment of binge eating disorder with obesity: a rrandomized, placebo-controlled monotherapy trial To evaluate the efficacy and safety of lamotrigine in BED associated with obesity USA Industry	randomized controlled trial all 26 April 2006 to 21 September 2007 16 weeks	n=72 screened n=51 randomized n=31 treatment completers	G1: Lamotrigine G2: Placebo	Randomized: G1: 26 G2: 25 Analyzed, at least 1 outcome: G1: 25 G2: 24 Analyzed, 16wks: G1: 14 G2: 17	1	Cincinnati, Ohio	Outpatient primary care (eg general practice)	NA
Guerdjikova, 2008[69] NA To evaluate the efficacy and safety of high-dose escitalopram in the treatment of BED associated with obesity NR, likely US Industry	randomized controlled trial provider+patient NR 12 weeks	44	G1: escitalopram G2: placebo	Randomized: 44 G1: 21 G2: 23 Analyzed: ITT G1: 20 G2: 23 Analyzed: Completers G1: 17 G2: 19	1	NR	outpatient	Grant from Forrest Laboratories

Evidence Table 55. Binge eating disorder drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Guerdjikova, 2012[70] NA Determine if duloxetine (an SNRI) would decrease binge eating, as well as excessive body weigh and depressive symptoms in BED patients with comorbid depressive disorders US Industry	randomized controlled trial all Mar 2007 - Aug 2009 12 weeks	40	G1: Duloxetine G2: Contol (placebo)	Randomized G1: 20 G2: 20 Completed G1: 13 G2: 14	1	Cincinnati, OH	Outpatient	(1) Partly funded by Eli Lilly (2) Other funders NR

Evidence Table 55. Binge eating disorder drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Hudson, 1998[71] NA To assess the efficacy of fluvoxamine in the treatment of binge eating disorder US Industry	randomized controlled trial provider+patient February to September, 1993 9 weeks	85	G1: Fluvoxamine G2: Placebo	Randomized: G1: 42 G2: 45 Analyzed: Intent-to-treat analysis G1: 42 G2: 45 Analyzed: Completed-subjects analysis (completed 9 wks treatment) G1: 29 G2: 38 Analyzed: Evaluable-subjects analysis (completed ≥ 4 wks treatment) G1: 34 G2: 41	3	Boston, Cincinnati, University of Minnesota (Minneapolis)	outpatient	The Upjohn Co. and Solvay Pharmaceuticals

Evidence Table 55. Binge eating disorder drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Leombruni, 2008[72] A randomized, double-blind trial comparing sertraline and fluoxteine 6-month treatment in obese patients with Binge Eating Disorder To assess the effictiveness of sertraline and fluoxetine over a period of 24 weeks in obese patients with BED Italy NR	randomized controlled trial all January 2003 to January 2005 6 months tx	N=42	G1: fluoxetine G2: sertraline	Randomized: G1: 20 G2: 22 Analyzed T8: G1: 20 G2: 22 Analyzed T12 G1: 18 G2: 20 Analyzed T24 G1: 15 G2: 16	1	Torino	Outpatient primary care (eg general practice)	NA
McElroy, 2007[73] NA Evaluate atomoxetine in the treatment of BED USA Industry	randomized controlled trial all Sept 2004 - Oct 2005 10 weeks	N=40	G1: Atomoxetine G2: Placebo	Randomized: 40 G1: 20 G2: 20 Analyzed: 25 G1: 11 G2: 14	1	Cincinnati, OH	Outpatient primary care (eg general practice)	Funding source: Eli Lilly

Evidence Table 55. Binge eating disorder drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
McElroy, 2006[74] NA Evaluate zonisamide in the treatment of BED associated with obesity US Industry	randomized controlled trial provider+patient 9/5/03 - 10/1/04 16 weeks	60	G1: zonisamide G2: placebo	Randomized: G1: 30 G2: 30 Analyzed: G1: 30 G2:30	1	Cincinnati	outpatient	Eisai Pharmaceuticals, Inc.
McElroy, 2003[75] NA To assess the efficacy and safety of citalopram in the treatment of binge-eating disorder US Industry, Forest Laboratories	randomized controlled trial provider+patient August 2000 through July 2001 6 weeks	38	G1: Citalopram G2: Placebo	Randomized: G1: 19 G2: 19 Analyzed: G1: 19 G2: 19	1	Cincinnati	Outpatient	

Evidence Table 55. Binge eating disorder drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
McElroy, 2003[76] Topiramate in the Treatment of Binge Eating Disorder Associated with Obesity: A Randomized, Placebo Controlled trial To assess the efficacy and safety of topiramate in the tx of BED associated with obsity USA Industry	randomized controlled trial provider+patient Sept, 1998 through June 2000 18-23 wks (2-5 week screening + 14 week treatment + 2 week taper and discontinuation)	N=61	G1: Topiramate G2: Placebo	Randomized: G1: 30 G2: 31 Analyzed (ITT): G1: 30 G2: 31	1	Cincinnati, Ohio	Outpatient primary care (eg general practice)	NA
McElroy, 2000[77] NA Asess the efficacy of sertraline in the tx of BED. USA Industry	randomized controlled trial assessor+patient NR 6 weeks	N= 34	G1: Sertraline G2: Placebo	Randomized: 34 G1: 18 G2: 16 Analyzed:34 G1:18 G2:16	1	Cincinnati, OH	Outpatient primary care (eg general practice)	Funding - Pfizer

Evidence Table 55. Binge eating disorder drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
McElroy, 2011[78] NA Assess the efficacy and tolerability of acamprosate to treat BED US Industry	randomized controlled trial all Jun 2007 - Aug 2009 10 weeks	40	G1: Acamprosate G2: Placebo	Randomized G1: 20 G2: 20 At least 1 post-randomzatioon efficacy measure (ITT Pop) G1: 19 G2: 20 Completed G1: 15 G2: 9	1	Mason, Ohio	Outpatient	Forest Labs
McElroy, 2007[79] NA Assess the efficacy and safety of topiramate in patients with moderate-severe BED with obesity US Industry	randomized controlled trial all Oct 2003 - Feb 2005 16 weeks	407	G1: Topiramate G2: Placebo	Randomized, ITT population G1: 204 G2: 203 ModifiedITT population G1: 195 G2: 199 Completed G1: 85 G2: 81	19	NR	Outpatient	Ortho-McNeil Neurologics

Evidence Table 55. Binge eating disorder drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
McElroy, 2013[80] NA To assess preliminarily the effectiveness of a novel opioid antagonist, ALKS-33, in BED NR Industry - Alkermes, contract grant number NCT01098435	randomized controlled trial all June 12, 2010 - April 10, 2011 6 weeks	62	G1: ALKS-33 G2: placebo	Randomized: G1: 32 G2: 37 Analyzed: ITT (all randomized patients who received at least 1 dose of study drug and who had at least 1 post-baseline efficacy binge assessment) G1:26 G2: 36	6	NR	2 sites were academic eating disorders programs; 4 sites were private research groups	

Evidence Table 55. Binge eating disorder drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
McElroy, 2015[81] To examine the efficacy and safety of lisdexamfetamine dimesylate, a dextroamphetamine prodrug, to treat moderate to severe BED US Industry	randomized controlled trial blinding by identical capsuls and by using an interactive voice-response system/interactive web-response system designed for the study May 10, 2011, through January 30, 2012 11 weeks of treatment (3 for titration and 8 weeks on med) 14 weeks total	Safety: 259 ITT: 255	G1: Lisdexamfetamine dimesylate 30mg/d G2: Lisdexamfetamine dimesylate 50mg/d G3: Lisdexamfetamine dimesylate 70mg/d G4: Placebo	Randomized: G1: 66 G2: 65 G3: 65 G4: 64 Analyzed for safety (and sample used for characteristics): G1: 66 G2: 65 G3: 65 G4: 63 Analyzed for efficacy: G1: 66 G2: 64 G3: 63 G4: 62	0	NR	Clinical research centers, university-affiliated clinics, and psychiatric practices	Shire Development, LLC; Scientific Communications & Information; Complete Healthcare communications

Evidence Table 55. Binge eating disorder drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Pearlstein, 2003[82] A double-blind, placebo-controlled trial of fluvoxamine in binge eating disorder: a high placebo response To replicate the findings of previous double-blind RCT of fluvoxamine on BED, with improved methodology USA Industry	randomized controlled trial all NR 12 weeks	n=20	G1: Fluvoxamine G2: Placebo	Randomized: G1: 9 G2: 11 Analyzed: G1:9 G2:11	1	USA	Outpatient primary care (eg general practice)	Data analyzed using repeated measures ANOVA; 5 subjects dropped out yet table 1 suggests sample size at end-of-treatment remained n=20; it is unclear if data were imputed or carried forward or if analyzed sample actually was only 15.

Evidence Table 55. Binge eating disorder drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Shire, 2014[83,84] SPD 489-343 A Phase 3 trial to examine the efficacy and safety of lisdexamfetamine dimesylate, a dextroamphetamine prodrug (CNS stimulant), to treat moderate to severe BED US, Germany, Sweden, and Spain Industry	Randomized controlled trial NR November 2012-September 2013 12 weeks (4 wks titration, 8 weeks at optimized dose)	N=383	G1: Lisdexamfetamine dimesylate 30mg/d, at wk 3 increased to 50 or 70 mg/d on weekly basis as tolerated and clinically indicated to achieve optimal dose G2: placebo	Randomized: N=383 G1: 192 G2: 191 full analysis set (FAS) G1: 190 G2: 184 safety analysis set G1: 192 G2: 187 Completers set G1: 158 G2: 157	50	US, Germany, Sweden, and Spain	NR	Entry from FDA approval packet and clinicaltrials.gov website. The study is not yet published in a peer reviewed journal

Evidence Table 55. Binge eating disorder drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Shire, 2014[84,85] SPD 489-344 A Phase 3 trial to examine the efficacy and safety of lisdexamfetamine dimesylate, a dextroamphetamine prodrug (CNS stimulant), to treat moderate to severe BED US and Germany Industry	Randomized controlled trial NR November 2012-September 2013 12 weeks (4 wks titration, 8 weeks at optimized dose)	N=390	G1: Lisdexamfetamine dimesylate 30mg/d, at wk 3 increased to 50 or 70 mg/d on weekly basis as tolerated and clinically indicated to achieve optimal dose G2: placebo	Randomized: N=390 G1: 195 G2: 195 full analysis set (FAS) G1: 174 G2: 176 safety analysis set G1: 181 G2: 185 Completers set: G1: 145 G2: 142	43	US and Germany	NR	Entry from FDA approval packet and clinicaltrials.gov website. The study is not yet published in a peer reviewed journal

Evidence Table 55. Binge eating disorder drug treatment – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
White, 2013[86] NA To evaluate the short-term efficacy of buproprion for the treatment of BED in overweight and obese women NR Government	randomized controlled trial patient & provider November 2006 to December 2010 8 weeks	61	G1: Buproprion G2: Placebo	Randomized: G1: 31 G2: 30 Analyzed: G1: 31 G2: 30	0	NR	outpatient	NIDDK grants R03 DK081404, K23 DK071646, K24 DK070052

Evidence Table E56. Binge eating disorder drug treatment – part 2

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Arnold, 2002[66]	DSM-IV, and ≥ 3 BE episodes wkly for at least 6 mths; - Pregnant or lactating - concurrent AN - concurrent or recent (within 1 yr) substance abuse or dependence - lifetime history of psychosis, mania, hypomania, or dementia; history of any psychiatric disorder that could interfere with diagnostic assessment, tx, or compliance - suicide risk; received psychotherapy or behavioral therapy within 3 mths of entry - clinically unstable medical illness - history of seizures, lab abnormalities - MAOIs within 4 wks, or psychotropic meds within 2 wks of entry - received investigational meds or depot neuroleptics within 3 months of entry - previously treated with fluoxetine = experienced < 3 binges in the week before randomization (i.e., were considered placebo responders)	Adults with BED G1: 41.9 (9.7 SD) G2: 40.8 (9.0 SD) p=NS	Overall: 93% G1: 93% G2: 93% p=NS G1: 10% G2: 13% p=NS Randomized: G1:110.4 (24.1) G2: 103.5 (19.0) Completers G1: 112.5 (25.0 SD) G2: 110.3 (18.2 SD)	Age 18-60; weight >85% IBW	Current MDD from SCID G1: 27% G2: 23% p=NS	Lifetime depressive disorder G1: 67% G2: 63% p=NS BED Duration G1: 19.9 yrs (12.5 SD) G2: 16.7 (9.5) No	NA

Evidence Table E56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Brownley, 2013[67]	DSM-IV criteria for BED - BMI < 25 or >45 - < 18 or > 60 yo - pregnant, planning on becoming pregnant during the study period, or lactating - current chromium use - current use of insulin or other medications to control glucose metabolism - current use of medications know to significantly influence appetite or weight - fasting glucose level > 126 mg/dL - creatine level > 1.0 for women or > 1.2 for men	- Adults - males and females - BED - overweight Overall: 36.6 (10.6) G1: 41.4 (8.5) G2: 35.1 (12.4) G3: 37.9 (10.8)	Overall: 83.3% Overall: 12.5% G1: 116.5 (27.3) G2: 107.7 (23.7) p = (0.28)	no current suicidal or homicidal intent or other psychiatric condition that required acute intervention	QIDS-SR Overall: 6.8 (3.8) G1: 7.1 (5.4) G2: 8.1 (3.0) G3: 5.7 (3.0)	Duration of illness: 16.6, range 1-45 years Group 1: without outlier	NA

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Guerdjikova, 2009[68]	DSM-IV criteira for BED - Concurrent AN or BN (DSM-IV criteria) - Concurrent or recent (within 6m) substance abuse or dependence - Lifetime history of a psychotic disorder or dementia - History of psychaitric disorder (inc. personality disorder) that could interfere with study - Currently unstable depressive or bipolar disorder (MADRS>24 or YMRS>8) - Displayed clinically significant suicidality or homicidality - Had received either IPT, CBT, or other behavioral therapy for BED within 3m of study entry - Clinically unstable medical ilness - History of seizures - Clinically significant labs or ECG abnormalities - Required tx with any drug that might interact adversely with or obscure study medication - Had received psychotic medication within 1 wk of randomization	Obese adults with BED G1: 46.08 (12.62 SD) G2: 42.88 (12.74 SD) p=NS	G1: 84% G2: 75% p=NS White: G1: 84% G2: 83% p=NS Weight,kg (M,SD) G1: 105.93 (19.08) G2: 120 (25.39) p=NS	- Obese (BMI>=30) - Aged 18-65 years	Overall: 37.2%	Bipolar disorder, overall: 11.7% Age at onset of BED (yrs) G1: 29.77 (16.06 SD) G2: 21.44 (15.32 SD) p=NS No	NA

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Guerdjikova, 2009[68] (continued)	- Had received MAOIs within 4 wks of randomization - Had received investigational meds or depot antipsychotics with lamotrigine in the past - Treated w/lamotrigine int he past - Had < 2 binge days in the wk before randomization - Pregnancy or lactation or not practicing medically accepted contraception						
Guerdjikova, 2008[69]	DSM-IV criteria for BED (1) had concurrent anorexia nervosa or bulimia nervosa (by DSM-IV criteria), (2) had concurrent or recent (within 1 year of study entry) substance abuse or dependence (by DSM-IV criteria), (3) had a lifetime history of psychosis, mania or hypomania or dementia (by DSM-IV criteria), (4) had a history of any psychiatric disorder that could interfere with diagnostic assessment, treatment or compliance, (5) posed a significant suicide risk,	Obese adults age 18-60 with BED Overall: NR G1: 36.9 (SD 10.0) G2: 41.0 (SD 10.7) p=NS	Overall: NR G1: 95.5% G2: 95.7% p=NS Overall: NR G1: 27.3% G2: 26.1% p=NS Weight (kg) Overall: NR G1: 113.0 (SD 20.0) G2: 109.2 (SD 17.2) p=NS	Obesity, defined as having a BMI of 30kg/m or greater Age 18-60	Current major depressive disorder Overall: 22.7% G1: 27.3% G2: 17.4% p=NS	Lifetime major depressive disorder Overall: 77.3% G1: 72.7% G2: 78.3% p=NS Lifetime alcohol use disorder Overall: NR G1: 9.5% G2: 13.0% p=NS Lifetime anxiety disorder: Overall: NR G1: 14.3% G2: 30.4% p=NS None	NA

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Guerdjikova, 2008[69] (continued)	(6) had received interpersonal, cognitive-behavioral or dialectal behavioral therapy for BED within 3 months of entry into the study, (7) had a clinically unstable medical illness, (8) had a history of seizures, (9) had clinically significant laboratory abnormalities, (10) had received monoamine oxidase inhibitors (MAOIs) within 4 weeks of randomization, (11) had received other psychotropic medication within 2 weeks of randomization, (12) had received investigational medications or depot antipsychotics within 3 months of randomization, (13) had previously been treated with escitalopram or (14) had<2 binge days in the week before randomization. (15) Females were excluded if they were pregnant, lactating or if fertile, not practicing a medically accepted form of contraception						

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Guerdjikova, 2012[70]	DSM-IV-TR BED by SCID-I and EDE-Q 1) Indicated a significant risk for suicide 2) Received psychotherapy for BED or depression within 3 months before randomization 3) Had a DSM-IV-TR diagnosis of: alcohol or substance abuse, bulimia nervosa, or anorexia nervosa with 6 months before randomization 4) Had a lifetime history of a psychotic disorder, a bipolar disorder, or dimentia 5) Had any Axis II disorder that might interfere with study procedures 6) Had a clinically unstable medical disease 7) Had a history of seizures, including febrile seizures in childhood 8) Known hypersensitivity to duloxetine or any of its inactive ingredients 9) Were receiving MAOIs, tricyclics, antipsychotics, lithium, or fluoxetine within 4 weeks before randomization 10) Women were excluded if pregnant, lactating, or if fertile and not practicing a medically accepted form of contraception	Adults 18-65 diagnosed with BED and who also met DSM-IV TR criteria for any of the major depressive disorders, 2 or more binge days/wk, 25 or greater score on the Inventory of Depressive Symptoms scale at screening and baseline visits Overall, M (SD) 40.1 (12.0) G1: 44.4 (12.1) G2: 35.7 (10.4) p = 0.02	Overall: 88% G1: 80% G2: 95% p = 0.34 Overall: 83% G1: 90% G2: 65% p = 0.41 Weight (kg), M (SD) G1: 111.1 (24.1) G2: 118.4 (23.1) p = 0.34 BMI, M (SD) G1: 38.7 (6.8) G2: 42.8 (7.7) p = 0.09	1) 18-65 years old 2) Met DSM-IV-TR criteria for a major depressive disorder for at least one month immediately prior to randomization 3) Binged on at least 2 days/week for at least one week immediately prior to randomization 4) Had a score of at least 25 on the IDS-C scale at screening and baseline	Inventory of depressive symtpoms (IDS) G1: 35.6 (7.9) G2: 35.4 (5.4) p = (0.93)	NA	

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Hudson, 1998[71]	Met draft DSM-IV criteria proposed in 1991 for BED, and also reported hx of ≥3 binge episodes per week for at least 6 months (as opposed to an average of only 2 episodes per week as required in the draft criteria). Defined "binge" using the DSM-IV criteria plus additional requirement that estimated number of calories consumed be at least 1500 kcal. Pregnant or lactating Displayed concurrent anorexia nervosa Concurrent or recent (within 1 year of study entry) major depression or obsessive-compulsive disorder or lifetime substance dependence, psychosis, mania, or organic dementia Posed a significant suicide risk Had received psychotherapy or behavioral therapy within 3 months of entry to the study Had a history of psychosurgery or seizures Had a history of any psychiatric disorder that could interfere with diagnostic assessmenttreatment, or compliance	Adults 18-60 with BED Year, M (SD) G1: 41.2 (9.9) G2: 43.0 (9.5)	Overall: NR G1: 93% G2: 88% Overall: NR G1: 2% G2: 5% BMI, kg/m², M (SD) Overall: NR G1: 34.2 (6.0) G2: 36.8 (8.2)	18-60 years old Weigh over 85% of the midpoint of the ideal body weight for their height	Hamilton Depression Scale Score, mean (SD) Overall: NR G1: 4.4 (3.6) G2: 4.1 (3.7) History of major depression, % Overall: NR G1: 48% G2: 28%	NR none	NA

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Hudson, 1998[71] (continued)	Had clinically unstable medical illness Had clinically significant abnormal laboratory results Had received monoamine oxidase inhibitors (MAOIs), tricyclics, neuroleptics, lithium, or fluoxetine within 4 weeks before randomization Had received investigational medications or depot neuroleptics within 3 months before randomization Had previously received fluvoxamine Had fewer than three binges in the week before randomization (i.e., were considered placebo responders)						
Leombruni, 2008[72]	Diagnosis criteria of BED according to DSM-IV-TR full syndrome axis I disorder medically unstable condition	Female adults with BED Overall: 39.6 years (range 21-57 yrs)	100% NR BMI: 39.3 (SD 3.5)	primary obesity with BMI>=30 female gender 18 to 65 years	NA	Mean duration of ilness: 144 months (SD: 46.5 months) Mean amount of schooling: 9.5 yrs (SD 3.7 yrs) No	NA

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
McElroy, 2007[73]	- DSM-IV-TR criteria for BED - had > 3 binge-eating episodes and > 2 binge days in the week before receiving study medications Concurrent AN or BN Had substance use disorder within 6 months of study entry Had a lifetime history of a psychotic disorder, a BPD, or dementia or another cognitive diosrder Had a personality disorder that could interfere with diagnostic assessment, treatment or compliance Displayed clinically significant suicidality or homicidality Had received CBT or interpersonal pschotherapy or behavioral WT management for BED within 3 months of study entry Had a clinically unstable medical illness Had a history of seizures, including childhood febrile seizures Required tx with any drug that might adversely interact with or obscure the action of study medication	Adults with BED Males and females Overweight Years, Mean (SD): G1: 43.1 (10.2) G2: 39.2 (7.7)	Overall: 82.5% G1: 80% G2: 85% Overall: 15% G1: 3 15% G2: 3 15% Weight, kg, mean (SD): G1: 106.9 (20.2) G2: 116.6 (30.1) BMI, mean (SD): G1: 37.3 (6.7) G2: 41.4 (8.5)	18-65 yo weight > 85% of the midpoint of ideal body weight for height	Hamilton Rating Scale for Depression G1: 2.0 (2.4) G2: 3.3 (3.6) Current depressive disorder Overall: 15% G1: 5% G2: 25% Lifetime depressive disorder Overall: 47.5% G1: 45% G2: 50%	Clinical Global Impressions - Severity of Illness scale, mean (SD): G1: 4.2 (0.4) G2: 4.4 (0.6) NA	NA

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
McElroy, 2007[73] (continued)	Had clinically significant laborartory or electrocardiogram abnormalities Had recieved monoamine oxidase inhibitors, tricyclic antidepressants, lithium, antipsychotics, or fluoxetine within 4 wks prior to randomization Had recieved other psychoactive medication (othe than hypnotics, e.g., zolpidem or zaleplon, as needed for insomnia) within 2 wks of study medication initiation Had previosuly been treated with atomoxetine Women: pregnant, lactating, or if fertile, not practicing a form of medically accepted contraception						
McElroy, 2006[74]	DSM-IV-TR criteria for BED Concurrent anorexia nervosa or bulimia nervosa (per DSM-IV-TR criteria) Substance use disorder (DSM-IV-TR criteria) within 6 months of study entry Lifetime history of a psychotic disorder, bipolar disorder, dementia, or other cognitive disorder (per DSM-IV-TR	Adults age 18-62 with BED and obesity Overall: NR G1: 44.8 (SD 9.3) G2: 43.0 (SD 10.7)	Overall: NR G1: 27 (90.0%) G2: 26 (87.7%) Overall: NR G1: 23.4% G2: 33.3%	age 18-62 years obesity (BMI≥30) ≥2 days with binge eating episodes in the week before receiving study medication,	Current depressive disorder Overall: NR G1: 5 (16.7%) G2: 5 (16.7%)	Duration of BED, years G1: 19.0 (SD 13.8) G2: 17.9 (SD 12.9) Lifetime comorbid depressive disorder G1: 19 (63.3%) G2: 16 (53.3%)	NA

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
McElroy, 2006[74] (continued)	criteria). Personality disorder that could interfere with diagnostic assessment, treatment, or compliance (determined clinically during screening process) Clinically significant suicidality or homicidality Received CBT or interpersonal psychotherapy or behavioral weight management for BED within 3 months of study entry Clinically unstable medical illness History of seizures, including childhood febrile seizures History of nephrolithiasis Clinically significant laboratory or electrocardiogram abnormalities Received psychoactive medication (other than hyptnotics, e.g., zolpidem or zaleplon, as needed for insomia) within 2wks of study medication initiation Previously treated by zonisamide Females excluded for current pregnancy, lactation, or not practicing a form of medically accepted contraception		Overall: NR G1: 118.0 (SD 30.7) G2: 112.8 (SD 24.3)	confirmed with prospective diaries		Lifetime comorbid anxiety disorder G1: 9 (30.0%) G2: 7 (23.3%) Lifetime comorbid substance use disorder G1: 5 (16.7%) G2: 3 none	

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
McElroy, 2003[75]	DSM-IV BED and also experienced ≥ 3 binge eating episodes weekly for at least the prior 6 months Pregnant or lactating; concurrent anorexia nervosa or bulimia nervosa; concurrent or recent (within 1y of study entry) substance abuse or dependence; lifetime history of psychosis, mania or hypomania, or dementia; history of any psychiatric disorder that could interfere with diagnostic assessment, treatment, or compliance; significant suicide risk; received psychotherapy or behavioral therapy within 3m of entry into the study; clinically unstable mental illness; history of seizures; clinically significant laboratory abnormalities; received monoamine oxidase inhibitors within 4 weeks of randomization; received other psychotropic medication within 2 weeks of randomization; received investigational medications or depot neuroleptics within 3m of randomization; previously treated with citalopram; experienced <3 binges in the week before randomization (i.e., were considered placebo responders).	Adults 18-60 with BED Years, M (SD) G1: 42.0 (9.0) G2: 39.2 (12.0) p = NR, NS	G1: 95% G2: 95% p = NR, NS G1: 21% G2: 5% p = NR, NS Weight, kg Overall: NR G1: 116.8 (21.0) G2: 94.6 (23.2) p = 0.004 BMI, kg/m2 Overall: NR G1: 41.4 (6.9) G2: 34.2 (7.4) p=0.003	18-60 years old, weighed more than 85% of their ideal body weight	Current major depressive disorder: Overal: 32% G1: 21% G2: 42% p = NS	Lifetime major depressive disorder: Overal: 68% G1: 63% G2: 74% p = NS None	NA

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
McElroy, 2003[76]	DSM-IV-TR criteria for BED - substance use disorder (DSM-IV TR) within the last 6 mths - unstable bipolar disorder (DSM-IV TR) within the past 3 mths - clinically sig suicidality - any current or past psychiatric disorder that could interfere with diagnostic assessment, tx or adherence - clinically unstable medical illness - hx of nephrolithiasis or seizures - clinically sig abnormal laboratory results - need for tx with any medication that might adversely interact with or obscure the action of topiramate - tx with psychoactive medication within two wks of random assignment - tx with an experimental drug or an experimental device within 30 days of random assignment - previous tx with topiramate	Obese adults with BED G1: 40.9 (SD 8.2) G2: 40.7 (SD 9.1) p=NS	Overall: 87% G1: NR G2: NR NR Weight, kg, mean (SD): G1: 120.4 (18.8) G2: 123.4 (24.4)	Age 18-60 Obese (BMI >/= 30) Score >/= 15 on YBOCS-BE		Current mood disorder G1: 4 (13%) G2: 5 (16%) Lifetime Major Depressive Disorder G1: 18 G2: 15 Lifetime Bipolar Disorder G1: 2 G2: 4 No	NA

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
McElroy, 2000[77]	- DSM-IV criteria for BED (APA, 1994) - At least 3 binge episodes weekly for at least 6 months - binge: DSM criteria + estimated number of kcal 1500 Current AN Substance use disorder within the past 6 months History of psychosis or mania Risk for suicide Use of psychotropics within 2 wks of random assignment Previous use of sertraline Fewer than 3 binges in the week before random assignment	Adults Males and females BED Overweight G1: 43.1 (9.9) G2: 41.0 (12.2) P = 0.58	G1: 89% G2: 100% p: 0.49 NR BMI, mean (SD): G1: 36.4 (7.4) G2: 35.8 (7.5) p = 0.82	- 18-60 yo - weigh more than 85% of ideal body weight	Lifetime depression G1: 11 (61%) G2: 7 (44%) p = 0.30 Current depression G1: 3 (17%) G2: 3 (19%) p = 1.00	NR NA	NA

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
McElroy, 2011[78]	DSM-IV-TR BED 1) Concurrent anorexia or bulimia nervosa 2) Substance use disorder 3) Lifetime history of a psychotic or other cognitive disorder 4) Personality disorder that could interfere with study 5) Clinically significant suicidality or homicidality 6) Had received CBT or IPT or BWL treatment for BED within past 3 months 7) Clinically unstable medical illness 8) History of seizures 9) Current use of medications that might adversely interact with study drug 10) Clinically significant lab values or ECG abnormalities 11) Recently used MAO inhibitors and other psychotropic medications 12) Received other investigational drug in past 3 months 13) Previously used study drug	Overweight adults aged 18-65 diagnosed with BED G1: 46.2 (12.2) G2: 45.8 (9.1) p = 0.91	G1: 80.0% G2: 90.0% p = 0.66 G1: 10.0% G2: 15.0% p = 0.61 G1: 116.5 (27.3) kg G2: 107.7 (23.7) kg p = 0.28	1) 18-65 years old 2) Weighed ≥ 85% of the midpoint of ideal body weight for height 3) ≥ 3 binge eating episodes and ≥ 2 binge days in the screening week	G1: 0 G2: 0	FCI G1: 82.4 16.3) G2: 79.4 18.0) p = 0.58) SF-12 Physical Health G1: 42.6 10.1) G2: 46.0 10.0) p = 0.31) Mental Health G1: 48.7 9.8) G2: 49.3 9.2) p = 0.85) None	MADRS: Montgomery Asberg depression rating scale CGI-S: Clinical global impression-severity scale CGI-I: Clinical global impression-improvement scale YBOCS: Yale-brown obsessive-compulsive scale TFEQ: Three factor eating questionnaire FCI: Food craving in

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
McElroy, 2007[79]	Criteria: DSM-IV 1) Current or lifetime history of major organic psychiatric disease, a psychotic disorder, or a bipolar disorder 2) Clinically significant depression 3) Current or recent (within 3 months of start of study medication) substance abuse or dependence (excluding nicotine or caffeine) 4) Enrollment in a formal psychotherapy program within 6 months before the screening phase 5) A history of factitious disorder,malingering, or a personality disorder that might interfere withassessment or compliance with study procedure 6) A serious orunstable concurrent medical illness 7) Any medical condition that might potentially compromise topiramate absorption, metabolism, or excretion 8) A history of nephrolithiasis or seizures 9) Known hypersensitivity to or a prior adverse event with topiramate.	Overweight adults aged 18-65 diagnosed with BED G1: 44 (11.5) G2: 45(11.6) p = NR	G1: 84.2% G2: 84.2% p = NR G1: 24.3% G2: 18.8% p = NR Weight, mean (SD) G1: 106 (18.5) G2: 107 (18.3) p = NR BMI, mean (SD) G1: 38 (5.1) G2: 39 (5.5) p = NR	1) Ages 18-65 2) 50 ≥ BMI ≥ 30 3) ≥ 3 binge eating episodes and ≥ 2 binge days in the screening week 4) Women of childbearing age had to be non-pregnant, not lactating, and using a medically accepted form of birth control	MADRS, mean (SD) G1: 5.9 (5.4) G2: 6.7 (5.5) p = NR	None	

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
McElroy, 2013[80]	DSM-IV-TR criteria for BED concurrent symptoms of bulimia nervosa or anorexia nervosa; suicidal ideation (defined as a score 2 on Item 9 of the Beck Depression Inventory, 2nd Ed; current major depressive disorder or a BDI score 17; lifetime bipolar or psychotic disorder; substance abuse or dependence (except nicotine or caffeine abuse or dependence) within 6 months prior to randomization; any psychiatric disorder that might interfere with a diagnostic assessment or compliance with study procedures positive urine toxicological screen at screening or randomization; participated in a psychological or weight loss intervention for BED that was initiated within the 3 months prior to screening; had clinically unstable medical disease or clinically significant findings on ECG, urinalysis, or laboratory results.	Obese adults at least 18 years old with BED Overall, mean (SD): 45.2 (11.3) G1: 40.6 (11.2) G2: 48.6 (10.2) p=0.005 Since the groups were significantly different in age, age was added as a covariate in the longitudinal analysis	Overall: 56 (90%) G1: 23 (88%) G2: 33 (92%) p=0.69 Overall: 12 (19%) G1: 4 (15%) G2: 8 (22%) p=0.50 BMI, mean (SD) Overall: 38.95 (5.8) G1: 38.6 (4.8) G2: 39.2 (6.4) p=0.69 Weight (kg) Overall: NR G1: 106.0 (13.5) G2: 107.6 (17.7) p=0.70	at least 18 years old BMI at least 30 at least 3 binge eating daays per week as assessed by take-home binge diary during the 2 weeks of the screening period prior to randomization	BDI total score, mean (SD) G1: 3.7 (SD 2.8) G2: 4.7 (SD 4.1) p=0.29	Waist circumference (cm), mean (SD) Overall: NR G1: 114.1 (9.9) G2: 115.2 (12.1) p=0.70 None	NA

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
McElroy, 2013[80] (continued)	Individuals who had used any psychotropic medications (other than hypnotics) within 4 weeks prior to randomization as well as those who had a current or anticipated need for prescribed opioid medication during the study period were also ineligible. Women were excluded if they were pregnant, lactating, or if fertile, not using medically accepted contraception.						
McElroy, 2015[81]	DSM-IV-TR current bulimia nervosa, anorexia nervosa, ADHD, or another psychiatric disorder; a lifetime history of bipolar disorder or psychosis or other conditions that may confound efficacy and safety assessments; a total Montgomery-Åsberg Depression Rating Scale (MADRS)33 score of at least 18 at screening or baseline visits; psychological or weight-loss interventions initiated within 3 months of screening; use of a	Overweight and obese adults with BED Overall: 38.7 (SD 10.17) G1: 38.4 (SD 11.14) G2: 39.6 (SD 9.32) G3: 38.6 (SD 10.01) G4: 38.0 (SD 10.30)	Overall: 81.5% G1: 86.4% G2: 76.9% G3: 84.6% G4: 77.8% Overall: 22.0% G1: 27.3% G2: 28.5% G3: 24.6% G4: 17.5% Weight (kg) Overall: 98.6 (SD 17.85)	BMI at least 25 and no greater than 45; at least 3 BE days per week for the 2 weeks prior to the baseline visit. (moderate to severe BED)	Montgomery-Asberg Depression Rating Scale (MADRS) Overall: NA G1: 2.9 (SD 3.02) G2: 3.6 (SD 3.29) G3: 3.7 (SD 3.94) G4: 3.4 (SD 3.39) Hamilton Anxiety Rating Scale Overall: NA G1: 2.3 (SD 2.32) G2: 2.3 (SD 2.60) G3: 2.5 (SD 3.22) G4: 2.5 (SD 3.01)	None	

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
McElroy, 2015[81] (continued)	psychostimulant within the prior 6 months; and a personal or family history of cardiovascular disease that could increase vulnerability to the sympathomimetic effects of psychostimulants. Any adult with a recent history of suspected substance abuse or a lifetime history of psychostimulant abuse and/or dependence was excluded. Prior (within the past 30 days) or current therapy with investigational compounds, sedatives, anxiolytics, antipsychotics, antidepressants, norepinephrine reuptake inhibitors, sedative hypnotics, benzodiazepines, antihistamines (centrally and peripherally acting), herbal preparations, over-the-counter medications, and weight-reducing agents and prior (within the past 60 days) or current therapy with psychostimulants was prohibited		G1: 98.5 (SD 18.65) G2: 100.6 (SD 18.84) G3: 98.4 (SD 16.70) G4: 96.8 (SD 17.28) BMI: overall: 34.9 (5.3) Overwgt: 22.4% Obese: 58.7% Severely obese: 18.9%				

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Pearlstein, 2003[82]	DSM-IV research criteria for BED based on EDE NR	Individuals with BED Overall: 41.0 p=NS	Overall: 85% p=NS Overall:10 % p=NS BMI: 41.16	NR	p=NS	Married: 70% No	NA
Shire, 2014[83,84]	DSM-IV; BED of at least moderate severity (at least 3 BE days per week for the 14 days prior to baseline as documented in a diary). Binge day defined as day in which at least one BE episode. Current BN or AN	Overweight and obese adults with BED Mean: 38 (19-55)	87% 22% Mean weight: 94 kg (range 49-149) mean BMI: 33 kg/m2 (range of 19-45). Obese (BMI ≥30 kg/m2): 67%; morbidly obese (BMI ≥40 kg/m2): 18%.	Clinical Global Impression (CGI-I) severity score ≥ 4 at screening and baseline, BMI ≥ 18 ≤ 45 at screening and baseline.	NR	NR No	NA

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Shire, 2014[84,85]	DSM-IV; BED of at least moderate severity (at least 3 BE days per week for the 14 days prior to baseline as documented in a diary). Binge day defined as day in which at least one BE episode. Current BN or AN	Overweight and obese adults with BED Mean: 38 (19-55)	85% 27% Mean weight: 94 kg (range 50-176 kg) mean BMI: 34 kg/m2 (range of 20-45). Obese(BMI ≥30 kg/m2): 69%; morbidly obese (BMI ≥40 kg/m2): 19%.	Clinical Global Impression (CGI-I) severity score ≥ 4 at screening and baseline, BMI ≥ 18 ≤ 45 at screening and baseline.	NR	NR No	NA

Evidence Table 56. Binge eating disorder drug treatment – part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
White, 2013[86]	DSM-IV-patient version criteria for BED Diabetes Seizure disorders Uncontrolled hypertension Hypothyroidism Current pregnancy or breastfeeding History of severe renal, hepatic, neurological, chronic pulmonary disease, or other unstable medical disorder Gallbladder disease Current medications or herbal supplements with psychoactive properties Current treatment for eating/weight Serious psychiatric disorder that warrants a higher level of treatment (e.g., bipolar disorder, current substance use disorder) Homicidal or suicidal ideation History of anorexia nervosa or bulimia nervosa	Overweight and obese women aged 18-65 with BED Overall: 44.1 (SD 12.5) G1: 45.2 (12.1) G2: 43.1 (13.0) p=0.523	Overall: 100 G1: 100 G2: 100 p = NA Overall: 16.4% G1: 22.6% G2: 10.0% p=0.185 Overall BMI: 35.8 (SD 6.8) G1: 36.2 (SD 6.6) G2: 35.4 (SD 7.1) p=NR	BMI 25-30 Age 18-65 years	Axis 1 comorbidity (lifetime) Overall: 73.8% G1: 67.7% G2: 80.0% p=0.277 Mood disorder (lifetime) Overall: 52.5% G1: 51.6% G2: 53.3% p=0.893 Anxiety disorder (lifetime) Overall: 37.7% G1: 32.3% G2: 43.4% p=0.372	Substance use disorder (lifetime) Overall: 24.6% G1: 16.1% G2: 33.3% p=0.119 Smoking (lifetime) Overall: 50.8% G1: 45.2% G2: 56.7% p=0.369 none	NA

Evidence Table E57. Binge eating disorder drug treatment – part 3

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Arnold, 2002[66]	NA	Fluoxetine, dosage began with 20mg/day for 3 days; As tolerated, dose increased to 40 mg/day for 3 days, then 60 mg/day. After 2 wks of treatment with 60mg/day, dose could increase to 80 mg/day. At endpoint, mean dose (SD) was 71.3 (11.4); G2: 67.3 (11.5).	Placebo, dosage began with 20mg/day for 3 days; As tolerated, dose increased to 40 mg/day for 3 days, then 60 mg/day. After 2 wks at 60mg/day, dose could increase to 80 mg/day. At endpoint, mean dose (SD) was 67.3 (11.5).	NA	NA	NA
Brownley, 2013[67]	1 subject on stable SSRI regimen	Chromium high dose 1000 mcg Cr/day as Cr/Pic	Chromium low dose 600 mcg Cr/day	Placebo	NA	NA

Evidence Table E57. Binge eating disorder drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Guerdjikova, 2009[68]	NA	Lamotrigine, flexible dose (236+/-150 mg/day), 16 wks. 25 mg/day for the first 14 days, then dosage increased to 50mg/day. On day 28, the dosage was increased to 50mg twice daily. On day 35 the dosage was increased as tolerate to 100 mg bid. If no response or inadequate the dosage was increased as tolerate to 100mg bid. If no response or inadequate response was evident by wk 6, medication was increased to 150mg bid. If no response or inadequate response by wk 8, dosage was increased to maximum dose of 200 mg bid. During wks 12-16, the dosage was not changed unless a medical reason required such	Placebo, identical to tx group, dose was 232mg/day (range 25-400mg/day)	NA	NA	NA

Evidence Table 57. Binge eating disorder drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Guerdjikova, 2008[69]	None	Escitalopram Subjects began with 1 week of open evaluation. Then they received 10mg/day for the first 7 days. The dosage was increased, as tolerated, to 20mg/day for 7 days and then 30mg/day, as tolerated, for the remainder of the study. Study medication could be reduced to a minimum of 10mg/day because of intolerable side effects at any time during the 12wk treatment period. All study medication was dispensed in identical tablets (10mg of escitalopram or placebo).	Placebo	NA	NA	NA

Evidence Table 57. Binge eating disorder drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Guerdjikova, 2012[70]	None	Duloxetine Start: 30mg per day 2nd week: Increased as tolerated to 60mg 4th week: In the absense of remission of binge eating or depressive symptoms and intolerable side effects, increased to 90mg 6th: Increased to 120mg per day on the same criteria Dosing was either once per day or twice per day depending on tolerability	Placebo	NA	NA	NA

Evidence Table 57. Binge eating disorder drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Hudson, 1998[71]	Patients had a 1-week screening period followed by a 1-week single-blind placebo lead-in period. A 9-week treatment period followed. All medications were in identical capsules (50mg) supplied in numbered containers dispensed to patients according to the randomization schedule. During placebo lead-in period, patients took one capsule each evening; in the double-blind tx phase, dose was 50mg each evening for a minimum of 3 days. Beginning on day 4, the dose could be adjusted on an individual basis between 50mg and 300mg until end of week 9. If number of capsules was even, an equal number of capsules was taken in the morning and evening; if odd, the greater number was taken in the evening. Adjustments within the range of 1-6 capsules per day were at discretion of investigator, and medication was increased within this range until a patient was asymptomatic or intolerance intervened.	Study treatment was fluvoxamine	Study treatment was placebo	NA	NA	NA

Evidence Table 57. Binge eating disorder drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Leombruni, 2008[72]	none	Fluoxetine, dose of 10 mg for 3 days, after that it was increased in 10 mg increments every 3 days to a max of 80mg/day (range: 40-80 mg, mean dosage 64.5 mg, SD=9.9)	Sertraline, a dose of 25 mg/day for 3 days, after that the dose was increased in 25-mg increments eveyr 3 days to a maximum of 200mg/day, as tolerated. Range: 100-200, mean dose 165.9 mg, SD 32.3	NA	NA	NA
McElroy, 2007[73]	- 10 week trial '- 1 week treatment discontinuation -	Atomoxetine, 40 mg for first 7 days, increased at the beginning of the 2nd week to 80 mg/day as tolerated, increased at beginning of 3rd week to 120 mg.day as tolerated, could be reduced to 40 mg daily because of bothersome SE at anytime during the 10 wk trial	Placebo, identical capsules	NA	NA	NA

Evidence Table 57. Binge eating disorder drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
McElroy, 2006[74]		Zonisamide, began at 100 mg/day for the first 7d and then increased, as tolerated, by 100mg/day every 7 days to a max of 600 mg/day. For the last 4 weeks of treatment period (weeks 13-16), study medication dose was not changed unless a medical reason (e.g., adverse event) necessitated such a change. Study medication could be reduced to a minimum of 100 mg daily because of bothersome side effects at any time during the 16-week treatment period. Patients took their daily dose of study medication in the evening; however, if patients preferred, they could take half of the daily dose in the morning.	Placebo, in idential 100-mg capsules	NA	NA	NA

Evidence Table 57. Binge eating disorder drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
McElroy, 2003[75]	None	Citalopram, dispensed in identical 20 mg capsules. Subjects began treatment with 20 mg/day for the first 7 days. The dosage was then increased, as tolerated, to 40 mg/day for 7 days, then 60 mg/day for the remainder of the study. Study medication could be reduced to a minimum of 1 capsule (20mg) daily because of intolerable side effects at any time during the 6 week treatment period.	Study treatment was placebo, dispensed in identical 20 mg capsules	NA	NA	NA

Evidence Table 57. Binge eating disorder drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
McElroy, 2003[76]	NA	topiramate flexible-dose 25 mg-600mg/d; median 212mg. 25mg each evening the first 3 days, 50mg days 4-7, 75 or 100mg days 7 on. If after 2 weeks there was no response (i.e., < 50% reduction in binge frequency), the dose was increased 50mg/wk for 4 wks, then 75mg/wk for 4 weeks, a max dose of 600mg/day at 10 wks. Dose was not changed wks 10-14	Placebo, same flexible-dose plan as tx group, identical 25mg or 100 mg capsules	NA	NA	NA
McElroy, 2000[77]	NA	Sertraline 1, 50 mg capsule for at least 3 days, then dose adjusted to between 1 and 4 capsules daily	Placebo		NA	NA

Evidence Table 57. Binge eating disorder drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
McElroy, 2011[78]	None	Acamprosate First two weeks: 1,998 mg daily, 2 333mg tablets 3 times per day After second week: Participants could increase as tolerated to a maximum of 2,997mg a day Minimum requirement was 999mg a day Increments or schedule to increase NR	Placebo	NA	NA	NA
McElroy, 2007[79]	None	Topiramate Twice daily Started 25mg/day First four weeks - could increase daily dose by 25mg each week as tolerated to 100mg Week 5, could increase up to 150mg, week 6, up to 200mg, week 7 up to 300mg, week 8, up to 400mg A single dose reduction to previous dose was allowed to manage tolerability	Placebo	NA	NA	NA

Evidence Table 57. Binge eating disorder drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
McElroy, 2013[80]		ALKS-33: 10mg given as a once daily nighttime dose (because of the incidence of somnolence observed in previous studies). At the discretion of the investigator, 1 dose decrease (from 10mg to 5mg ALKS-33 in G1) was permitted for any participant who had poor tolerability to treatment.	placebo	NA	NA	NA
McElroy, 2015[81]	None	Lisdexamfetamine Dimesylate 30 mg/day	Lisdexamfetamine Dimesylate 50 mg/day	Lisdexamfetamine Dimesylate 70 mg/day	Placebo	NA
Pearlstein, 2003[82]	Subjects met w/a research nurse or psychiatrist weekly for the first 6 weeks and then biweekly for the next 6 weeks Subjects were instructed not to engage in psychotherapy or weight reduction program during the trial. Psychoeducation materials on healthy eating were distributed at each study visit.	fluvoxamine, dose was titrated up to 150 mg b.i.d. Avg dose for tx was 239 mg/day	placebo, dose was titrated up to 150 mg b.i.d. Avg dose for tx was 264 mg/day	NA	NA	NA

Evidence Table 57. Binge eating disorder drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
Shire, 2014[83,84]	None	Lisdexamfetamine Dimesylate 50 or 70 mg/day	Placebo	NA	NA	NA
Shire, 2014[84,85]	None	Lisdexamfetamine Dimesylate 50 or 70 mg/day	Placebo	NA	NA	NA

Evidence Table 57. Binge eating disorder drug treatment – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2	Group 3	Group 4	Group 5
White, 2013[86]		Buproprion: 150mg tablets taken once daily for the first 3 days, then taken twice daily for study days 4-56	Placebo: Tablets taken once daily for the first 3 days, then taken twice daily for study days 4-56	NA	NA	NA

Evidence Table E58. Binge eating disorder drug treatment – part 4

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Arnold, 2002[66]	Capsule count was done weekly	NA	Primary outcome was weekly fq of binges via diary; secondary outcomes were weight, BMI, CGI-S score, HAM-D total score, and response categories
Brownley, 2013[67]	1 month placebo run-in monitored medication by monthy pill counts	NA	All measures completed at pretreatment, 3-month midtreatment, 6-month posttreatment, 3-month follow-up Binges per week recall from EDE
Guerdjikova, 2009[68]	NR	NA	Weekly binge frequency defined as mean number of binges per week in the interval between visits (total number of binges in the interval, divided by the number of days in the interval, multiplied by 7); binges assessed by interview and review of take-home diaries; study visits occurred weekly during first 6 weeks, then biweekly. Binge frequency and weight measured weekly; other outcomes every 4 weeks.
Guerdjikova, 2008[69]	NR	NA	Binge episode was defined using DSM-IV criteria, assessed via clinical interview and review of take-home diaries, upon which subjects recorded number and duration of binge episodes and food consumed during binges All analyses are ITT (LOCF) unless specified as completers
Guerdjikova, 2012[70]	NR	NA	Participants were evaluated at least twice during screening/baseline on all outcome measures. Following that, on all except 2 measure, participants were evalauted after 1, 2, 4, 6, 8, 10, and 12 weeks of treatment. For TFEQ and HAM-A, participants were evaluated at weeks 2, 6, 10, and 12. Binge eating episodes were assessed via clinical interivews and review of participant take-home diaries

Evidence Table E58. Binge eating disorder drug treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
Hudson, 1998[71]	Fidelity was assessed by medical compliance ascertainment by capsule count and diaries. Level of fidelity NR.	NA	Outcomes were assessed weekly through take-home diaries and clinical interview (binge frequency), medication dose, capsule count (medical compliance), self-report (adverse events, use of nonstudy medications, Clinical Global Impression improvement and severity scales), and examination (vital signs, weight). Depression was assessed at baseline, week 5, and week 9 by the Hamilton Rating Scale for Depression. Outcome analyses used 9-week data.
Leombruni, 2008[72]	NR	NA	Values are M, SD unless otherwise stated T0=Baseline; T8=2 months; T12=3months; T24=6 months A GLM & ANOVA for repeated measures were performed to compare data among four times of observeations for group effect. Post-hoc test was used Bonferrroni (corrected for multiple comparisons) for time factor: T0>T8, T12, T24
McElroy, 2007[73]	Medication supplied in numbered containers and dispensed to pts	NA	Evaluations completed 1, 2, 3, 4, 6, 8 wks and 1 wk after study medication discontinuation Binges recorded via clinical interview and review of pt. take home diaries
McElroy, 2006[74]	Medication compliance was assessed by capsule count	NA	Binge frequency was defined using DSM-IV-TR criteria and assessed via clinical interview and review of patient take-home diaries, upon which patients recorded binges, duration of binges, and food consumed during binges Secondary outcomes were weekly frequency of binge days, weight (kg), BMI, and measures of BED-related pathology and depression. Trial consisted of 1-2 wk screening period, 16 wk treatment period, and 1-wk treatment discontinuation period. Participants were assessed twice during screening and again after 1, 2, 3, 4, 5, 6, 8, 10, 12, 14, and 16 wks of treatment; then again 1 week after medication stopped.

Evidence Table 58. Binge eating disorder drug treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
McElroy, 2003[75]	Fidelity was assessed by weekly medical compliance ascertainment by capsule count. Level of fidelity NR.	NA	Outcomes were assessed weekly through take-home diaries and clinical interview (binge frequency), capsule count (medical compliance), self-report (adverse events, use of nonstudy medications), and examination (vital signs, weight). Depression was assessed biweekly by the Hamilton Rating Scale for Depression. Outcome analyses used 6-week data.
McElroy, 2003[76]	diary review and pill counts	NA	Assessment done during screening, then wks 1, 2, 4, 6, 8, 10, and 14 of treatment, then wks 15 and 16 of taper Results for ITT group
McElroy, 2000[77]	NA	NA	Binges recorded as number of binges since last visit (1 week) using diaries CGI and binges recorded each week Hamiltond Depression Rating Scale at 2, 4, and 6 wks
McElroy, 2011[78]	Research pharmacy prepared study drug to maintain blind	NA	Participants were evaluated at least twice during screening/baseline on all outcome measures. Following that, participants were evalauted after 1, 2, 3, 4, 6, 8, and 10 weeks Binges were assessed via clinical interviews and review of the participants take-home diaries
McElroy, 2007[79]	Adherence by pill count	NA	Binges recorded as number of binges since last visit (1 week) using diaries CGI and binges recorded each week Hamilton Depression Rating Scale at 2, 4, and 6 wks Weight measured wk 1, 2, 3, 4, 6, 8, 12 and 16
McElroy, 2013[80]	Pharmacist prepared study drug to maintain double blind	NA	Assessments completed pre-treatment and at 6 weeks post-treatment Binge measures were assessed from take-home diary on days 0, 8, 15, 22, 29, and 43

Evidence Table 58. Binge eating disorder drug treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
McElroy, 2015[81]	Of 259, 257 were adherent in the 80%-120% range.	None	Assessments were conducted at baseline and week 11. Number of binge eating days per week were based on clinician interview and confirmed against identified BE episodes in self-reported binge eating diaries
Pearlstein, 2003[82]	NA	NA	Primary outcomes assessed at baseline and week 12
Shire, 2014[83,84]	NA	NA	Binge eating info collected by diary. The primary efficacy endpoint was change from baseline to Week 12 in number of binge days per week during Weeks 11 and 12. At baseline, calculated as the weekly average from the 14 days preceding baseline. At final visit, this number was computed as number of binge days multiplied by 7 then divided by number of days in the period. Analysis was performed using MMRM (Mixed-effects Model for Repeated Measures) over the Full Analysis Set (FAS), defined as all subjects who had taken at least one dose of study drug and had one post-baseline primary efficacy assessment.
Shire, 2014[84,85]	NA	NA	Binge eating info collected by diary. The primary efficacy endpoint was change from baseline to Week 12 in number of binge days per week during Weeks 11 and 12. At baseline, calculated as the weekly average from the 14 days preceding baseline. At final visit, this number was computed as number of binge days multiplied by 7 then divided by number of days in the period. Analysis was performed using MMRM (Mixed-effects Model for Repeated Measures) over the Full Analysis Set (FAS), defined as all subjects who had taken at least one dose of study drug and had one post-baseline primary efficacy assessment.

Evidence Table 58. Binge eating disorder drug treatment – part 4 (continued)

First Author's Last Name Year	Fidelity of the Intervention	Intervention Comments	Outcomes Collection and Measurement
White, 2013[86]	To ensure concealment of randomization, medication was prepared in identical-appearing capsules	NA	Participants completed daily records of binge eating episodes, based on EDE definitions of different types of overeating episodes involving the loss of control. Each daily record asked whether participants had any OBEs and SBEs and if so, how many. Prior to starting medication, participants self-reported frequency of binge episodes occurring over the previous 7 days for baseline measure. Assessment appointments occurred every 2 weeks.

Evidence Table E59. Binge eating disorder drug treatment – part 5

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
Arnold, 2002[66]	Binges/wk	Binges/wk: G1: 6.0 (2.5) G2: 6.1 (4.8) (P = NS)	Binges/wk Endpoint: G1: 1.8 (2.9) G2: 2.7 (3.8) Diff between groups (P = NR) Diff between groups in change over time (time trend analysis, P = 0.033; endpoint analysis, P = NS) Response Categories (% decrease in binges/wk from baseline to endpoint) Intent to treat sample: G1 = 29; G2 = 21 None (<50%): G1: 7 (24); G2: 9 (43) Moderate (50%-74% decrease): G1: 8 (28); G2: 4 (19) Marked (75%-99% decrease): G1: 1 (3); G2: 3 (14) Remission (100%): G1: 13 (45) (P = NR) G2: 5 (24) (P = NR) Diff between groups (P = NS) Diff between groups in change over time (P = NR)
Brownley, 2013[67]	Binges per 28 days	Binges per 28 days baseline G1: 31.0 (24.8) G2: 12.8 (3.6) G3: 16.7 (9.5) p = 0.39	Binges per 28 days Monthly rate of change G1: -1.65 (0.76) G2: -0.93 (0.70) G3: -0.97 (0.78) p = NS

Evidence Table E59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
Guerdjikova, 2009[68]	Binges/wk Binge days/wk	Binges/wk (M,SD) G1: 3.92 (1.47) G2: 3.28 (1.31) Binge days/wk (M,SD) G1: 3.81 (1.39) G2: 3.20 (1.26)	Binges/wk (M,SD) G1: 1.65 (2.35) G2: 0.76 (1.71) Diff between groups (p = 0.151) Diff between groups in change over time (p =0.958) Binge days/wk (M, SD) G1: 1.58 (2.212) G2: 0.76 (1.71) Diff between groups (p = 0.156) Diff between groups in change over time (p =0.900) Response Categories (% decrease in binges/wk from baseline to endpoint) Intent to treat sample: G1 = 25; G2 = 24 None (<50%): G1: 5 (20); G2: 3 (13) Moderate (50%-74% decrease): G1: 4 (16); G2: 2 (8) Marked (75%-99% decrease): G1: 3 (12); G2: 1 (4) Remission (100%): G1: 13 (52); G2: 18 (75) (P = NS) Diff between groups (P = NS)

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
Guerdjikova, 2008[69]	Binge episodes/week Binge days/week Response categories for % decrease in frequency of binges from BL to endpoint -none (<50%) -moderate (50-74%) -marked (75-99%) -remission (100%)	Binge episodes/week, M (SD) G1: 4.9 (2.6) G2: 5.1 (2.3) p=NS Binge days/week, M (SD) G1: 4.0 (1.7) G2: 4.1 (1.5) p=NS	Binge episodes/week, M (SD) G1: 0.9 (1.4) G2: 1.7 (1.5) Time-trend analysis Estimate between-group difference in 12-week change (95% CI): -0.27 (-0.50, 0.07) chi-square: 2.7 p=0.100 Endpoint analysis Estimate between-group difference in change from BL to final visit (95% CI): -0.31 (-0.52, 0.03) t=2.17 p=0.036 Binge days/week, M (SD) G1: 0.9 (1.4) G2:1.6 (1.4) Time-trend analysis Estimate between-group difference in 12-week change (95% CI): -0.28 (-0.50, 0.05) chi-square: 2.95 p=0.102 Endpoint analysis Estimate between-group difference in change from BL to final visit (95% CI): -0.31 (-0.52, 0.01) t=2.10 p=0.042 ITT analysis Response: None G1: 3 (15%) G2: 5 (22%) Moderate G1: 3 (15%) G2: 9 (39%)

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
Guerdjikova, 2008[69] (continued)			Marked G1: 4 (20%) G2: 3 (13%) Remission G1: 10 (50%) G2: 6 (26%) p=0.088 for difference between groups Completer analysis Response: None G1: 2 (12%) G2: 3 (16%) Moderate G1: 2 (12%) G2: 8 (42%) Marked G1: 5 (29%) G2: 2 (11%)Remission G1: 8 (47%) G2: 6 (32%) p=0.176 for difference between groups

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
Guerdjikova, 2012[70]	Binge day frequency - the number of days per week that a participant engaged in at least one binge episode Binge episode frequency per week	Binge days/wk, M (SD) G1: 4.0 (1.8) G2: 3.5 (1.5) p = NR Binges/wk, M (SD) G1: 4.5 (2.0) G2: 4.0 (2.4) p = NR	Binge days/wk, M (SD) G1: 1.0 (1.7) G2: 1.3 (1.2) Longitudinal analysis d = 0.67 p = 0.04 Endpoint analysis d = 0.47 p = 0.15 Binges/wk, M (SD) G1: 1.1 (2.0) G2: 1.3 (1.2) Longitudinal analysis d = 0.78 p = 0.02 Endpoint analysis d = 0.36 p = 0.27 Response: None G1: 3 (17%) G2: 3 (30%) Moderate G1: 1 (6%) G2: 4 (20%) Marked G1: 4 (22%) G2: 4 (20%) Remission G1: 10 (56%) G2: 6 (30%) p=0.09 for difference between groups

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
Hudson, 1998[71]	Binge frequency: Number of binges experienced since the last visit (visits were weekly) Additional analyses examined categorical variable of % decrease in frequency of binges from BL to 9wk	Binges/wk, M (SD) G1: 5.4 (2.9) G2: 5.3 (2.5) p=NR, NS	Binges/wk (intent-to-treat), in mean log ([binges/week]+1): G1: depicted in graph G2: depicted in graph Treatment-by-time interaction: -0.181 (SE 0.066) p=0.006 G1 > G2 Response categories ITT Analysis Remission (100% decrease) G1: 15 (38%) G2: 11 (26%) Marked response (75%-99% decrease) G1: 3 (8%) G2: 3 (7%) Moderate response (50%-74% decrease) G1: 7 (18%) G2: 7 (16%) No response (<50%) G1: 15 (38%) G2: 22 (51%) Fisher's exact test, p = NR Completer Analysis Remission G1: 13 (45%) G2: 9 (24%) Marked response G1: 2 (7%) G2: 3 (8%) Moderate response G1: 6 (21%) G2: 6 (16%) No response G1: 8 (28%) G2: 20 (53%) Fisher's exact test, p = 0.04

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
Hudson, 1998[71] (continued)			Evaluable-subjects--those who completed 4wks): Remission G1: 15 (44%) G2: 10 (24%) Marked response G1: 3 (9%) G2: 3 (7%) Moderate response G1: 6 (18%) G2: 7 (17%) No response G1: 10 (29%) G2: 21 (51%) Fisher's exact test, p = 0.04
Leombruni, 2008[72]	Binges/week Abstinence	Binges/wk G1: 4.6 (3.2) G2: 6.2 (7.3)	Binges/wk T8 G1: 1.3 (1.9) G2: 0.8 (1.1) T12 G1: 1.3 (2.0) G2: 0.6 (0.6) T24 G1: 0.9 (1.1) G2: 1.1 (3.3) Time effect p = 0.000 Time x group p = 0.467

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
McElroy, 2007[73]	Binges/wk: binge frequency - mean # of binges per week in the interval between visits Binge days/wk: weekly frequency of binge days - days when the pt. had 1 or more binges	Binges/wk: G1: 4.2 (1.4) G2: 4.9 (2.5) Binge days/wk: G1: 3.8 (1.1) G2: 3.9 (1.5)	Binges/wk: Longitudinal Analysis Estimate (mean change btwn g1-g2): -0.41 95% CI: -0.61 to -0.09 X^2: 5.27 p: 0.81 Endpoint Analysis Estimate (mean change btwn g1-g2):-0.16 95% CI: -0.29 to - 0.01 t: 2.20 p: 0.34 Binge days/wk: Longitudinal Analysis Estimate (mean change btwn g1 - g2): -0.45 95% CI: -0.63 to - 0.18 X^2: 8.75 p: 0.003 Endpoint Analysis Estimate (mean change btwn g1 - g2): -0.16 95% CI: -0.30 to - 0.03 t: 2.37 p: 0.023

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
McElroy, 2006[74]	Binge frequency (mean number of binges per week) Binge days/week Binge response to treatment categories -remission: cessation of binges -marked: 75%-99% decrease -moderate: 50-74% decrease -none: <50% decrease Time to recovery (recovery = first 4 conse	Binges/wk, mean (SD): G1: 4.7 (SD 1.4) G2: 4.4 (SD 2.0) Binge days/wk, mean (SD): G1: 3.9 (SD 1.1) G2: 3.9 (SD 1.3)	Binges/wk Longitudinal analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo: -0.315 (95% CI -0.504 to -0.055); log transformation (log [binges/week]+1) was used for analysis, but these values are expressed in the original scale p=0.021 Endpoint analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo (table also says that the "estimate is the test statistic, which is the mean difference in change scores (endpoint minus BL) between the zonisamide and placebo groups): 0.002 (95% CI -0.143 to 0.171); log transformation (log [binges/week]+1) was used for analysis, but these values are expressed in the original scale p=0.979 Binge days/wk Longitudinal analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo: -0.271 (95% CI -0.476 to 0.016); log transformation (log [binges/week]+1) was used for analysis, but these values are expressed in the original scale

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
McElroy, 2006[74] (continued)			p=0.082 Endpoint analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo (table also says that the "estimate is the test statistic, which is the mean difference in change scores (endpoint minus BL) between the zonisamide and placebo groups): -0.040 (95% CI -0.176 to 0.119); log transformation (log [binges/week]+1) was used for analysis, but these values are expressed in the original scale p=0.596 Categorical response: ITT analysis None G1: 5 (18%) G2: 4 (14%) Moderate G1: 4 (14%) G2: 7 (24%) Marked G1: 4 (14%) G2: 5 (17%) Remission G1: 15 (54%) G2: 13 (45%) p=0.82 (NS difference between groups)

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
McElroy, 2003[75]	Binge frequency: Number of binges experienced since the last visit (visits were weekly), per clinical interview and review of take-home diaries Weekly frequency of binge days (days during which there were 1 or more binges) Additional analyses examined c	Binges/wk, mean (SD) G1: 5.2 (3.6) G2: 5.7 (2.6) p=NR, NS Binge days/wk G1: 4.0 (1.7) G2: 4.0 (1.5) p=NR, NS	Binges/wk, mean (SD) G1: 1.7 (3.1) G2: 3.4 (3.0) Time Trend Analysis: Diff b/t groups in rate of change, standardized at 5.5 binges/wk: -1.7 p = 0.003 Endpoint Analysis: Diff b/t groups in change from BL to 6wk, standardized at 5.5 binges/wk: -1.1 p = 0.091 Binge days/wk, mean (SD) G1: 1.2 (2.0) G2: 2.8 (2.2) Time Trend Analysis: Diff b/t groups in rate of change, standardized at 4.0 binge days/wk: -1.6 p < 0.001 Endpoint Analysis: Differences between groups in change from BL to 6wk, standardized at 4.0 binge days/wk: -1.2 p = 0.016 Response categories ITT Analysis: None (<50%) G1: 5 (26) G2: 11 (58) Moderate (50-74%) G1: 4 (21) G2: 3 (16) Marked (75-99%) G1: 1 (5) G2: 1 (5)

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
McElroy, 2003[75] (continued)			Remission (100%) G1: 9 (47) G2: 4 (21) p=0.068 for difference between groups, by exact trend test
McElroy, 2003[76]	Binges/wk Binge days/wk Categorical response: None (< 50% reduction) Moderate (50% to 74% reduction) Marked (75% to 99% reduction) Remission (100% reduction - zero binges)	Binges/wk, mean (SD): G1: 5.3 (2.8) G2: 6.3 (2.8) Binge days/wk, mean (SD): G1: 4.3 (1.8) G2: 4.8 (1.8)	Binges/wk (% decrease) G1: 94% G2: 46% Diff between groups, p = NS Diff between groups in change over time, p = 0.02 Diff between groups in rate of change, p = 0.0004 Binge Days/wk (% decrease) G1: 93% G2: 46% Diff between groups, p = NS Diff between groups in change over time, p = 0.02 Diff between groups in rate of change, p = 0.0001 Categorical Response, %: None: G1: 18% G2: 37% Moderate: G1: 7% G2: 23% Marked: G1: 11% G2: 10% Remission: G1: 64% G2: 30%

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
McElroy, 2000[77]	Binges per week	Binges/wk, mean (SD): G1: 7.6 (4.8) G2: 7.2 (5.8) p = 0.83 G1: LOG: 2.04 (0.48) G2: LOG: 1.97 (0.52) p = 0.69	Binges/wk: Difference in change between G1 and G2, mean, expressed as log([binges/wk]+1): -0.441 SE:0.163 p = 0.008 G1 better than G2 Among completers: Binges/wk G1: 1.13 (1.56) G2: 3.85 (3.81) Categorical response. N: None (< 50% reduction) G1: 0 G2: 3 Moderate (50% to 74% reduction) G1: 3 G2: 4 Marked (75% to 99% reduction) G1: 2 G2: 3 Remission (100 % reduction) G1: 7 G2: 2

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
McElroy, 2011[78]	Binge episode frequency per week Binge day frequency - the number of days per week that a participant engaged in at least one binge episode Categorical response: None (< 50% reduction) Moderate (50% to 74% reduction) Marked (75% to 99% reduction) Remiss	Binges episodes/wk, mean (SD) G1: 4.5 (2.1) G2: 4.5 (2.2) p = NR, NS Bingedays/wk, mean (SD) G1: 4.2 (1.7) G2: 3.8 (1.2) p = NR, NS	Binges episodes/wk, mean (SD) G1: 1.9 (2.4) G2: 2.8 (2.5) p = 0.61 Binge days/wk, mean (SD) G1: 1.8 (2.2) G2: 2.6 (2.1) p = 0.23 Categorical Response: None: G1: 32% G2: 50% Moderate: G1: 21% G2: 20% Marked: G1: 16% G2: 10% Remission: G1: 32% G2: 20% p = NR, stated as NS

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
McElroy, 2007[79]	Binge episode frequency per week Binge day frequency - the number of days per week that a participant engaged in at least one binge episode Categorical response, binge days: None (< 50% reduction) Moderate (50% to 74% reduction) Marked (75% to 99% reduc	Binges episodes/wk, mean (SD) G1: 6.6 (4.6) G2: 6.3 (3.6) p = NR Bingedays/wk, mean (SD) G1: 4.6 (1.3) G2: 4.6 (1.3) p = NR	Binge episodes/wk, mean (SD) change from baseline G1: -3.5 (1.9) G2: -2.5 (2.1) Endpoint Analysis: p < 0.001 Longitudinal Analysis, rate of change: p < 0.001 Binge days/wk, mean (SD) change from baseline G1: -5.0 (4.3) G2: -3.4 (3.8) Endpoint Analysis: p < 0.001 Longitudinal Analysis, rate of change: p < 0.001 Categorical response, binge days: None G1: 20% G2: 42% Moderate G1: 10% G2: 18% Marked G1: 12% G2: 11% Remission G1: 58% G2: 29% p < 0.001 for group difference across categories

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
McElroy, 2013[80]	Binge days/wk Binge days responder categories -≥1 less day -≥2 less day -≥3 less day Weekly binge frequency Weekly binge frequency responder categories -≥2 binges -≥3 binges -≥4 binges Remission: no binges in the last 2 study weeks or in interval be	Binge days/wk, mean (SD) G1: 3.4 (1.0) G2: 3.7 (1.5) p=0.35 Binges/wk, mean (SD) G1: 4.4 (2.3) G2: 4.3 (2.3) p=0.87	Endpoint means NR Weekly binge days, mean change (SD) from baseline to endpoint: G1: -2.4 (1.6) G2: -2.7 (.5) p=0.50 Binge days responder-≥1 day, N (%) from baseline to endpoint, N (%): G1: 20 (77%) G2: 32 (89%) p=0.30 Binge days responder-≥2 day, N (%) from baseline to endpoint: G1: 18 (69%) G2: 24 (67%) p=0.83 Binge days responder-≥3 day, N (%) from baseline to endpoint: G1: 11 (42%) G2: 18 (50%) p=0.55 Weekly binge frequency, mean change (SD) from baseline to endpoint: G1: -3.3 (2.4) G2: -3.2 (1.8) p=0.99 Binge frequency responder-≥2 binges, N (%) from baseline to endpoint: G1: 19 (73%) G2: 26 (SD 72%) p=0.94 Binge frequency responder-≥3 binges, N (%) from baseline to endpoint: G1: 16 (SD 62%) G2: 20 (SD 56%) p=0.64

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
McElroy, 2013[80] (continued)			Binge frequency responder-≥4 binges, N (%) from baseline to endpoint: G1: 10 (38%) G2: 13 (SD 36%) p=0.85 Remission, N (%) G1: 9 (35%) G2: 19 (53%) p=0.16
McElroy, 2015[81]	Binge days per week	Binge days/week, nontransformed mean (SD) G1: 4.5 (SD 1.44) G2: 4.5 (SD 1.28) G3: 4.6 (SD 1.25) G4: 4.3 (SD 1.38) Binge episodes, non-transformed, mean (SD) G1: 5.8 (SD 3.03) G2: 5.6 (SD 2.75) G3: 5.6 (SD 2.43) G4: 5.2 (SD 2.13)	Primary efficacy variables 11wk Binge days/week, nontransformed mean (SD) G1: 1.0 (SD 1.69) G2: 0.4 (SD 0.86) G3: 0.5 (SD 1.25) G4: 1.1 (SD 1.45) 11wk change from BL, Binge days/week, log-transformed, LS, mean (SE) G1: -1.24 (SE 0.067) G2: -1.49 (SE 0.066) G3: -1.57 (SE 0.067) G4: -1.23 (SE 0.069) 11wk difference from placebo, Binge days/week, nontransformed mean (SD) G1: -0.01 (SE 0.096) G2: -0.26 (SE 0.096) G3: -0.35 (SE 0.096) G4: N/A Binge days/week Significant difference compared with placebo G1 p=0.88 G2 p=0.008 G3 p<0.001 G4 N/A

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
McElroy, 2015[81] (continued)			Secondary efficacy variables 11wk binge episodes, non-transformed, mean (SD) G1: 1.2 (SD 2.13) G2: 0.5 (SD 1.01) G3: 0.5 (SD 1.34) G4: 1.1 (SD 1.55) 11wk change from BL, Binge episodes, log-transformed, LS, mean (SE) G1: -1.37 (SE 0.070) G2: -1.62 (SE 0.069) G3: -1.71 (SE 0.070) G4: -1.36 (SE 0.072) 11wk difference from placebo, Binge episodes, nontransformed mean (SD) G1: -0.01 (SE 0.100) G2: -0.27 (SE 0.100) G3: -0.35 (SE 0.100) G4: N/A Binge episodes Significant difference compared with placebo G1 p=0.89 G2 p=0.009 G3 p<0.001 G4 N/A 1wk Cessation (100% reduction) Binge response category (%) G1: 42.4% G2: 51.6% G3: 55.6% G4: 37.1% 1wk Marked response (75-<100% reduction) Binge response category (%) G1: 30.3% G2: 37.5% G3: 36.5% G4: 24.2%

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
McElroy, 2015[81] (continued)			1wk Moderate response (50-<75 reduction) Binge response category (%) G1: 12.1% G2: 6.3% G3: 1.6% G4: 21.0% 1wk Negative/minimal response (<25% reduction) Binge response category (%) G1: 15.2% G2: 4.7% G3: 6.3% G4: 17.7% 1wk Binge category response: Significant difference compared with placebo G1 p=0.33 G2 p=0.006 G3 p=0.002 G4 N/A 4wk Cessation (100% reduction) Binge response category (%) G1: 34.9% G2: 42.2% G3: 50.0% G4: 21.3% 4wk Binge cessation: Significant difference compared with placebo G1 p=0.09 G2 p=0.01 G3 p<0.001 G4 N/A
Pearlstein, 2003[82]	Number of binge days, past 28 days	Days Binged (M,SD) G1: 14.67 (55.68) G2: 20.00 (6.21) (P = NS)	Days Binged (M,SD) G1: 3.11 (4.20) G2: 7.31 (9.31) Diff between groups (P = NR) Change over time for both groups: (P < 0.001) Diff between groups in change over time (P=NS)

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
Shire, 2014[83,84]	Number of binge days per week 4-week abstinence	Number of binge days per week G1: 4.66 (1.27) G2: 4.82 (1.42)	Change in number of binge days per week measured as LS mean (SEM) G1: -3.92 (0.135) SD: 0.14 G2: -2.26 (0.137) SD: 0.14 LS Mean diff (95% CI): -1.66 (-2.04 to -1.28) (p< 0.001) 4-week abstinence G1: 36.2% (29.1-43.3) G2: 13.1% (8.1-18.0) Diff: 25.9% (p < 0.001) Change in number of binge episodes per week G1: -5.54 (0.193) G2: -3.31 (0.194) Diff: -2.23 (-2.77 to -1.69) (p < 0.001)
Shire, 2014[84,85]	Number of binge days, past 28 days	Days Binged (M,SD) G1: 14.67 (55.68) G2: 20.00 (6.21) (P = NS)	Days Binged (M,SD) G1: 3.11 (4.20) G2: 7.31 (9.31) Diff between groups (P = NR) Change over time for both groups: (P < 0.001) Diff between groups in change over time (P=NS)

Evidence Table 59. Binge eating disorder drug treatment – part 5 (continued)

First Author's Last Name Year	Definition of Binges (days; frequency; remission; abstinence etc.)	Binges Baseline	Binges Outcomes
White, 2013[86]	Objective binge eating (OBE) episodes, EDE monthly Objective binge eating (OBE) episodes, self-report weekly (via daily monitoring) Subjective binge eating (SBE) episodes, EDE monthly Subjective binge eating (SBE) episodes, self-report weekly (via dail	OBE episodes, EDE monthly G1: 17.8 (SD 11.9) G2: 13.6 (SD 6.5) OBE episodes, SR weekly G1: 3.3 (SD 3.3) G2: 3.0 (SD 2.6) SBE episodes, EDE monthly G1: 13.5 (SD 11.2) G2: 10.3 (SD 14.2) SBE episodes, SR weekly G1: 3.6 (SD 2.7) G2: 2.7 (SD 3.4)	8wk OBE episodes, EDE monthly G1: 5.0 (SD 9.4) G2: 6.3 (SD 8.0) Mixed effects model medication effect F=0.08, p=0.78 8wk OBE episodes, SR weekly G1: 0.8 (SD 1.2) G2: 1.0 (SD 1.5) Mixed effects model medication effect F=2.01, p=0.16 8wk SBE episodes, EDE monthly G1: 9.3 (SD 21.4) G2: 7.5 (SD 8.4) Mixed effects model medication effect F=0.96, p=0.33 8wk SBE episodes, SR weekly G1: 2.2 (SD 4.2) G2: 2.3 (SD 2.4) Mixed effects model medication effect F=0.47, p=0.50 8wk Categorical remission from binge episodes (no binge episodes during the past 4 weeks) G1: 42% G2: 27% Chi-square=1.58, phi coefficient=0.16, p=0.21

Evidence Table E60. Binge eating disorder drug treatment – part 6

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Arnold, 2002[66]	NA	NA	NA
Brownley, 2013[67]	EDE global EDE eating concern EDE shape concern EDE weight concern EDE restraint	EDE global baseline G1: 3.3 (1.3) G2: 3.2 (0.9) G3: 3.4 (0.7) p = 0.99 EDE eating concern baseline G1: 3.0 (1.9) G2: 3.0 (1.0) G3: 3.2 (1.7) p = 0.99 EDE shape concern baseline G1: 4.6 (1.4) G2: 4.3 (1.1) G3: 4.5 (1.0) p = 0.99 EDE weight concern baseline G1: 4.2 (1.5) G2: 3.9 (0.9) G3: 4.0 (1.3) p = 0.99 EDE restraint: baseline G1: 1.4 (1.5) G2: 1.9 (1.4) G3: 1.8 (1.4) p = 0.99	EDE global Monthly rate of change G1: -0.21 (0.07) G2: -0.13 (0.07) G3: -0.04 (0.07) G1 v G3 t: -1.72 df: 31 p = 0.10 G2 v G3 t: -0.95 df: 31 p = 0.35 EDE eating concern Monthly rate of change G1: -0.29 (0.08) G2: -0.11 (0.08) G3: -0.02 (0.08) G1 v G3: t: -0.78 df: 37 p = 0.04 G2 v G3 t: -0.78 df: 37 p = 0.44 EDE shape concern Monthly rate of change G1: -0.24 (0.08) G2: -0.16 (0.07) G3: -0.01 (0.08) G1 v G3 t: -2.08 df: 37 p = 0.04

Evidence Table E60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Brownley, 2013[67] (continued)			G2 v G3 t: -1.45 df: 37 p = 0.15 EDE weight concern Monthly rate of change G1: -0.20 (0.07) G2: -0.18 (0.06) G3: 0.06 (0.07) G1 v G3 t: -2.67 df: 37 p = 0.01 G2 v G3 t: -2.48 df: 37 p = 0.02 EDE restraint Monthly rate of change G1: -0.13 (0.10) G2: -0.01 (0.09) G3: -0.06 (0.10) G1 v G3 t: -0.55 df: 37 p = 0.59 G2 v G3 t: 0.37 df: 37 p = 0.71

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Guerdjikova, 2009[68]	EOQ EDE-Q Total EDE-Q Restraint EDE-Q Eating Concern EDE-Q Weight Concern EDE-Q Shape Concern TFEQ (EI) Total EI Restraint EI Hunger EI Disinhibition	EOQ (M,SD for this one & all variables below) G1: 8.15 (5.88) G2: 8.83 (7.12) EDE-Q Total G1: 13.43 (4.51) G2: 13.39 (4.26) EDE-Q Restraint G1: 1.76 (1.60) G2: 1.46 (1.63) EDE-Q Eating Concern G1: 3.51 (1.37) G2: 3.48 (1.42) EDE-Q Weight Concern G1: 3.62 (1.31) G2: 3.83 (1.07) EDE-Q Shape Concern G1: 4.54 (1.28) G2: 4.62 (0.96) TFEQ (EI) Total G1: 30.00 (5.18) G2: 17.60 (5.71) EI Restraint G1: 6.96 (5.09) G2: 6.54 (3.01) EI Hunger G1: 10.77 (3.14) G2: 11.13 (2.33) EI Disinhibition G1: 12.27 (2.27) G2: 13.04 (2.03)	EOQ (M,SD) G1: 4.55 (6.99) G2: 2.60 (4.99) Diff between groups (0.248) Diff between groups in change over time (p=0.338) EDE-Q Total (M,SD) G1: 7.96 (4.61) G2: 9.91 (4.19) Diff between groups (p=0.617) EDE-Q Restraint (M,SD) G1: 1.10 (1.40) G2: 1.20 (1.06) Diff between groups (p=0.773) EDE-Q Eating Concern (M,SD) G1: 1.39 (1.06) G2: 1.43 (1.21) Diff between groups (p=0.942) EDE-Q Weight Concern (M,SD) G1: 2.35 (1.47) G2: 3.09 (1.57) Diff between groups (p=0.232) EDE-Q Shape Concern (M,SD) G1: 3.12 (1.76) G2: 4.19 (2.56) Diff between groups p=0.154 TFEQ (M,SD) G1: 27.05 (7.14) G2: 26.05 (8.55) Diff between groups in change over time p=0.881 Diff between groups p=0.238 EI Restraint (M,SD) G1: 9.59 (5.67) G2: 9.25 (4.62)

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Guerdjikova, 2009[68] (continued)			Diff between groups in change over time p=0.830 Diff between groups p=0.601 EI Hunger (M,SD) G1: 7.82 (4.98) G2: 6.85 (3.51) Diff between groups in change over time p=0.789 Diff between groups p=0.621 EI Disinhibition (M,SD) G1: 9.64 (3.71) G2: 9.95 (4.30) Diff between groups in change over time p=0.880 Diff between groups p=0.427
Guerdjikova, 2008[69]	Yale-Brown Obsessive-Compulsive Scale modified for Binge Eating (YBOCS-BE) -total -obsessions -compulsions	YBOCS-BE total, M (SD) G1: 19.1 (5.3) G2: 10.0 (3.6) p=NS YBOCS-BE obsessions, M (SD) G1: 9.2 (2.8) G2: 9.0 (2.2) p=NS YBOCS-BE compulsions, M (SD) G1: 9.9 (3.2) G2: 10.0 (1.8) p=NS	YBOCS-BE total, M (SD) G1: 7.9 (6.2) G2: 11.3 (6.2) Time-trend analysis Estimate between-group difference in 12-week change (95% CI): 2.9 (-1.2, -7.1) chi-square: 1.81 p=0.167 Endpoint analysis Estimate between-group difference in change from BL to final visit (95% CI): 3.5 (-0.1, -7.2) t=1.81 p=0.059 YBOCS-BE obsessions, M (SD) G1: 4.4 (3.0) G2: 5.8 (3.1) Time-trend analysis

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Guerdjikova, 2008[69] (continued)			Estimate between-group difference in 12-week change (95% CI): 1.3 (-0.9, -3.3) chi-square: 1.22 p=0.238 Endpoint analysis Estimate between-group difference in change from BL to final visit (95% CI): 1.4 (-0.4, -3.2) t=1.43 p=0.122 YBOCS-BE compulsions, M (SD) G1: 3.5 (3.6) G2: 5.5 (3.5) Time-trend analysis Estimate between-group difference in 12-week change (95% CI): 1.5 (-0.8, -3.9) chi-square: 1.65 p=0.197 Endpoint analysis Estimate between-group difference in change from BL to final visit (95% CI): 2.1 (-0.1, -4.3) t=1.77 p=0.059

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Guerdjikova, 2012[70]	Clinical Global Impression Severity for Binge Eating (CGI-S-BE) Clinical Global Impression Improvement for Binge Eating (CGI-I-BE) Yale-Brown Obsessive-Compusive Scale (modified for binge eating; YBOCS-BE) Three Factor Eating Questionnaire (TFEQ)	CGI-S-BE, M (SD) G1: 5.0 (0.8) G2: 4.6 (0.7) p = NR YBOCS-BE, M (SD) Total G1: 22.3 (3.5) G2: 21.6 (2.8) p = NR Obsessions G1: 11.0 (2.6) G2: 10.7 (1.4) p = NR Compulsions G1: 11.3 (2.1) G2: 11.0 (2.0) p = NR TFEQ, M (SD) Cognitive restraint G1: 6.0 (3.2) G2: 4.4 (4.3) p = NR Disinhibition G1: 13.6 (2.0) G2: 13.6 (1.7) p = NR Hunger G1: 11.0 (2.7) G2: 12.1 (2.0) p = NR	CGI-S-BE, M (SD) G1: 2.3 (1.5) G2: 2.7 (1.3) Longitudinal Analysis d = 0.77 p =0.02 Endpoint Analysis d = 0.53 p =0.10 CGI-I-BE, M (SD) G1: 1.7 (1.0) G2: 2.2 (1.3) d = 0.24 p = 0.47 YBOCS-BE, M (SD) Total G1: 9.4 (7.0) G2: 10.3 (6.3) Longitudinal Analysis d = 0.44 p = 0.17 Endpoint Analysis d = 0.24 p = 0.47 Obsessions Longitudinal Analysis G1: 5.4 (3.6) G2: 5.5 (3.1) d = 0.39 p = 0.23 Endpoint Analysis d = 0.07 p = 0.83

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Guerdjikova, 2012[70] (continued)			Compulsions Longitudinal Analysis G1: 3.9 (4.0) G2: 4.8 (3.4) d = 0.42 p = 0.20 Endpoint Analysis d = 0.34 p = 0.30 TFEQ, M (SD) Cognitive restraint G1: 5.6 (3.3) G2: 7.1 (4.8) Endpoint Analysis d = 0.39 p = 0.29 Disinhibition G1: 11.3 (4.3) G2: 11.5 (3.3) Endpoint Analysis d = 0.02 p = 0.96 Hunger G1: 8.7 (3.5) G2: 9.5 (3.9) Enpoint Analysis d = 0.24 p = 0.52

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Hudson, 1998[71]	Clinical Global Impressions--improvement (CGI-I) Clinical Global Impressions--severity (CGI-S)	NR	CGI-S Treatment-by-time interaction: -0.360 (SE 0.117) p=0.002 CGI-I Treatment-by-time interaction: 0.285 (SE 0.127) p=0.02
Leombruni, 2008[72]	Binge Eating Scale (BES) Eating Disorder Inventory 2 (EDI-2) Drive for thinness (DT) EDI-2 Bulimia (BU) EDI-2 Body Dissatisfaction (BD) EDI-2 Ineffectiveness (IN) EDI-2 Perfoctionism (P) EDI-2 Interpersonal Distrust (ID) EDI-2 Introceptive Awareness (IA) EDI-2 Maturity Fears (MF) EDI-2 Asceticism (ASC) EDI-2 Impulsive Regulation (IR) EDI-2 Social Insecurity (SI)	BES G1: 32.1 (3.5) G2: 26.1 (8.5) DT G1: 11.9 (3.8) G2: 13.6 (4.4) BU G1: 11.6 (3.9) G2: 10.8 (4.6) BD G1: 22.1 (4.9) G2: 21.4 (3.9) IN G1: 8.1 (3.9) G2: 9.1 (5.2) P G1: 3.5 (1.9) G2: 4.9 (2.0) ID G1: 4.7 (3.9) G2: 6.8 (3.8) IA G1: 10.2 (4.9) G2: 9.1 (4.0) MF G1: 5.8 (2.5) G2: 5.8 (3.2)	BES T8 G1: 18.0 (8.7) G2: 16.7 (6.3) T12 G1: 19.2 (7.8) G2: 15.6 (8.5) T24 G1: 19.2 (11.5) G2: 15.9 (8.2) Time effect p<0.001 Time x group p<0.495 DT T8 G1: 11.5 (4.6) G2: 13.5 (4.6) T12 G1: 11.3 (4.9) G2: 12.1 (4.6) T24 G1: 11.7 (4.2) G2: 12.9 (4.8) Time effect p <0.340 Time x group effect p<0.763 BU T8 G1: 5.3 (3.3) G2: 5.4 (4.3)

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Leombruni, 2008[72] (continued)		ASC G1: 5.2 (2.5) G2: 8.2 (3.1) IR G1: 5.2 (3.1) G2: 5.8 (4.0) SI G1: 5.8 (2.0) G2: 6.3 (2.5)	T12 G1: 4.5 (2.6) G2: 5.2 (3.4) T24 G1: 4.7 (2.3) G2: 4.0 (3.2) Time effect p<0.000 Time x group p=0.687 BD T8 G1: 17.5 (4.4) G2: 17.1 (4.7) T12 G1: 16.8 (5.1) G2: 16.0 (6.6) T24 G1: 14.7 (6.1) G2: 15.4 (7.3) time effect p<0.000 time x group p<0.861 IN T8 G1: 6.8 (4.1) G2: 7.5 (2.8) T12 G1: 6.7 (3.5) G2: 7.5 (3.7) T24 G1: 7.0 (3.7) G2: 9.0 (3.7) time effect p<0.085 time x group p<0.854 P T8 G1: 3.5 (2.5) G2: 5.1 (2.4)

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Leombruni, 2008[72] (continued)			T12 G1: 3.3 (2.0) G2: 4.1 (2.5) T24 G1: 3.0 (2.0) G2: 5.6 (4.3) time effect p <0.411 time x group p<0.194 ID T8 G1: 4.1 (2.1) G2: 5.1 (2.5) T12 G1: 3.8 (1.7) G2: 5.4 (2.2) T24 G1: 2.9 (2.4) G2: 6.0 (3.7) time effect p< 0.132 time x group p<0.356 IA T8 G1: 6.1 (4.5) G2: 6.2 (5.3) T12: G1: 3.9 (2.5) G2: 4.6 (3.8) T24 G1: 3.5 (1.6) G2: 5.5 (5.5) time effect p<0.000 time x group p<0.196 MF T8 G1: 5.2 (3.4) G2: 4.6 (3.5)

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Leombruni, 2008[72] (continued)			T12 G1: 6.6 (3.7) G2: 5.3 (3.7) T24 G1: 6.2 (4.7) G2: 5.6 (3.5) time effect p<0.080 time x group p<0.578 ASC T8 G1: 5.0 (2.0) G2: 6.8 (2.3) T12 G1: 4.7 (2.4) G2: 6.5 (3.0) T24 G1: 4.3 (2.2) G2: 7.8 (3.7) time efect p<0.247 time x group effect p<0.252 IR T8 G1: 4.7 (3.9) G2: 4.4 (3.2) T12 G1: 5.2 (2.9) G2: 4.1 (4.0) T24 G1: 4.9 (2.5) G2: 4.0 (2.9) time effect p<0.145 time x group p<0.342 SI T8 G1: 5.4 (2.4) G2: 5.8 (2.3)

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Leombruni, 2008[72] (continued)			T12 G1: 5.8 (2.9) G2 5.6 (3.4) T24 G1: 4.7 (2.5) G2: 5.5 (3.3) time effect p<0.324 time x group p<0.735
McElroy, 2007[73]	Three Factor Eating Questionnaire (TFEQ) - Total TFEQ - Cognitive restraint TFEQ - Disinhibition TFEQ - Hunger Yale-Brown Obsessive Compulsive Scale (modified for BE) (YBOCS-BE) - total YBOCS-BE - obsessions YBOCS-BE - compulsions	TFEQ: NR YBOCS-BE total, mean (SD): G1: 17.4 (4.8) G2: 17.9 (3.1) YBOCS-BE obsessions, mean (SD): G1: 9.0 (3.1) G2: 8.6 (2.0) YBOCS-BE compulsions, mean (SD): G1: 8.4 (2.1) G2: 9.3 (1.6)	TFEQ Total: Longitudinal Analysis Estimate (mean change btwn g1 - g2): -3.54 95% CI: -8.32 to 1.24 X^2: 2.15 p: 0.142 Endpoint Analysis Estimate (mean change btwn g1-g)2: -3.80 95% CI: -9.44 to 1.84 t: 1.44 p: 0.164 TFEQ-Cognitive Restraint: Longitudinal Analysis Estimate (mean change btwn g1 - g2): 2.08 95% CI: -1.38 to 5.54 X^2: 1.42 p: 0.234 Endpoint Analysis Estimate (mean change btwn g1-g2): 2.01 95% CI: -2.47 to 6.49 t: 0.93 p: 0.364 TFEQ Disinhibition: Longitudinal Analysis

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2007[73] (continued)			Estimate (mean change btwn g1 - g2): -1.96 95% CI: -4.91 to 0.99 X^2: 1.73 p: 0.189 Endpoint Analysis Estimate (mean change btwn g1-g2): -1.94 95% CI: -5.47 to 1.60 t:1.10 p:0.287 TFEQ Hunger: Longitudinal Analysis Estimate (mean change btwn g1 - g2): -3.56 95% CI: -7.15 to 0.02 X^2: 3.88 p: 0.049 Endpoint Analysis Estimate (mean change btwn g1-g2): -3.87 95% CI: -8.56 to 0.82 t: 1.70 p: 0.104 YBOCS-BE total Longitudinal Analysis Estimate (mean change btwn g1 - g2): -4.77 95% CI: -9.25 to -0.28 X^2: 4.40 p: 0.037

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2007[73] (continued)			Endpoint Analysis Estimate (mean change btwn g1-g)2: -5.30 95% CI: -9.01 to -1.59 t: 2.89 p: 0.006 YBOCS-BE obsessions Longitudinal Analysis Estimate (mean change btwn g1 - g2): 3.04 95% CI: -5.41 to -0.66 X^2: 6.36 p: 0.012 Endpoint Analysis Estimate (mean change btwn g1-g)2: -3.50 95% CI: -5.73 to -1.27 t: 3.18 p: 0.003 YBOCS-BE compulsions Longitudinal Analysis Estimate (mean change btwn g1 - g2): -1.82 95% CI: -4.26 to 0.63 X^2: 2.15 p: 0.143 Endpoint Analysis Estimate (mean change btwn g1-g)2: -1.80 95% CI: -3.71 to 0.11 t: 1.91 p: 0.067

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2006[74]	Yale-Brown Obsessive Compulsive Scale Modified for Binge Eating (YBOCS-BE) -total -obsessions -compulsions TFEQ -cognitive restraint -disinhibition -hunger	YBOCS-BE Total, mean (SD): G1: 19.1 (4.0) G2: 18.6 (4.8) p=NR, NS YBOCS-BE Obsessions, mean (SD): G1: 9.2 (2.7) G2: 8.9 (3.4) p=NR, NS YBOCS-BE Compulsions, mean (SD): G1: 9.9 (2.1) G2: 9.8 (2.4) p=NR, NS TFEQ = NR	YBOCS-BE - total Longitudinal analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo: -7.01 (95% CI -10.45 to -3.57) p<0.001 Endpoint analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo (table also says that the "estimate is the test statistic, which is the mean difference in change scores (endpoint minus BL) between the zonisamide and placebo groups): -3.50 (95% CI -7.15 to 0.15) p=0.060 YBOCS-BE obsessions Longitudinal analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo: -4.14 (95% CI -6.14 to -2.24) p<0.001 Endpoint analysis G1: NR G2: NR

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2006[74] (continued)			Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo (table also says that the "estimate is the test statistic, which is the mean difference in change scores (endpoint minus BL) between the zonisamide and placebo groups): -1.88 (95% CI -4.08 to 0.32) p=0.093 YBOCS-BE compulsions Longitudinal analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo: -2.82 (95% CI -4.82 to -0.82) p=0.006 Endpoint analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo (table also says that the "estimate is the test statistic, which is the mean difference in change scores (endpoint minus BL) between the zonisamide and placebo groups): -1.62 (95% CI -3.48 to 0.24) p=0.087 TFEQ total Longitudinal analysis G1: NR G2: NR

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2006[74] (continued)			Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo: -3.49 (95% CI -8.09 to 1.12) p=0.136 Endpoint analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo (table also says that the "estimate is the test statistic, which is the mean difference in change scores (endpoint minus BL) between the zonisamide and placebo groups): -6.19 (95% CI -11.14 to -1.24) p=0.016 TFEQ cognitive restraint Longitudinal analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo: 2.74 (95% CI -0.27 to 5.76) p=0.074 Endpoint analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo (table also says that the "estimate is the test statistic, which is the mean difference in change scores (endpoint minus BL) between the

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2006[74] (continued)			zonisamide and placebo groups): 1.32 (95% CI -2.18 to 4.81) p=0.448 TFEQ disinhibition Longitudinal analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo: -4.44 (95% CI -7.05 to -1.83) p<0.001 Endpoint analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo (table also says that the "estimate is the test statistic, which is the mean difference in change scores (endpoint minus BL) between the zonisamide and placebo groups): -4.26 (95% CI -7.49 to -1.04) p=0.011 TFEQ hunger Longitudinal analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo: -2.90 (95% CI -5.95 to 0.14) p=0.061 Endpoint analysis G1: NR G2: NR

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2006[74] (continued)			Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo (table also says that the "estimate is the test statistic, which is the mean difference in change scores (endpoint minus BL) between the zonisamide and placebo groups): -3.24 (95% CI -6.43 to -0.05) p=0.047

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2003[75]	Clinical Global Impressions-Severity of Illness scale (CGI-S) scores Yale-Brown Obsessive Compulsive Scale Modified for Binge Eating (YBOCS-BE) scores	YBOCS-BE score: Total G1: 19.4 (4.2) G2: 18.5 (3.1) p=NR, NS YBOCS-BE score: Obsessions G1: 9.3 (2.2) G2: 9.3 (1.8) p=NR, NS YBOCS-BE score: Compulsions G1: 10.1 (2.2) G2: 9.2 (1.7) p=NR, NS	YBOCS-BE score, mean (SD): Total G1: 7.6 (7.2) G2: 13.2 (5.9) Time Trend Analysis: Mean difference between groups in rate of change: -3.73 (SE 1.37) p = 0.007 Endpoint Analysis: Mean difference between groups in change from BL to 6wk: -5.73 (SE 2.33) p = 0.007 YBOCS-BE score, mean (SD): Obsessions G1: 4.3 (3.6) G2: 6.8 (2.6) Time Trend Analysis: Mean difference between groups in rate of change: -1.44 (SE 0.72) p = 0.046 Endpoint Analysis: Mean difference between groups in change from BL to 6wk: -2.48 (SE 1.22) p = 0.041 YBOCS-BE score, mean (SD): Compulsions G1: 3.4 (3.9) G2: 6.4 (3.6) Time Trend Analysis: Mean difference between groups in rate of change: -2.26 (SE 0.72) p = 0.002 Endpoint Analysis: Mean difference between groups in change from BL to 6wk: -2.88 (SE 1.27) p = 0.023

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2003[76]	Yale-Brown Obsessions and Compulsions Scale modifed for Binge Eating (YBOCS-BE) Total YBOCS-BE Obsessions YBOCS-BE Compulsions	YBOCS-BE, mean (SD): Total: G1: 21.5 (3.9) G2: 21.6 (4.6) Obsessions G1: 10.5 (2.1) G2: 10.9 (2.5) Compulsions G1: 11.0 (2.1) G2: 10.7 (2.4)	YBOCS-BE Total Diff between groups in rate of change, p = 0.004 YBOCS BE Obsessions Diff between groups in rate of change:, p = 0.04 YBOCS-BE Compulsions Diff between groups in rate of change, p = 0.0008
McElroy, 2000[77]	NR	NR	NR

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2011[78]	Yale-Browne Obsessive Compulsive Scale modifed for Binge Eating (YBOCS-BE) TFEQ: Three factor eating questionnaire FCI: Food craving inventory scale	YBOCS-BE, mean (SD): Total G1: 19.6 (2.9) G2: 19.9 (4.7) Obsessions G1: 9.9 (1.9) G2: 10 (2.7) Compulsions G1: 9.7 (1.8) G2: 10 (2.3) FCI, mean (SD): G1: 82.2 (16.7) G2: 79.4 (18) TFEQ, mean (SD): Total G1: 32.2 (4.3) G2: 32.7 (5.8) Cognitive G1: 6.9 (3.6) G2: 8.2 (3.6) Disinhibtion G1: 14.3 (1.6) G2: 13.5 (2.1) Hunger G1: 11 (2.3) G2: 11.1 (2.7) All p = NR, NS	Longitudinal Analysis: YBOCS-BE Total, mean (SD) G1: 10.6 (7.1) G2: 15.4 (6.3) p = 0.33 YBOCS-BE obsessions, mean (SD) G1: 5.3 (3.6) G2: 7.9 (3.0) p = 0.81 YBOCS-BE Compulsions, mean (SD) G1: 5.3 (3.6) G2: 7.6 (3.6) p = 0.65 Endpoint Analysis: FCI, mean (SD) G1: 59.5 (12.6) G2: 69.7 (22.7) p = 0.01 TFEQ Total, mean (SD) G1: 28.9 (5.5) G2: 31.5 (6.4) p = 0.25 TFEQ Cognitive, mean (SD) G1: 8.7 (5.0) G2: 8.5 (5.2) p = 0.17 TFEQ Disinhibtion, mean (SD) G1: 11.2 (3.9) G2: 12.3 (3.6) p = 0.08 TFEQ Hunger, mean (SD) G1: 9.1 (3.6) G2: 10.7 (3.1) p = 0.19

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2007[79]	YBOCS-BE: Yale-brown obsessive-compulsive scale modified for binge eating TFEQ: Three Factor Eating Questionnaire, Total, Cognitive restratint, disinhibition, and hunger subscales	YBOCS-BE Total G1: 21.1 (4.9) G2: 21.5 (4.9) Obsessions G1: 10.3 (3.1) G2: 10.6 (3.1) Compulsions G1: 10.8 (2.5) G2: 10.9 (2.4) TFEQ Cognitive G1: 6.7 (3.8) G2: 6.8 (3.8) Disinhibition G1: 13.9 (1.8) G2: 14.1 (1.7) Hunger G1: 10.8 (2.9) G2: 11.3 (2.7)	YBOCS-BE Total, mean (SD) change from baseline G1: -14.3 (8.9) G2: -7.9 (8.9) Endpoint Analysis: p < 0.001 Longitudinal Analysis, rate of change: p < 0.001 YBOCS Obsessions, mean (SD) change from baseline G1: -6.7 (4.6) G2: -3.8 (4.8) Endpoint Analysis: p < 0.001 Longitudinal Analysis, rate of change: p < 0.001 YBOCS Compulsions, mean (SD) change from baseline G1: -7.6 (4.8) G2: -4.2 (4.8) Endpoint Analysis: p < 0.001 Longitudinal Analysis, rate of change: p < 0.001 TFEQ Cognitive restraint, mean change from baseline G1: 3.5 (4.5) G2: 1.6 (4.5) Endpoint Analysis: p < 0.001 Longitudinal Analysis, rate of change: p < 0.001 TFEQ Disinhibition, mean change from baseline G1: -5.0 (4.7) G2: -2.0 (3.5) Endpoint Analysis: p < 0.001 Longitudinal Analysis, rate of change: p < 0.001

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
			TFEQ Hunger, mean change from baseline G1: -4.5 (4.6) G2: -1.9 (4.1) Endpoint Analysis: p < 0.001 Longitudinal Analysis, rate of change: p < 0.001
McElroy, 2013[80]	Yale-Brown Obsessive-Compulsive Scale-Binge Eating (YBOCS-BE) Three-factor eating questionnaire -Total -Cognitive restraint -Disinhibition -Hunger Food craving inventory	YBOCS-BE total, mean (SD) G1: 20.3 (4.0) G2: 20.6 (5.0) p=0.80 TFEQ-Total, mean (SD) G1: 29.3 (5.8) G2: 30.7 (4.8) p=0.30 TFEQ-Cognitive restraint, mean (SD) G1: 6.0 (3.8) G2: 6.9 (3.7) p=0.35 TFEQ-Disinhibition, mean (SD) G1: 12.8 (2.8) G2: 13.4 (1.8) p=0.34 TFEQ-Hunger, mean (SD) G1: 10.6 (3.2) G2: 10.3 (2.9) p=0.70 Food craving inventory, mean (SD) G1: 2.8 (0.7) G2: 2.9 (0.6) p=0.55	YBOCS-BE total, mean change (SD) from baseline to endpoint: G1: -10.2 (8.1) G2: -12.3 (8.2) p=0.32 TFEQ-Total, mean change (SD) from baseline to endpoint: G1: -2.6 (5.3) G2: -4.6 (7.2) p=0.24 TFEQ-Cognitive restraint, ,mean change (SD) from baseline to endpoint: G1: 1.2 (3.3) G2: 1.3 (3.3) p=0.91 TFEQ-Disinhibition, mean change (SD) from baseline to endpoint: G1: -1.7 (2.5) G2: -2.9 (3.6) p=0.15 TFEQ-Hunger, mean change (SD) from baseline to endpoint: G1: -2.0 (3.3) G2: -3.1 (3.9) p=0.25 Food craving inventory, mean change (SD) from baseline to endpoint: G1: -0.54 (0.44) G2: -0.72 (0.64) p=0.22

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2015[81]	CGI-I score TFEQ-cognitive restraint, disinhibition of eating, perceived hunger BES	CGI-I score G1: NR G2: NR G3: NR G4: NR TFEQ-cognitive restraint G1: 7.2 (SD 4.01) G2: 7.1 (SD 4.60) G3: 8.2 (SD 4.54) G4: 6.4 (SD 4.05) TFEQ-disinhibition of eating G1: 13.2 (SD 2.26) G2: 13.0 (SD 2.36) G3: 12.9 (SD 2.49) G4: 13.1 (SD 2.33) TFEQ-perceived hunger G1: 10.3 (SD 3.19) G2: 10.3 (SD 3.03) G3: 10.4 (SD 3.53) G4: 11.5 (SD 2.43) BES G1: 28.5 (SD 7.16) G2: 27.4 (SD 7.22) G3: 30.3 (SD 7.47) G4: 27.0 (SD 8.62)	11wk CGI-I score, improved at week 11/ET, % G1: 84.6% G2: 90.6% G3: 93.7% G4: 64.5% 11wk CGI-I: Significant difference compared with placebo G1 p=0.009 G2 p<0.001 G3 p<0.001 G4 N/A 11wk TFEQ-cognitive restraint, LS change, mean (SE) G1: 4.4 (SE 0.62) G2: 3.8 (SE 0.61) G3: 4.3 (SE 0.62) G4: 2.5 (SE 0.65) 11wk TFEQ-cognitive restraint, Difference from placebo, mean (SE) G1: 1.9 (SE 0.89) G2: 1.3 (SE 0.89) G3: 1.8 (SE 0.90) G4: N/A 11wk TFEQ-cognitive restraint: Significant difference compared with placebo G1 p=0.04 G2 p=0.14 G3 p=0.046 G4 N/A 11wk TFEQ-disinhibition of eating, LS change, mean (SE) G1: -5.6 (SE 0.56) G2: -6.3 (SE 0.55) G3: -7.2 (SE 0.56) G4: -3.8 (SE 0.58)

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2015[81] (continued)			11wk TFEQ-disinhibition of eating, Difference from placebo, mean (SE) G1: -1.8 (SE 0.80) G2: -2.5 (SE 0.80) G3: -3.4 (SE 0.80) G4: N/A 11wk TFEQ-disinhibition of eating: Significant difference compared with placebo G1 p=0.03 G2 p=0.002 G3 p<0.001 G4 N/A 11wk TFEQ-perceived hunger, LS change, mean (SE) G1: -5.3 (SE 0.56) G2: -6.0 (SE 0.55) G3: -7.8 (SE 0.56) G4: -3.3 (SE 0.58) 11wk TFEQ-perceived hunger, Difference from placebo, mean (SE) G1: -2.0 (SE 0.81) G2: -2.7 (SE 0.81) G3: -4.5 (SE 0.81) G4: N/A 11wk TFEQ-perceived hunger: Significant difference compared with placebo G1 p=0.02 G2 p<0.001 G3 p<0.001 G4 N/A 11wk BES, LS change, mean (SE) G1: -16.1 (SE 1.25) G2: -17.6 (SE 1.24) G3: -20.6 (SE 1.24) G4: -12.2 (SE 1.28)

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
McElroy, 2015[81] (continued)			11wk BES, Difference from placebo, mean (SE) G1: -3.9 (SE 1.79) G2: -5.4 (SE 1.78) G3: -8.5 (SE 1.79) G4: N/A 11wk BES: Significant difference compared with placebo G1 p=0.03 G2 p=0.002 G3 p<0.001 G4 N/A

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Pearlstein, 2003[82]	EDE Restraint EDE Eating Concern EDE Shape Concern EDE Weight Concern	EDE Restraint (M,SD): G1: 2.04 (1.24) G2: 1.60 (1.08) (P = NS) EDE Eating Concern (M,SD): G1: 1.10 (0.96) G2: 1.82 (1.02) (P = NS) EDE Shape Concern (M,SD): G1: 3.38 (0.74) G2: 3.56 (0.43) (P = NS) EDE Weight (M,SD): G1: 3.73 (0.49) G2: 3.32 (0.94) (P = NS)	EDE Restraint (M,SD): G1: 0.91 (0.78) G2: 1.45 (0.98) Diff between groups (P = NR) Change over time for both groups: (P = NS) Diff between groups in change over time (P = NS) EDE Eating Concern (M,SD): G1: 0.31 (0.39) G2: 0.44 (0.55) Diff between groups (P = NR) Change over time for both groups: (P <0.001) Diff between groups in change over time (P = NS) EDE Shape Concern (M,SD): G1: 2.24 (0.85) G2: 2.50 (1.15) Diff between groups (P = NR) Change over time for both groups: (P <0.001) Diff between groups in change over time (P = NS) EDE Weight (M,SD): G1: 2.40 (1.22) G2: 2.36 (1.07) Diff between groups (P = NR) Change over time for both groups: (P <0.001) Diff between groups in change over time (P = NS)

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Shire, 2014[83,84]	EDE Restraint EDE Eating Concern EDE Shape Concern EDE Weight Concern	EDE Restraint (M,SD): G1: 2.04 (1.24) G2: 1.60 (1.08) (P = NS) EDE Eating Concern (M,SD): G1: 1.10 (0.96) G2: 1.82 (1.02) (P = NS) EDE Shape Concern (M,SD): G1: 3.38 (0.74) G2: 3.56 (0.43) (P = NS) EDE Weight (M,SD): G1: 3.73 (0.49) G2: 3.32 (0.94) (P = NS)	EDE Restraint (M,SD): G1: 0.91 (0.78) G2: 1.45 (0.98) Diff between groups (P = NR) Change over time for both groups: (P = NS) Diff between groups in change over time (P = NS) EDE Eating Concern (M,SD): G1: 0.31 (0.39) G2: 0.44 (0.55) Diff between groups (P = NR) Change over time for both groups: (P <0.001) Diff between groups in change over time (P = NS) EDE Shape Concern (M,SD): G1: 2.24 (0.85) G2: 2.50 (1.15) Diff between groups (P = NR) Change over time for both groups: (P <0.001) Diff between groups in change over time (P = NS) EDE Weight (M,SD): G1: 2.40 (1.22) G2: 2.36 (1.07) Diff between groups (P = NR) Change over time for both groups: (P <0.001) Diff between groups in change over time (P = NS)

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Shire, 2014[84,85]	Eating Disorder Examination (EDE) -restraint -eating concern -shape concern -weight concern -global	EDE-restraint G1: 1.6 (SD 1.2) G2: 1.8 (SD 1.2) EDE-eating concern G1: 1.8 (SD 1.2) G2: 2.0 (SD 1.4) EDE-shape concern G1: 3.5 (SD 1.4) G2: 3.7 (SD 1.1) EDE-weight concern G1: 3.2 (SD 1.2) G2: 3.3 (SD 1.0) EDE-global G1: 2.5 (SD 1.1) G2: 2.7 (SD 0.8)	8wk EDE-restraint G1: 1.4 (SD 1.0) G2: 1.6 (SD 0.8) Mixed effects model medication effect F=1.39, p=0.24 8wk EDE-eating concern G1: 1.0 (SD 1.2) G2: 1.1 (SD 1.3) Mixed effects model medication effect F=0.84, p=0.36 8wk EDE-shape concern G1: 2.4 (SD 1.3) G2: 2.9 (SD 1.5) Mixed effects model medication effect F=1.71, p=0.20 8wk EDE-weight concern G1: 2.6 (SD 1.0) G2: 2.6 (SD 1.0) Mixed effects model medication effect F=0.05, p=0.82 8wk EDE-global G1: 1.8 (SD 0.9) G2: 2.0 (SD 0.9) Mixed effects model medication effect F=2.06, p=0.15

Evidence Table 60. Binge eating disorder drug treatment – part 6 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
White, 2013[86]	Eating Disorder Examination (EDE) -restraint -eating concern -shape concern -weight concern -global	EDE-restraint G1: 1.6 (SD 1.2) G2: 1.8 (SD 1.2) EDE-eating concern G1: 1.8 (SD 1.2) G2: 2.0 (SD 1.4) EDE-shape concern G1: 3.5 (SD 1.4) G2: 3.7 (SD 1.1) EDE-weight concern G1: 3.2 (SD 1.2) G2: 3.3 (SD 1.0) EDE-global G1: 2.5 (SD 1.1) G2: 2.7 (SD 0.8)	8wk EDE-restraint G1: 1.4 (SD 1.0) G2: 1.6 (SD 0.8) Mixed effects model medication effect F=1.39, p=0.24 8wk EDE-eating concern G1: 1.0 (SD 1.2) G2: 1.1 (SD 1.3) Mixed effects model medication effect F=0.84, p=0.36 8wk EDE-shape concern G1: 2.4 (SD 1.3) G2: 2.9 (SD 1.5) Mixed effects model medication effect F=1.71, p=0.20 8wk EDE-weight concern G1: 2.6 (SD 1.0) G2: 2.6 (SD 1.0) Mixed effects model medication effect F=0.05, p=0.82 8wk EDE-global G1: 1.8 (SD 0.9) G2: 2.0 (SD 0.9) Mixed effects model medication effect F=2.06, p=0.15

Evidence Table E61. Binge eating disorder drug treatment – part 7

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Arnold, 2002[66]	CGI-S HAM-D	CGI-S, mean (SD): G1: 4.2 (0.4) G2: 4.3 (0.6) (P = NS) HAM-D, mean (SD): G1: 4.8 (4.3) G2: 4.2 (2.9) (P = NS)	CGI-S, mean (SD): G1: 2.2 (1.4) G2: 3.3 (1.4) Diff between groups (P = NR) Diff between groups in change over time (time trend analysis, P = 0.032; endpoint analysis, P = 0.012), G1 better than G2 HAM-D, mean (SD): G1: 2.6 (3.0) G2: 5.5 (4.1) Diff between groups (P = NR) Diff between groups in change over time (time trend analysis, P = NS; endpoint analysis, P = 0.003), G1better than G2
Brownley, 2013[67]	Quick Inventory of Depressive Symptomatology; QIDS-SR	QIDS-SR baseline G1: 7.1 (5.4) G2: 8.1 (3.0) G3: 5.7 (3.0) p = 0.99	QIDS-SR Monthly rate of change G1:-0.30 (0.21) G2: -0.41 (0.19) G3: -0.03 (0.21) p = ns
Guerdjikova, 2009[68]	CGI-S YBOCS-BE YBOCS BE Obsessions YBOCS BE Compulsions MADRS BIS Total BIS Attention BIS Motor BIS Nonplanning	CGI-S (M,SD) G1: 4.46 (0.65) G2: 4.52 (0.59) YBOCS BE(M,SD) G1: 19.42 (4.12) G2: 20.68 (4.72) YBOCS BE Obsessions (M,SD) G1: 9.04 (2.62) G2: 9.84 (2.98) YBOCS-BE Compulsison (M,SD) G1: 10.38 (2.30) G2: 10.84 (2.01) MADRS (M,SD) G1: 3.85 (3.83) G2: 3.04 (3.35)	CGI-S (M,SD): G1: 2.38 (1.44) G2: 2.20 (1.32) Diff between groups (P = 0.519) Diff between groups in change over time (P =0.759) YBOCS BE(M,SD) G1: 8.68 (7.91) G2: 7.08 (6.55) Diff between groups (p=0.102) Diff between groups in change over time (p=0.109) YBOCS BE Obsessions (M,SD) G1: 4.52 (4.11) G2: 3.80 (3.30) Diff between groups (p=0.111)

Evidence Table E61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Guerdjikova, 2009[68] (continued)		BIS Total (M,SD) G1: 66.23 (10.56) G2: 35.88 (9.62) BIS Attention (M,SD) G1: 17.88 (3.71) G2: 11.50 (3.87) BIS Motor (M,SD) G1: 22.19 (3.96) G2: 12.60 (3.51) BIS Nonplanning (M,SD) G1: 26.15 (5.24) G2: 12.24 (4.16)	Diff between groups in change over time (p=0.188) YBOCS-BE Compulsison (M,SD) G1: 4.16 (4.00) G2: 3.28 (3.40) Diff between groups (p=0.144) Diff between groups in change over time (p=0.079) MADRS (M,SD) G1: 2.16 (3.34) G2: 0.56 (1.23) Diff between groups (p=0.472) Diff between groups in change over time (p=0.944) BIS Total G1: 55.60 (23.41) G2: 46.70 (28.22) Diff between groups (p=0.524) Diff between groups in change over time (p=0.462) BIS Attention G1: 17.18 (3.59) G2: 16.20 (4.82) Diff between groups (p=0.649) Diff between groups in change over time (p=0.440) BIS Motor G1: 21.41 (5.02) G2: 20.86 (6.85) Diff between groups (p=0.521) Diff between groups in change over time (p=0.849) BIS Nonplanning G1: 24.59 (4.97) G2: 21.31 (6.82) Diff between groups (p=0.642) Diff between groups in change over time (p=0.229)

Evidence Table 61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Guerdjikova, 2008[69]	Hamilton Depression Rating Scale (HAM-D) Clinical Global Impression (CGI) -severity -improvement	HAM-D, M (SD) G1: 4.6 (3.75) G2: 5.7 (4.5) p=NS CGI-severity, M (SD) G1: 4.8 (0.7) G2: 4.7 (0.7) p=NS	HAM-D, M (SD) G1: 2.4 (2.9) G2: 4.8 (5.1) Time-trend analysis Estimate between-group difference in 12-week change (95% CI): 1.3 (-1.0, -3.5) chi-square: 1.21 p=0.262 Endpoint analysis Estimate between-group difference in change from BL to final visit (95% CI): 1.8 (-0.3, -3.9) t=1.25 p=0.097 CGI-severity, M (SD) G1: 2.3 (1.3) G2: 3.2 (1.4) Time-trend analysis Estimate between-group difference in 12-week change (95% CI): 0.9 (0.1, -1.8) chi-square: 4.56 p=0.029 Endpoint analysis Estimate between-group difference in change from BL to final visit (95% CI): 1.0 (0.1, -1.9) t=2.56 p=0.026 CGI-improvement scale: "The mean final CGI-Improvement Scale at endpoint was rated much or very much improved in 17 (85%) of G1 as compared with 9 (39.1%) of G2 (p=0.029)."

Evidence Table 61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Guerdjikova, 2012[70]	Clinical Global Impression Severity for depressive disorders (CGI-S-DD) Clinical Global Impression Improvement for depressive disorders (CGI-I-DD) Inventory of Depressive Symptoms (IDC) Hamilton Anxiety Scale (HAM-A)	CGI-S-DD G1: 4.3 (0.7) G2: 4.2 (0.7) p = NR IDS-C G1: 35.6 (7.9) G2: 35.4 (5.4) p = NR HAM-A G1: 16.9 (9.1) G2: 16.2 (5.7) p = NR	CGI-S-DD G1: 2.3 (1.3) G2: 2.9 (1.0) Longitudinal Analysis d = 0.82 p = 0.01 Endpoint Analysis d = 0.68 p = 0.03 CGI-I-DD G1: 1.7 (1.1) G2: 2.4 (1.4) Endpoint Analysis d = 0.34 p = 0.30 IDS-C G1: 19.1 (11.5) G2: 21.6 (12.7) Longitudinal Analysis d = 0.18 p = 0.58 Endpoint Analysis d = 0.33 p = 0.32 50% or greater reduction IDS-C (response) G1: 11 G2: 8 p = 0.19 IDS-C < 12 at endpoint (remission) G1: 5 G2: 4 p = 0.71 HAM-A G1: 9.6 (9.0) G2: 7.2 (6.5) Endpoint Analysis d = 0.17 p = 0.60

Evidence Table 61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Hudson, 1998[71]	Hamilton depression scale score (HRDS)	HDRS, M (SD) G1: 4.4 (3.6) G2: 4.1 (3.7) p=NR, NS	HDRS Treatment-by-time interaction: -0.401 (SE 0.359) p=0.27
Leombruni, 2008[72]	Beck Depression Inventory (BDI) Clinical Global Impression (CGI)	BDI G1: 11.1 (4.5) G2: 13.3 (7.0) CGI G1: 4.0 (0.7) G2: 3.8 (0.6)	BDI T8 G1:8.7 (4.1) G2: 8.6 (5.2) T12 G1: 7.1 (4.1) G2: 9.5 (5.9) T24 G1: 8.4 (6.2) G2: 9.9 (5.9) time effect p<0.001 time x group effect p<0.640 CGI T8 G1: 3.4 (0.8) G2: 3.1 (0.8) T12 G1: 2.9 (1.0) G2: 3.0 (1.0) T24 G1: 3.1 (0.9) G2: 2.8 (0.9) Time effect p<0.001 Time x group effect p<0.393

Evidence Table 61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
McElroy, 2007[73]	Hamilton depression scale (HDRS) Clinical Global Impression (CGI) severity	HDRS, mean (SD): G1: 2.0 (2.4) G2: 3.3 (3.6) CGI severity, mean (SD): G1: 4.2 (0.4) G2: 4.4 (0.6)	HDRS: Longitudinal Analysis Estimate (mean change btwn g1 - g2): 0.58 95% CI: -1.33 to 2.49 X^2: 0.36 p: 0.551 Endpoint Analysis Estimate (mean change btwn g1-g)2: -0.15 95% CI: -2.13 to 1.83 t: 0.15 p: 0.879 CGI severity Longitudinal Analysis Estimate (mean change btwn g1 - g2): -1.12 95% CI: -2.01 to -0.22 X^2: 6.03 p: 0.015 Endpoint Analysis Estimate (mean change btwn g1-g)2: -1.20 95% CI: -1.90 to -0.50 t: 3.48 p: 0.013

Evidence Table 61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
McElroy, 2006[74]	Hamilton Rating Scale for Depression (HAM-D) Clinical Global Impression Severity (CGI-S)	HAM-D, mean (SD): G1: 4.4 (SD 4.4) G2: 4.9 (SD 5.5) p=NR, NS CGI-S, mean (SD): G1: 4.7 (0.5) G2: 4.5 (0.7) p=NR, NS	HAM-D Longitudinal analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo: -0.18 (95% CI -2.79 to 2.42) p=0.892 Endpoint analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo (table also says that the "estimate is the test statistic, which is the mean difference in change scores (endpoint minus BL) between the zonisamide and placebo groups): 2.13 (95% CI -0.78 to 5.04) p=0.147 CGI-S Longitudinal analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo: -1.43 (95% CI -2.12 to -0.75) p<0.001 Endpoint analysis G1: NR G2: NR

Evidence Table 61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
McElroy, 2006[74] (continued)			Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo (table also says that the "estimate is the test statistic, which is the mean difference in change scores (endpoint minus BL) between the zonisamide and placebo groups): -0.79 (95% CI -1.57 to 0.00) p=0.049
McElroy, 2003[75]	Hamilton Rating Scale for Depression (HAM-D) Clinical Global Impression Severity (CGI-S)	HAM-D score, mean (SD) G1: 3.1 (3.2) G2: 2.7 (3.7) p=NR, NS CGI-S score, mean (SD) G1: 4.5 (0.7) G2: 5.0 (0.7) p = 0.033	HAM-D score, mean (SD) G1: 1.4 (2.3) G2: 1.9 (3.1) Time Trend Analysis: Mean difference between groups in rate of change: -1.05 (SE 0.54) p=0.053 Endpoint Analysis: Mean difference between groups in change from baseline to 6wk: -2.04 (SE 0.97) p = 0.10 CGI-S, mean (SD) G1: 2.4 (1.4) G2: 3.6 (1.7) Time Trend Analysis: Mean difference between groups in rate of change: -0.475 (SE 0.217) p = 0.28 Endpoint Analysis: Mean difference between groups in change from BL to 6wk: -0.545 (SE 0.513) p = 0.29

Evidence Table 61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
McElroy, 2003[76]	Clinical Global Impression Severity Scale (CGI-S) Hamilton Depression Rating Scale (HDRS)	CGI Severity Scale, mean (SD) G1: 4.7 (0.9) G2: 4.9 (0.8) p = NS HDRS, mean (SD) G1: 5.9 (5.1) G2: 5.8 (4.8) p = NS	CGI Severity Scale, mean (SD) G1: NR G2: NR Diff between groups, p = 0.01 Diff between groups in rate of change, p = 0.02 HDRS, mean (SD) G1: NR G2: NR Diff between groups, p = NR Diff between groups in rate of change, p = 0.28
McElroy, 2000[77]	Hamilton depression rating scale (HDRS) Clinical Global Impression (CGI) - severity (CGI-S) - improvement (CGI-I)	HDRS, mean (SD): G1: 6.4 (3.9) G2: 7.5 (8.4)	HDRS: Diff in change between G1 & G2, mean: 1.33 SE: 1.00 p = 0.19 CGI-S: Diff in change between G1 & G2, mean: -1.007 SE: 0.183 p < 0.001 G1 better than G2 CGI-I: Diff in change between G1 & G2, mean: 0.929 SE: 0.929 p <0.001 G1 better than G2

Evidence Table 61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
McElroy, 2011[78]	MADRS: Montgomery Asberg depression rating scale CGI-S: Clinical global impression-severity scale CGI-I: Clinical global impression-improvement scale	MADRS, mean (SD): G1: 1.8 (2.0) G2: 1.2 (1.4) p = 0.30 CGI-S, mean (SD): G1: 4.9 (0.8) G2: 4.8 (0.9) p = 0.71 CGI-I, mean (SD): G1: 0.40 (1.23) G2: 1.0 (1.78) p = 0.22	Endpoint Analysis: CGI-S, mean (SD): G1: 2.7 (1.7) G2: 3.5 (1.4) p = 0.09 CGI-I, mean (SD): G1: 2.1 (1.1) G2: 2.6 (1.1) p = 0.96 MADRS, mean (SD): G1: 1.4 (2.5) G2: 1.8 (1.9) p = 0.15
McElroy, 2007[79]	Barrett Impulsiveness Scale (BIS-11) Hamilton Anxiety Scale (HAM-A) Montgomery Asberg depression rating scale (MDRS) Clinical global impression-severity scale (CGI-S)	BIS-11, mean (SD) Overall G1: 64.2 (11.5) G2: 65.7 (11.2) Motor Impulsiveness, mean (SD) G1: 22.8 (4.7) G2: 23.1 (4.3) Nonplanning Impulsiveness, mean (SD) G1: 25.4 (5.3) G2: 25.8 (5) Attentional Impulsiveness, mean (SD) G1: 16.0 (4.2) G2: 16.8 (4.5) HAM-A, mean (SD) G1: 5.1 (4.8) G2: 5.5 (5.1) CGI-S, mean (SD) G1: 4.8 (0.9) G2: 4.8 (0.9)	BIS-11, mean (SD) change from baseline Overall G1: -3.9 (9.0) G2: -1.4 (7.9) Endpoint Analysis: p < 0.001 Longitudinal Analysis, rate of change: p = 0.003 Motor Impulsiveness, mean (SD) change from baseline G1: -1.8 (3.8) G2: -0.9 (3.7) Endpoint Analysis: p = 0.004 Longitudinal Analysis, rate of change: p = 0.006 Nonplanning Impulsiveness, mean (SD) change from baseline G1: -1.6 (4.5) G2: 0.01 (3.7) Endpoint Analysis: p < 0.001 Longitudinal Analysis, rate of change: p < 0.001

Evidence Table 61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
McElroy, 2007[79] (continued)			Attentional Impulsiveness, mean (SD) change from baseline G1: -0.6 (3.6) G2: -0.5 (3.1) Endpoint Analysis: p = 0.230 Longitudinal Analysis, rate of change: p = 0.835 HAM-A, mean (SD) change from baseline G1: -0.7 (4.9) G2: -1.3 (4.5) Endpoint Analysis, p = 0.493 Longitudinal Analysis, rate of change: p = 0.143 CGI-I, mean (SD) change from baseline G1: -2.2 (1.6) G2: -1.1 (1.4) Endpoint Analysis, p <0.001 Longitudinal Analysis, rate of change: p < 0.001
McElroy, 2013[80]	Beck Depression Inventory (BDI) Clinical Global Impressions - Severity (CGI-S)	BDI, mean (SD) G1: 3.7 (SD 2.8) G2: 4.7 (SD 4.1) p=0.29 CGI-Severity, mean (SD) G1: 4.2 (SD 0.8) G2: 4.4 (SD 0.7) p=0.41	BDI, mean change (SD) from baseline to endpoint G1: -0.7 (SD 3.5) G2: -2.4 (SD 4.1) p=0.09 CGI-Severity, mean change (SD) from baseline to endpoint: G1: -1.6 (SD 1.6) G2: -2.1 (SD 1.3) p=0.19

Evidence Table 61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
McElroy, 2015[81]	YBOCS-BE Barratt Impulsiveness Scale (BIS-11) SF-12 Aggregate Physical Health Component Summary Score SF-12 Aggregate mental health component summary score MADRS score HAM-A score	YBOCS-BE score G1: 20.7 (SD 4.87) G2: 19.5 (SD 5.19) G3: 19.8 (SD 5.48) G4: 20.9 (SD 4.61) BIS-11 G1: 61.8 (SD 10.70) G2: 61.0 (SD 9.84) G3: 61.4 (SD 12.69) G4: 63.1 (SD 13.22) MADRS score G1: 2.9 (SD 3.02) G2: 3.6 (SD 3.29) G3: 3.7 (SD 3.94) G4: 3.4 (SD 3.39) HAM-A score G1: 2.3 (SD 2.32) G2: 2.3 (SD 2.60) G3: 2.5 (SD 3.22) G4: 2.5 (SD 3.01)	11wk YBOCS-BE, LS change, mean (SE) G1: -15.0 (SE 0.84) G2: -15.3 (SE 0.83) G3: -17.0 (SE 0.83) G4: -12.0 (SE 0.87) 11wk YBOCS-BE, Difference from placebo, mean (SE) G1: -2.97 (SE 1.203) G2: -3.25 (SE 1.204) G3: -4.93 (SE 1.202) G4: N/A 11wk YBOCS-BE: Significant difference compared with placebo G1 p=0.01 G2 p=0.008 G3 p<0.001 G4 N/A 11wk BIS-11, LS change, mean (SE) G1: -5.8 (SE 1.05) G2: -5.2 (SE 1.05) G3: -6.9 (SE 1.05) G4: -3.1 (SE 1.09) 11wk BIS-11, Difference from placebo, mean (SE) G1: -2.7 (SE 1.52) G2: -2.1 (SE 1.51) G3: -3.7 (SE 1.51) G4: N/A 11wk BIS-11: Significant difference compared with placebo G1 p=0.08 G2 p=0.17 G3 p=0.02 G4 N/A

Evidence Table 61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
McElroy, 2015[81] (continued)			11wk MADRS, LS change, mean (SE) G1: -1.9 (SE 0.34) G2: -1.3 (SE 0.33) G3: -1.6 (SE 0.33) G4: -1.7 (SE 0.35) 11wk MADRS, Difference from placebo, mean (SE) G1: -0.15 (SE 0.484) G2: 0.49 (SE 0.480) G3: 0.14 (SE 0.480) G4: N/A 11wk MADRS, Significant difference compared with placebo G1 p=0.75 G2 p=0.31 G3 p=0.77 G4 N/A 11wk HAM-A, LS change, mean (SE) G1: -0.9 (SE 0.29) G2: -1.1 (SE 0.29) G3: -0.6 (SE 0.29) G4: -1.5 (SE 0.30) 11wk HAM-A, Difference from placebo, mean (SE) G1: -0.9 (SE 0.29) G2: -1.1 (SE 0.29) G3: -0.6 (SE 0.29) G4: -1.5 (SE 0.30) 11wk HAM-A, Significant difference compared with placebo G1 p=0.20 G2 p=0.33 G3 p=0.05 G4 N/A

Evidence Table 61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Pearlstein, 2003[82]	Beck Depression Inventory (BDI) Hamilton Depression Scale (HAM-D Hopkins Symptom Checklist (SCL-90) Clinical Global Impression Scale (CGI)	BDI (M, SD): G1: 0.44 (0.22) G2: 0.68 (0.57) (P = NS) HAM-D (M,SD): G1: 10.78 (9.22) G2: 14.27 (12.40) (P = NS) SCL-90 (M,SD): G1: 0.62 (0.33) G2: 0.85 (0.55) (P = NS) CGI-Severity: G1: NR G2: NR	BDI (M,SD): G1: 0.32 (0.30) G2: 0.37 (0.26) Diff between groups (P = NR) Change over time for both groups: (P < 0.01) Diff between groups in change over time (P = NS) HAM-D (M,SD): G1: 9.38 (9.71) G2: 7.38 (6.16) Diff between groups (P = NR) Change over time for both groups: (P = NS) Diff between groups in change over time (P = NS) SCL-90 (M, SD): G1: 0.30 (0.29) G2: 0.40 (0.29) Diff between groups (P = NR) Change over time for both groups: (P < 0.001) Diff between groups in change over time (P = NS) CGI no improvment: G1: 0 G2: 4) p<0.07
Shire, 2014[83,84]	Y-BOCS-BE total	G1: 21.8 G2: 21.5	Change in Y-BOCS-BE total: G1: -15.68 G2: -8.28 Diff: -7.4 (-8.9 to -5.9) (p < 0.001)
Shire, 2014[84,85]	Y-BOCS-BE total	G1: 21.1 G2: 21.5	Change in Y-BOCS-BE total: G1: -15.36 G2: -7.42 Diff: -7.9 (-9.5 to -6.4) (p < 0.001)

Evidence Table 61. Binge eating disorder drug treatment – part 7 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
White, 2013[86]	Beck Depression Inventory (BDI) Food Craving Inventory (FCI)	Beck Depression Inventory (BDI) G1: 13.4 (SD 9.8) G2: 10.8 (SD 6.1) Food Craving Inventory (FCI) G1: 2.6 (SD 0.6) G2: 2.4 (SD 0.7)	8wk Beck Depression Inventory (BDI) G1: 8.0 (SD 8.3) G2: 8.7 (SD 7.2) Mixed effects model medication effect F=0.04, p=0.84 8wk Food Craving Inventory (FCI) G1: 2.0 (SD 0.6) G2: 2.0 (SD 0.6) Mixed effects model medication effect F=0.10, p=0.76

Evidence Table E62. Binge eating disorder drug treatment – part 8

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Arnold, 2002[66]	Weight (kg) (M,SD) BMI (M,SD)	Weight, kg, mean (SD): G1: 110.4 (24.1) G2: 103.5 (19.0) (P = NS) BMI, kg/m², mean(SD): G1: 39.6 (7.0) G2: 36.7 (6.8) (P = NS)	Weight, kg, mean (SE): G1: 112.5 (25.0) G2: 110.3 (18.2) Diff between groups (P = NR) Diff between groups in change over time (time trend analysis, P = 0.001; endpoint analysis, P < 0.0001), G1 better than G2 BMI, kg/m², mean (SD): G1: 40.0 (7.2) G2: 39.5 (6.3) Diff between groups (P = NR) Diff between groups in change over time (time trend analysis, P < 0.0001; endpoint analysis, P < 0.0001), G1 better than G2	NA	NA	NA

Evidence Table E62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Brownley, 2013[67]	Weight (kg)	Weight (kg): Baseline G1: 99.9 (21.8) G2: 96.3 (26.8) G3: 100.0 (16.1) p = 0.93	Weight (kg): Monthly rate of change G1: 0.19 (0.25) G2: -0.13 (0.23) G3: 0.55 (0.25) p = ns	Fasting gluclose (mg/dL) Glycated hemoglobin (HbA1c %)	Fasting glucose (mg/dL): baseline G1: 90.6 (10.0) G2: 92.8 (13.8) G3: 91.4 (8.4) p = 0.99 HbA1c: baseline G1: 5.5 (0.3) G2: 5.7 (0.5) G3: 5.5 (0.4) p = 0.99 Overall: 5.6 (0.4)	Fasting glucose (mg/dL): Monthly rate of change G1: -1.08 (0.80) G2: -0.67 (0.74) G3: 2.53 (0.80) G1 v G3 t: -3.19 df: 35 p < 0.01 G2 v G3 t: -2.93 df: 35 p <0.01 HbA1c: 6 months overall: 5. 6 (0.4)

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Guerdjikova, 2009[68]	Weight (kg) Body Mass Index	Weight,kg (M,SD) G1: 105.93 (19.08) G2: 120 (25.39) BMI (M, SD) G1: 38.72 (5.38) G2: 41.52 (7.24)	Weight,kg (M,SD) G1: 104.55 (19.30) G2: 119.95 (25.86) Diff between groups (p = 0.166) Diff between groups in change over time (p =0.207) Weight loss, kg (M, SD) G1: 1.17 (2.96) G2: 0.15 (3.61) p=NS BMI (M,SD) G1: 38.24 (5.70) G2: 41.50 (7.42) Diff between groups (p =0.189) Diff between groups in change over time (p =0.236)	Glucose (mg/dl) Insulin (mmU/ml) Total cholestrol (mg/dl) HDL (mg/dl) LDL (mg/dl) Triglycerides (mg/dl) Leptin (ng/ml) Ghrelin (ng/dl)	Glucose (mg/dl) (M,SD for this & all variables below) G1: 97.88 (39.30) G2: 84.42 (13.58) Insulin (mmU/ml) G1: 12.80 (9.08) G2: 12.38 (5.94) Total cholestrol (mg/dl) G1: 200.25 (48.20) G2: 195.23 (46.85) HDL (mg/dl) G1: 58.54 (16.33) G2: 51.63 (11.42) LDL (mg/dl) G1: 155.33 (212.04) G2: 120.54 (21.58) Triglycerides (mg/dl) G1: 144.46 (69.92) G2: 154.58 (67.44) Leptin (ng/ml) G1: 39.49 (21.41) G2: 42.00 (29.39) Ghrelin (ng/dl) G1: 722.61 (187.28) G2: 704.00 (260.07)	Glucose (mg/dl) (M,SD) G1: 87.60 (16.61) G2: 90.29 (8.20) p=0.027 (endpoint analysis for this variable and all below) Insulin (mmU/ml) (M,SD) G1: 11.64 (9.14) G2: 13.26 (7.26) p=0.010 Total cholestrol (mg/dl) (M,SD) G1: 185.07 (38.43) G2: 200.00 (29.12) p=0.177 HDL (mg/dl) (M,SD) G1: 58.54 (16.33) G2: 51.63 (11.42) p=0.493 LDL (mg/dl) (M,SD) G1: 104.87 (33.17) G2: 117.94 (27.2) p=0.809 Triglycerides (mg/dl) (M,SD) G1: 124.73 (67.31) G2: 161.06 (77.54) p=0.015 Leptin (ng/l) (M,SD) G1: 33.09 (23.26) G2: 38.97 (27.05) p=0.220 Ghrelin (ng/l) (M,SD) G1: 753.21 (208.59) G2: 695.40 (234.25) p=0.350

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Guerdjikova, 2008[69]	Weight (kg) BMI (kg/m2)	Weight (kg), M(SD) G1: 113.0 (20.0) G2: 109.2 (17.2) p=NS BMI (kg/m2), M(SD) G1: 40.1 (6.8) G2: 40.3 (4.8) p=NS	Weight (kg), M (SD) G1: 112.0 (20.0) G2: 109.8 (17.8) Time-trend analysis Estimate between-group difference in 12-week change (95% CI): 2.1 (0.8, -3.4) chi-square: 8.41 p=0.002 Endpoint analysis Estimate between-group difference in change from BL to final visit (95% CI): 1.7 (0.1, -3.2) t=3.14 p=0.037 Completers analysis change in weight from BL to 12wk G1: -1.1 (2.9) kg G2: 0.7 (2.5) kg p=0.037 BMI (kg/m2), M(SD) G1: 40.4 (7.0) G2:40.5 (5.0) Time-trend analysis Estimate between-group difference in 12-week change (95% CI): 0.7 (0.3, -1.2) chi-square: 8 p=0.003	Fasting measures of -insulin -glucose -triglycerides -LDL cholesterol -total cholesterol -leptin -ghrelin	Insulin , µU/mL, M (SD) G1: NR G2: NR p=NS Glucose, mg/dL, M (SD) G1: NR G2: NR p=NS Triglycerides, mg/dL, M (SD) G1: NR G2: NR p=NS LDL cholesterol, mg/dL, M (SD) G1: NR G2: NR p=NS Total cholesterol, mg/dL, M (SD) G1: NR G2: NR p=NS Leptin, ng/mL, M (SD) G1: 43.1 (SD 16.1) G2: 42.9 (SD 18.3) p=NS Ghrelin, ng/L, M (SD) G1: 818.6 (SD 369.5) G2: 821.9 (SD 343.8) p=NS	Insulin mean change from BL to final visit, µU/mL G1: -0.2 G2: 2.3 p=NS Glucose mean change from BL to final visit, mg/dL G1: -0.3 G2: -2.3 p=NS Triglycerides mean change from BL to final visit, mg/dL G1: -6.6 G2: 3.1 p=NS LDL cholesterol mean change from BL to final visit, mg/dL G1: 2.8 G2: 7.6 p=NS Total cholesterol mean change from BL to final visit, mg/dL G1: 4.8 G2: 10.5 p=NS

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Guerdjikova, 2008[69] (continued)			Endpoint analysis Estimate between-group difference in change from BL to final visit (95% CI): 0.6 (0.0, -1.1) t= 2.03 p=0.048			Leptin mean change from BL to final visit, ng/mL G1: 0.1 G2: 2.9 p=NS Ghrelin mean change from BL to final visit, ng/L G1: -1.6 G2: 71.8 p=NS
Guerdjikova, 2012[70]	Weight (kg) BMI (kg/m2)	Weight (kg) G1: 111.1 (24.1) G2: 118.3 (23.1) p = NR BMI (kg/m2) G1: 38.7 (6.8) G2: 42.8 (7.6) p = NR	Weight (kg) G1: 108.3 (23.8) G2: 118.0 (23.2) Longitudinal Analysis d = 0.66 p = 0.04 Endpoint Analysis d = 0.59 p = 0.07 BMI (kg/m2) G1: 37.7 (7.5) G2: 42.9 (7.3) Longitudinal Analysis d = 0.53 p = 0.11 Endpoint Analysis d = 0.58 p = 0.08	NA	NA	NA

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Hudson, 1998[71]	Body Mass Index (BMI)	BMI, kg/m², M (SD) G1: 34.2 (6.0) G2: 36.8 (SD 8.2)	BMI, kg/m², M (SD) Treatment-by-time interaction: -0.167 (SE 0.083) p=0.04	NA	NA	NA
Leombruni, 2008[72]	Weight (kg) Body Mass Index (BMI)	Weight G1: 101.9 (12.5) G2: 99.6 (14.5) BMI G1: 40.2 (3.9) G2: 38.6 (3.8)	Weight T8 G1: 98.3 (12.6) G2: 96.1 (16.3) T12 G1: 97.4 (13.6) G2: 95.5 (17.5) T24 G1: 98.6 (14.8) G2: 94.7 (17.8) time effect p<0.002 time x group effect p<0.576 BMI T8 G1: 38.8 (3.9) G2: 37.2 (3.9) T12 G1: 38.4 (4.2) G2: 36.9 (4.1) T24 G1: 38.5 (5.0) G2: 36.6 (4.3) time effect p<0.001 time x group effect p<0.569	NA	NA	NA

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
McElroy, 2007[73]	Weight, kg Body Mass Index (BMI)	Weight, mean (SD): G1: 106.9 (20.2) G2: 116.6 (30.1) BMI, mean (SD): G1: 37.3 (6.7) G2: 41.4 (8.5)	Weight Longitudinal Analysis Estimate (mean change btwn g1 - g2): -3.09 95% CI: -5.46 to -0.72 X^2: 6.61 p: 0.10 Endpoint Analysis Estimate (mean change btwn g1-g)2: -2.69 95% CI: -4.88 to 0.49 t: 2.48 p: 0.018 BMI Longitudinal Analysis Estimate (mean change btwn g1 - g2): -1.03 95% CI: -1.86 to -0.20 X^2: 5.93 p: 0.016 Endpoint Analysis Estimate (mean change btwn g1-g)2: -0.89 95% CI: -1.66 to 0.12 t: 2.34 p: 0.025	NR	NR	NR

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
McElroy, 2006[74]	Weight (kg) Body mass index (BMI)	Weight (kg), mean (SD): G1: 118.0 (SD 30.7) G2: 112.8 (SD 24.3) p=NR, NS BMI, mean (SD): G1: 42.7 (SD 9.5) G2: 40.6 (SD 7.6) p=NR, NS	Weight (kg) Longitudinal analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo: -2.86 (95% CI -4.57 to -1.14) p<0.001 Endpoint analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo (table also says that the "estimate is the test statistic, which is the mean difference in change scores (endpoint minus BL) between the zonisamide and placebo groups): -3.68 (95% CI -5.91 to -1.45) p=0.002 BMI	Leptin, ng/mL Ghrelin, ng/L Glucose, mg/dL insulin microUnits/mL triglycerides, mg/dL LDL cholesterol, mg/dL total cholesterol, mg/dL	Leptin, ng/mL, mean (SD) G1: 29.1 (SD 9.7) G2: 27.1 (SD 7.8) p=NR, NS Ghrelin, ng/L, mean (SD): G1: 995.7 (SD 216.0) G2: 934.7 (SD 212.0) p=NR, NS Glucose, insulin, triglycerides, LDL cholesterol, total cholesterol, all = NR	Ghrelin change from baseline, mean: G1: 98.6 G2: -156.8 t=4.0, p=0.001 Leptin change from baseline, mean: G1: -5.1 G2: -1.1 p=NR, NS Insulin change from baseline, mean: G1: 15.7 G2: 8.4 p=NR, NS Glucose change from baseline, mean: G1: 0.4 G2: -1.1 p=NR, NS Triglycerides change from baseline, mean: G1: -4.5 G2: -12.2 p=NR, NS LDL cholesterol change from baseline, mean: G1: 7.2 G2: 2.9 p=NR, NS

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
McElroy, 2006[74] (continued)			Longitudinal analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo: -1.02 (95% CI -1.64 to -0.41) p=0.001 Endpoint analysis G1: NR G2: NR Mean estimate (week 16 minus BL) for zonisamide minus mean (week 16 minus BL) for placebo (table also says that the "estimate is the test statistic, which is the mean difference in change scores (endpoint minus BL) between the zonisamide and placebo groups): -1.32 (95% CI -2.07 to -0.56) p<0.001			Total cholesterol change from baseline, mean: G1: 8.5 G2: -5.4 p=NR, NS

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
McElroy, 2003[75]	Body Mass Index (BMI) Weight	BMI, kg/m2, mean (SD) G1: 41.4 (6.9) G2: 34.2 (7.4) p = 0.003 Weight, kg, mean (SD) G1: 116.8 (21.0) G2: 94.6 (23.2) p = 0.004	BMI, kg/m2, mean (SD) G1: 40.9 (7.0) G2: 35.7 (7.5) Time Trend Analysis: Mean difference between groups in rate of change: -0.525 (SE 0.145) p < 0.001 Endpoint Analysis: Mean difference between groups in change from BL to 6wk: -0.818 (SE 0.254) p = 0 .001 Weight (kg), mean (SD) G1: 114.1 (22.4) G2: 99.8 (24.7) Time Trend Analysis: Mean difference between groups in rate of change: -1.43 (SE 0.40) p < 0.001 Endpoint Analysis: Mean difference between groups in change from BL to 6wk: -2.49 (SE 0.66) p < 0.001	NA	NA	NA

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
McElroy, 2003[76]	Body mas index (BMI) Weight (kg) Body Fat, %	Weight, mean (SD) G1: 120.4 (18.3) G2: 123.4 (24.4) BMI, mean (SD) G1: 44.2 (7.1) G2: 42.0 (6.7) (note, error in manuscript table 1, BMI = 2.0) Body fat = NR	BMI G1: NR G2: NR Diff between groups, p = NR Diff between groups in rate of change, p = 0.003 Greater improvements for G1 Weight loss kg, mean G1: 5.9 G2: 1.2 Diff between groups, p = NR Diff between groups in rate of change, p = 0.005 Body Fat Percent, p = 0.005 Total, p = 0.001 Greater improvements for G1	Diastolic blood pressure Insulin (mmu/ml) Glucose (mg/dl) Cholesterol (mg/dl) Triglycerides (mg/dl) Total cholesterol (mg/dl)	NR	Diastolic blood pressure change, mmHg, mean: G1: -2.71 G2: 0.47 p = 0.04 All other measures, p = NS Insulin change, microunits/mL), mean: G1: -5.78 G2: -0.76 Glucose change, mg/dL, mean: G1: -2.4 G2: 0.82 LDL Cholesterol change, mg/dL, mean: G1: -8.40 G2: -0.44 Triglyceride change, mg/dL, mean: G1: -27.2 G2: -8.06 Total cholesterol change, mg/dL, mean: G1: -17.13 G2: -2.13

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
McElroy, 2000[77]	Body mass index (BMI), kg/m2	BMI, mean (SD): G1: 36.4 (7.4) G2: 35.8 (7.5)	BMI, mean (SD): Diff in change between G1 & G2, mean: -0.596 SE: 0.189 p = 0.002 G1 better than G2	NR	NR	NR
McElroy, 2011[78]	Weight, kg Body mass index (BMI), kg/m2	Weight, mean (SD): G1: 116.5 (27.3) G2: 107.7 (23.7) p = 0.28 BMI, mean (SD): G1: 39.8 (7.5) G2: 39.2 (8.4) p = 0.71	Longitudinal Analysis: Weight, mean (SD): G1: 116.3 (27.6) G2: 108.9 (24.3) p = 0.44 BMI, mean (SD): G1: 39.7 (7.4) G2: 39.7 (8.9) p = 0.32 Endpoint Analysis: Weight, mean (SD): p = 0.40 BMI, mean (SD): p = 0.35	NA	NA	Mean change from baseline to final visit All p = NR, stated NS Insulin, microInternational Units/mL G1: 3.7 G2: 0 Glucose, mg/dL G1: 0 G2: 0 Triglycerides, mg/dL G1: 9.8 G2: 10.4 LDL cholesterol, mg/dL G1: 0.1 G2: 0.4 Total cholesterol, mg/dL G1: 1.3 G2:1.0

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
McElroy, 2007[79]	Weight, kg Body mass index (BMI), kg/m2	Weight, kg, ean (SD) G1: 106 (18.5) G2: 107 (18.3) BMI, mean (SD) G1: 38 (5.1) G2: 39 (5.5)	Longitudinal Analysis, rate of change Weight G1 better than G2, rate of reduction p < 0.001 BMI G1 better than G2, rate of reduction p < 0.001	NA	NA	NA
McElroy, 2013[80]	Weight (kg) Body mass index (BMI), kg/m2 Waist circumference (cm)	Weight (kg), mean (SD) G1: 106.0 (13.5) G2: 107.6 (17.7) p=0.70 BMI, mean (SD) G1: 38.6 (4.8) G2: 39.2 (6.4) p=0.69 Waist circumference (cm), mean (SD) G1: 114.1 (9.9) G2: 115.2 (12.1) p=0.70	Weight (kg), mean change (SD) from baseline to endpoint G1: -0.03 (2.02) G2: -0.23 (3.16) p=0.76 BMI, mean change (SD) from baseline to endpoint G1: 0.01 (0.69) G2: -0.07 (1.27) p=0.75 Waist circumference (cm), mean change (SD) from baseline to endpoint G1: -0.95 (4.14) G2: -0.57 (3.54) p=0.74	NA	NA	NA

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
McElroy, 2015[81]	Weight (kg)	Weight (kg) G1: 98.5 (SD 18.65) G2: 100.6 (SD 18.84) G3: 98.4 (SD 16.70) G4: 96.8 (SD 17.28)	11wk Mean change in body weight G1: -3.1 (SD 3.64) G2: -4.9 (SD 4.43) G3: -4.9 (SD 3.93) G4: -0.1 (SD 3.09) 11wk Mean % reduction in body weight, difference from placebo, LS change, mean (SE) G1: 3.268% (SE 0.7197%) G2: 5.179% (SE 0.7214%) G3: 5.282% (SE 0.7229%) G4: N/A 11wk Mean change in body weight: Significant difference compared with placebo G1 p<0.001 G2 p<0.001 G3 p<0.001 G4 N/A	None	None	None

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
Pearlstein, 2003[82]	Weight (lbs)	Weight, lbs (M, SD) G1: 243 (85) G2: 258 (96) (P = NS)	Weight, lbs (M, SD) G1: 242 (82) G2: 262 (99) Diff between groups (P = NR) Change over time for both groups: (P = NS) Diff between groups in change over time (P = NS)	NA	NA	NA
Shire, 2014[83,84]	Body weight	LBS G1: 208.9 G2: 205.3 KG G1: 94.8 G2: 93.1	Change in body weight G1: -5.57% (0.350) G2: -0.15% (0.353) Mean diff: -5.41 (-6.39 to -4.44) (p < 0.001)	NA	NA	NA
Shire, 2014[84,85]	Body weight	LBS G1: 208.9 G2: 205.3 KG G1: 94.8 G2: 93.1	Change in body weight G1: -5.57% (0.350) G2: -0.15% (0.353) Mean diff: -5.41 (-6.39 to -4.44) (p < 0.001)	NA	NA	NA

Evidence Table 62. Binge eating disorder drug treatment – part 8 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes	Definition of Biomarker Outcomes Other Than Weight	Biomarker Outcomes Other Than Weight Baseline	Biomarker Outcomes Other Than Weight Outcomes
White, 2013[86]	BMI Weight	BMI G1: 36.2 (SD 6.6) G2: 35.4 (SD 7.1) Weight G1: NR G2: NR	8wk G1: 35.7 (SD 6.6) G2: 35.2 (SD 7.4) % BMI loss G1: 1.8 (2.6) G2: 0.6 (2.1) Mixed effects model medication effect Percent BMI loss F=10.57, p=0.00 8wk weight G1: NR G2: NR Mean (SD) weight loss (kg) G1: 1.68 (2.69) G2: 0.43 (2.12) p=NR, stated as significant	NA	NA	NA

Evidence Table E63. Binge eating disorder drug treatment – part 9

First Author's Last Name Year	Definition of Quality of Life	Quality of Life Baseline	Quality of Life Outcomes	Definition of Functional Capacity	Functional Capacity Baseline	Functional Capacity Outcomes
Arnold, 2002[66]	NA	NA	NA	NA	NA	NA
Brownley, 2013[67]	NA	NA	NA	NA	NA	NA
Guerdjikova, 2009[68]	Sheehan Disability Scale	Sheehan Disability Scale (M,SD) G1: 10.19 (6.57) G2: 9.88 (7.10)	Sheehan Disability Scale (M,SD) G1: 4.96 (6.87) G2: 3.84 (5.82) diff between groups p=0.659 diff in change over time btn groups p=0.596	NA	NA	NA
Guerdjikova, 2008[69]	NA	NA	NA	NA	NA	NA
Guerdjikova, 2012[70]	NA	NA	NA	NA	NA	NA
Hudson, 1998[71]	NA	NA	NA	NA	NA	NA
Leombruni, 2008[72]	NA	NA	NA	NA	NA	NA
McElroy, 2007[73]	NR	NR	NR	NR	NR	NR
McElroy, 2006[74]	NA	NA	NA	NA	NA	NA
McElroy, 2003[75]	NA	NA	NA	NA	NA	NA
McElroy, 2003[76]	NA	NA	NA	NA	NA	NA
McElroy, 2000[77]	NR	NR	NR	NR	NR	NR
McElroy, 2011[78]	SF-12: Outcomes Study 12-item short form health survey SF-12 Physical Health SF-12 Mental Health	Physical Health G1: 42.6 (10.1) G2: 46.0 (10.0) Mental Health G1: 48.7 (9.8) G2: 49.3 (9.2)	Endpoint Analysis: Physical Health G1: 45.7 (9.4) G2: 48.2 (8.8) p = 0.59 Mental Health G1: 53.1 (9.1) G2: 46.9 (11.9) p = 0.00	NA	NA	NA

Evidence Table E63. Binge eating disorder drug treatment – part 9 (continued)

First Author's Last Name Year	Definition of Quality of Life	Quality of Life Baseline	Quality of Life Outcomes	Definition of Functional Capacity	Functional Capacity Baseline	Functional Capacity Outcomes
McElroy, 2007[79]				Sheehan Disability Scale (SDS)	SDS, mean (SD) Overall G1: 11.9 (7.9) G2: 12.3 (7.9) School/work disability G1: 3.2 (2.8) G2: 3.4 (3) Social life disability G1: 4.4 (3.2) G2: 4.5 (3.2) Family life disability G1: 4.5 (3.1) G2: 4.3 (3)	SDS, mean (SD) change from baseline Overall G1: -6.8 (7.6) G2: -4.9 (7.6) Endpoint Analysis: p = 0.001 Longitudinal Analysis, rate of change, p < 0.001 School/work disability G1: -1.6 (2.6) G2: -1.4 (2.9) Endpoint Analysis: p = 0.181 Longitudinal Analys
McElroy, 2013[80]	NA	NA	NA	NA	NA	NA
McElroy, 2015[81]	None	SF-12 Aggregate Physical Health Component Summary Score G1: 48.84 (SD 7.264) G2: 49.16 (SD 9.114) G3: 48.99 (SD 7.386) G4: 49.54 (SD 7.875) SF-12 Aggregate mental health component summary score G1: 49.12 (SD 9.485) G2: 46.74 (SD 9.594) G3: 48.62 (SD 9.96	11wk SF-12 physical health, LS change, mean (SE) G1: 2.6 (SE 0.75) G2: 2.4 (SE 0.74) G3: 3.9 (SE 0.75) G4: 1.3 (SE 0.78) 11wk SF-12 physical health, Difference from placebo, mean (SE) G1: 1.3 (SE 1.08) G2: 1.1 (SE 1.07) G3: 2.5 (SE 1.08) G4: N/A 11wk SF	None	None	None

Evidence Table 63. Binge eating disorder drug treatment – part 9 (continued)

First Author's Last Name Year	Definition of Quality of Life	Quality of Life Baseline	Quality of Life Outcomes	Definition of Functional Capacity	Functional Capacity Baseline	Functional Capacity Outcomes
Pearlstein, 2003[82]	NA	NA	NA	NA	NA	NA
Shire, 2014[83,84]	NA	NA	NA	NA	NA	NA
Shire, 2014[84,85]	NA	NA	NA	NA	NA	NA
White, 2013[86]	NA	NA	NA	NA	NA	NA

Evidence Table E64. Binge eating disorder drug treatment – part 10

First Author's Last Name Year	Definition of Other	Other Baseline	Other Outcomes
Arnold, 2002[66]	NA	NA	NA
Brownley, 2013[67]	NA	NA	NA
Guerdjikova, 2009[68]	NA	NA	NA
Guerdjikova, 2008[69]	NA	NA	NA
Guerdjikova, 2012[70]	NA	NA	NA
Hudson, 1998[71]	NA	NA	NA
Leombruni, 2008[72]	NA	NA	NA
McElroy, 2007[73]			
McElroy, 2006[74]	NA	NA	NA
McElroy, 2003[75]	NA	NA	NA
McElroy, 2003[76]	NA	NA	NA
McElroy, 2000[77]	NR	NR	NR
McElroy, 2011[78]			
McElroy, 2007[79]			NA
McElroy, 2013[80]	NA	NA	NA
McElroy, 2015[81]	None	None	None
Shire, 2014[83,84]	NA	NA	NA
Shire, 2014[84,85]	NA	NA	NA
White, 2013[86]	NA	NA	NA

Evidence Table E65. Binge eating disorder drug treatment – part 11

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Arnold, 2002[66]	G1: 7 G2: 17	G1: 2 G2: 2 "including sedation, hand and foot swelling, palpitations, diarrhea, nausea, and apathy	G1:0 G2:2	NA	NA	NA
Brownley, 2013[67]	Overal: 3	Overall: 0	NA	NA	G1: 0 G2: 0 G3: 8 Reported by group for only one outcome (HgA1c)	Baseline: 3 Cumulative 6 months: 23
Guerdjikova, 2009[68]	G1:11 G2: 7	G1: 3 G2: 1	G1:3 G2:1	NA	NA	G1: 2 G2: 1 p=1.000
Guerdjikova, 2008[69]	G1: 5 (25%) G2: 4 (17.3%)	Overall: NR G1: 1 G2: 2	Overall: NR G1: 0 G2: 1	G1: 2 G2: 0 Metatarsal fracture in left foot obtained during a syncopal episode induced by having blood drawn Hospitalized for dehydration due to an acute GI viral syndrome Neither SAE thought to be due to study medication	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: 5 (24%) G2: 5 (22%) Mean Between-group difference (95% CI): NR p = NS

Evidence Table E65. Binge eating disorder drug treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Guerdjikova, 2012[70]	G1: 7 G2: 6 p = NR	G1: 3 G2: 0 Fisher exact p = 0.19	G1: 0 G2: 1	G1: 1 G2: 0 Serious event included severe gastrointestinal problems and a sinus infection. Pariticipant was hospitalized for 48 hours but the complication was not thought to be due to duloxetine	G1: 26 G2: NR	NR
Hudson, 1998[71]	G1: 13 G2: 5 p = 0.04	G1: 5 G2: 0 p = 0.03	Overall: 1	G1: 0 G2: NR	NR	NR
Leombruni, 2008[72]	G1: 5 G2: 6	0	0	NR	Overall: 6	Overall: 2
McElroy, 2007[73]	G1: 6 G2: 9	G1: 3 G2: 1	G1: 0 G2: 1	Overall: 0	NR	G1: 2 (10%) G2: 2 (10%)
McElroy, 2006[74]	G1: 12 G2: 18 Mean Between-group difference (95% CI): NR p = NR	G1: 8 G2: 4 Mean Between-group difference (95% CI): NR p = NR	G1: 1 G2: 0 Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = no significant differences between groups (all p>0.10)	G1: 2 (7%) G2: 5 (17%) Mean Between-group difference (95% CI): NR p = NR

Evidence Table 65. Binge eating disorder drug treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
McElroy, 2003[75]	G1: 3 G2: 4 p = NR	G1: 1 G2: 0 p = NR	NR	G1: 0 G2: NR p = NR	NR	G1: 7 (37%) G2: 4 (21%) p = NR, NS
McElroy, 2003[76]	G1: 14 G2: 12	G1: 6 G2: 3	G1: 1 G2: 2	NA	NA	G1: 5 G2: 5 p=NS
McElroy, 2000[77]	Overall: 8	Overall: 0	NR	NR	NR	NR
McElroy, 2011[78]	G1: 5 G2: 11 Fishers exact p = 0.05	G1: 2 G2: 1 Mean Between-group difference (95% CI): NR p = NR	G1: 0 G2: 4 Mean Between-group difference (95% CI): NR p = NR	NR	G1: 40 G2: 14 Mean Between-group difference (95% CI): NR p = NR	Overall: G1: 11 G2: 5 Mean Between-group difference (95% CI): NR p = 0.05
McElroy, 2007[79]	G1: 62 G2: 61 Mean Between-group difference (95% CI): NR p = NR	Overall: G1: 29 G2: 16 Mean Between-group difference (95% CI): NR p = NR	Overall: G1: 1 G2: 3 Mean Between-group difference (95% CI): NR p = NR	Overall: G1: 3 G2: 3 Mean Between-group difference (95% CI): NR p = NR G1: acute cholecystitis, major depression, and tibial fracture G2: Stomach virus, asthma exacerbation, and arrhythmia		NA

Evidence Table 65. Binge eating disorder drug treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
McElroy, 2013[80]	G1: 16 (50%) G2: 4 (11%) Mean Between-group difference (95% CI): NR p < 0.001 Discontinuation rate from the time of randomization to finalization of the ITT group: NR G1: 19% G2: 3% p = 0.04 6-week treatment phase completion: 49 (71%)	G1: 12 (37%) G2: 0 (0%) Mean Between-group difference (95% CI): NR p <0.001 Of the 12 G1 participants who discontinued prematurely, single adverse events led to drug discontinuation in N=6 (dizziness N=2, nausea N=1, somnolence N=1, hallucination N=1, p	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Of the 68 participants receiving at least 1 dose of study medication: Overall: NR G1: 29 (93.5%) G2: 24 (65%) Mean Between-group difference (95% CI): NR p = 0.004	Overall: NR G1: 2 (6.5%) G2: 2 (5.4%) Mean Between-group difference (95% CI): NR p = NR
McElroy, 2015[81]	Overall: 58 G1: 15 G2: 13 G3: 13 G4: 17 Mean Between-group difference (95% CI): NR p = NR	G1, G2, G3: 7 G4: 0 Mean Between-group difference (95% CI): NR p = NR	G1: 0 G2: 0 G3: 0 G4: 0 Mean Between-group difference (95% CI): NR p = NR	1 death G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	Any treatment-related Aes with a reported frequency of at least 5% in any group G1: 57 (86.4%) G2: 56 (SE 86.2%) G3: 53 (81.5%) G4: 37 (58.7%) Mean Between-group difference (95% CI): NR p = NR	G1: 4 (6.1%) G2: 5 (7.7%) G3: 1 (1.5%) G4: 0 (0%) Mean Between-group difference (95% CI): NR p = NR
Pearlstein, 2003[82]	Overall:5	Overall:1	Overall:1	NA	NA	NA
Shire, 2014[83,84]	G1: 34 G2: 34	G1: 12 G2: 5	G1: 0 G2: 1	G1: 3 (1 Cholecystitis, 2 syncope) G2: 2 (Anaphylactic reaction, Conversion disorder)	G1: 125 G2: 67	NA

Evidence Table 65. Binge eating disorder drug treatment – part 11 (continued)

First Author's Last Name Year	Harms Overall Discontinuation From Study	Discontinuation Due to AEs	Discontinuation Due to Lack of Efficacy	Serious AEs (Define in Addition to Reporting Rates)	Any AE	Diarrhea
Shire, 2014[84,85]	G1: 48 G2: 48	G1: 7 G2: 5	G1: 0 G2: 1	G1: 1 (Lumbar vertebral fracture) G2: 2 (syncope, fibula fracture)	G1: 100 G2: 43	G1: 11 G2: 3
White, 2013[86]	Overall: 7 (11%) G1: 4 (13%) G2: 3 (10%) Mean Between-group difference (95% CI): NR; chi-square=0.13 p = 0.72	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR

Evidence Table E66. Binge eating disorder drug treatment – part 12

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
Arnold, 2002[66]	NA	NA	NA	NA	NA	NA
Brownley, 2013[67]	Baseline: 1 Cumulative 6 months: 5	Baseline: 6 Cumulative 6 months: 42	Sleep Disburbance Baseline: 7 Cumulative 6 months: 49	Baseline: 1 Cumulative 6 months: 9	NA	NA
Guerdjikova, 2009[68]	G1: 1 G2:2 p=1.000	G1: 9 G2 7 p=0.765	G1: 9 G2: 5 p=0.349	NA	Abnormal sex function G1:0 G2:2 p=0.235	NA
Guerdjikova, 2008[69]	NR	G1: 3 (14%) G2: 4 (17%) Mean Between-group difference (95% CI): NR p = NS	G1: 3 (14%) G2: 3 (13%) Mean Between-group difference (95% CI): NR p = NS	G1: 1 (5%) G2: 3 (13%) Mean Between-group difference (95% CI): NR p = NS	G1: 3 (14%) G2: 0 (0%) Mean Between-group difference (95% CI): NR p = NS	NR
Guerdjikova, 2012[70]	NR	NR	NR	G1: 9 G2: NR p = NR, stated NS	NR	Confusion G1: 1 G2: NR p = NR, stated NS
Hudson, 1998[71]	G1: 24% G2: 14% p =NR, NS	G1: 42% G2: 28% p = NR, NS	G1: 44% G2: 14% p < 0.05	G1: 34% G2: 12% p < 0.01	Decreased libido G1: 10% G2: 2% p = NR, NS	NR
Leombruni, 2008[72]	NA	Overall: 3	Overall:1	Overall: 5	NA	NA
McElroy, 2007[73]	G1: 3 (15%) G2: 0 (0%)	G1: 6 (30%) G2: 4 (20%)	G1: 7 (35%) G2: 3 (15%)	G1: 8 (40%) G2: 2 (10%)	NR	NR
McElroy, 2006[74]	G1: 4 (13%) G2: 2 (17%) Mean Between-group difference (95% CI): NR p = NR	G1: 11 (37%) G2: 9 (30%) Mean Between-group difference (95% CI): NR p = NR	G1: 4 (13%) G2: 2 (17%) Mean Between-group difference (95% CI): NR p = NR	G1: 11 (37%) G2: 5 (17%) Mean Between-group difference (95% CI): NR p = NR	Libido decrease G1: 3 (10%) G2: 1 (3%) Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR

Evidence Table E66. Binge eating disorder drug treatment – part 12 (continued)

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
McElroy, 2003[75]	NR	G1: 8 (42%) G2: 5 (26%) p = NR, NS	G1: 3 (16) G2: 1 (5) p = NR, NS	G1: 7 (37) G2: 2 (11) p = NR, NS	G1: 3 (16) G2: 1 (5) p = NR, NS	NR
McElroy, 2003[76]	G1:8 G2: 4 p=NS	G1: 12 (40%) G2: 7 (23%) p = NS	NA	G1: 6 G2: 5 p=NS	NA	Confusion G1: 1 G2: NR p = NR, stated NS
McElroy, 2000[77]	NR	NR	G1: 7 (39%) G2: 1 (6%) p:0.04	NR	NR	NR
McElroy, 2011[78]	NA	Overall: G1: 3 G2: 2 Mean Between-group difference (95% CI): NR p = NS	Overall: G1: 2 G2: 1 Mean Between-group difference (95% CI): NR p = NS	Overall: G1: 2 G2: 2 Mean Between-group difference (95% CI): NR p = NS	None	None
McElroy, 2007[79]	NA	G1: 25 G2: 29 Mean Between-group difference (95% CI): NR p = 0.661	NA	G1: 32 G2: 25 Mean Between-group difference (95% CI): NR p = 0.391	NA	Concentration/Attention G1: 26 G2: 5 Mean Between-group difference (95% CI): NR p < 0.001 Memory (not otherwise specfied) G1: 25 G2: 12 Mean Between-group difference (95% CI): NR p = 0.037

Evidence Table 66. Binge eating disorder drug treatment – part 12 (continued)

First Author's Last Name Year	Dizziness	Headache	Insomnia	Nausea	Sexual Dysfunction	Cognition
McElroy, 2013[80]	Overall: NR G1: 10 (32.3%) G2: 0 (0%) Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 9 (29.0%) G2: 6 (16.2%) Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 7 (22.6%) G2: 1 (2.7%) Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 10 (32.3%) G2: 4 (10.8%) Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR
McElroy, 2015[81]	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: 9 (13.6%) G2: 9 (13.8%) G3: 5 (7.7%) G4: 6 (9.5%) Mean Between-group difference (95% CI): NR p = NR	G1: 7 (10.6%) G2: 10 (15.4%) G3: 9 (13.8%) G4: 1 (1.6%) Mean Between-group difference (95% CI): NR p = NR	G1: 5 (7.6%) G2: 6 (9.2%) G3: 4 (6.2%) G4: 0 (0%) Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR
Pearlstein, 2003[82]	NA	NA	NA	G1: 4 G2: 1	Decreased libido G1: 3 G2:0	NA
Shire, 2014[83,84]	NR	G1: 26 G2: 17	G1: 34 G2: 14	G1: 16 G2: 14	NR	NR
Shire, 2014[84,85]	NR	G1: 32 G2: 16	G1: 19 G2: 6	G1: 16 G2: 8	NR	NR
White, 2013[86]	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR

Evidence Table E67. Binge eating disorder drug treatment – part 13

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
Arnold, 2002[66]	NA	NA	NA	NA	"Other non-drug related reasons" G1: 2 G1: 3	Lost to followup: G1: 3 G2: 10
Brownley, 2013[67]	Tiredness Baseline: 14 Cumulative 6 months: 77	NA	Baseline: 4 Cumulative 6 months: 5	NA	Elevated HbA1c: G1: 0 G2: 0 G3: 8	Other symtpoms present at baseline and generally low frequency throughout included brusing, nosebleed, rash, decreased urinary frequency, upset stomach, loss of appetite, abdominal pain/cramping, menstrual cramping
Guerdjikova, 2009[68]	G1: 7 G2: 2 p=0.140	G1: 4 G2: 0 p=0.1100	NA	NA	Rash G1: 4 G2:3 p=1.000 Itching G1: 4 G2: 1 p=0.350 Sinusitis G1:1 G2: 2 p=0.610 Constipation G1:2 G1:0 p=0.490	NA

Evidence Table E67. Binge eating disorder drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
Guerdjikova, 2008[69]	NR	G1: 7 (33%) G2: 6 (27%) Mean Between-group difference (95% CI): NR p = NS	NR	NR	Withdrew due to non-adherence to study protocol procedures G1: 4 G2: 1 p = NR Fatigue G1: 3 (14%) G2: 5 (22%) Mean Between-group difference (95% CI): NR p = NS Increased urinary frequency G1: 3 (14%) G2: 0 (0%) Mean Between-group difference (95% CI): NR p = NS GI flu G1: 3 (14%) G2: 2 (9%) Mean Between-group difference (95% CI): NR p = NS Sweating G1: 3 (14%) G2: 0 (0%) Mean Between-group difference (95% CI): NR p = NS	NA

Evidence Table 67. Binge eating disorder drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
Guerdjikova, 2008[69] (continued)					Yawning G1: 3 (14%) G2: 0 (0%) Mean Between-group difference (95% CI): NR p = NS Nervousness G1: 2 (10%) G2: 1 (4%) Mean Between-group difference (95% CI): NR p = NS Upper respiratory infection G1: 2 (10%) G2: 1 (4%) Mean Between-group difference (95% CI): NR p = NS Cold/pharyngitis G1: 1 (5%) G2: 4 (17%) Mean Between-group difference (95% CI): NR p = NS Edema G1: 1 (5%) G2: 3 (13%) Mean Between-group difference (95% CI): NR p = NS	

Evidence Table 67. Binge eating disorder drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
Guerdjikova, 2012[70]	NR	G1: 7 G2: NR p = NR, stated NS	NR	NR	Constipation G1: 5 G2: NR p = NR, stated NS Hyperhydrosis G1: 5 G2: NR p = NR, stated NS	
Hudson, 1998[71]	G1: 20 G2: 9 p = NR, NS	G1: 15% G2: 2% p = NR, NS	NR	NR	Asthenia G1: 32% G2: 19% p = NR, NS Depression G1: 22% G2: 9% p = NR, NS Abnormal dreams G1: 20% G2: 5% p < 0.01 Nervousness G1: 12% G2: 7% p = NR, NS	NA
Leombruni, 2008[72]	NA	NA	NA	NA	Anxiety: 3	NA

Evidence Table 67. Binge eating disorder drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
McElroy, 2007[73]	G1: 2 (10%) G2: 2 (10%)	G1: 11 (55%) G2: 4 (20%)	NR	NR	Nervousness G1: 7 (35%) G2: 3 (15%) Constiparion G1: 4 (20%) G2: 2 (10%) Sweating G1: 4 (20%) G2: 0 (0%) Hypertension G1: 2 (10%) G2: 1 (5%) Dyspepsia G1: 2 (10%) G2: 1 (5%) Rhinitis G1: 2 (10%) G2: 2 (10%) Hot Falsh G1: 2 (10%) G2: 1 (5%) Depression G1: 2 (10%) G2: 0 (0%) Abdominal Pain G1: 0 (0%) G2: 2 (10%) Urinary hesitancy G1: 2 (10%) G2: 0 (0%) Erucation G1: 2 (10%) G2: 0 (0%)	NR

Evidence Table 67. Binge eating disorder drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
McElroy, 2006[74]	G1: 12 (40%) G2: 7 (23%) Mean Between-group difference (95% CI): NR p = NR	G1: 13 (43%) G2: 10 (33%) Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	All group diff, p = NR Withdrew due to difficulties with protocol adherence G1: 9 G2: 8 Nervousness G1: 8 (27%) G2: 3 (10%) Constipation G1: 2 (7%) G2: 5 (17%) Flatulence G1: 7 (23%) G2: 8 (27%) Taste perversion G1: 7 (23%) G2: 2 (7%) Dyspepsia G1: 6 (20%) G2: 1 (3%) Gastrointestinal virus G1: 5 (17%) G2: 2 (7%) Thinking abnormality G1: 5 (17%) G2: 3 (10%) Amnesia G1: 5 (17%) G2: 3 (10%) Paresthesias G1: 4 (13%) G2: 4 (13%) Back pain G1: 4 (13%) G2: 1 (3%)	NA

Evidence Table 67. Binge eating disorder drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
McElroy, 2006[74] (continued)					Abdominal pain G1: 3 (10%) G2: 3 (10%) Urine frequency G1: 3 (10%) G2: 4 (13%) Heart palpitations G1: 2 (7%) G2: 5 (17%) Upper respiratory infection G1: 2 (7%) G2: 3 (10%) Bone fracture resulting from accidental injury G1: 2 (7%) G2: 0 (0%)	
McElroy, 2003[75]	NR	G1: 8 (42) G2: 7 (37) p = NR, NS	NR	NR	Sedation G1: 5 (26%) G2: 4 (21%) p = NR, NS Fatigue G1: 5 (26%) G2: 0 (0%) p = 0.046 Sweating G1: 9 (47%) G2: 1 (5%) p = 0.008	NA

Evidence Table 67. Binge eating disorder drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
McElroy, 2003[76]	G1: 8 G2: 8	G1: 13 G2: 9	NA	NA	Parasthesia G1: 21 G2:3 p<0.05 Dysepsia G1: 9 G2: 7 p=NS Nervousness G1: 7 G2: 3 p=NS Back pain G1: 6 G2:2 p=NS Taste perversion G1: 6 G2:0 p<0.05 Uper respiratory tract infection G1: 5 G2: 1 p=NS Fatigue G1: 6 G2: 7 p=NS Language problems G1: 6 G2: 1 p=NS	NA
McElroy, 2000[77]	NR	NR	NR	NR	NR	NA

Evidence Table 67. Binge eating disorder drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
McElroy, 2011[78]		None	None	None	No other reported AE's were significantly different b/t groups Flatulence G1: 7 G2: 2 Upper Respiratory Infection G1: 4 G2: 1 Edema G1: 2 G2: 0 Urination frequency G1: 2 G2: 0 Vivid dreams G1: 2 G2: 1	Harms reported only if occurred in 2 or more subjects
McElroy, 2007[79]	NA	G1: 27 G2: 22 Mean Between-group difference (95% CI): NR p = 0.543	None	None	Paresthesia G1: 113 G2: 25 Mean Between-group difference (95% CI): NR p < 0.001 Upper Respiratory Tract Infection G1: 113 G2: 25 Mean Between-group difference (95% CI): NR p = 0.022 Taste Perversion G1: 28 G2: 2 Mean Between-group difference (95% CI): NR p < 0.001	No other reported AE's were significantly different b/t groups Reported AE only if occurred in at least 10% of subject

Evidence Table 67. Binge eating disorder drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
McElroy, 2013[80]	Overall: NR G1: 4 (12.9%) G2: 3 (8.1%) Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 5 (16.1%) G2: 1 (2.7%) Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: 4 (12.9%) G2: 1 (2.7%) Mean Between-group difference (95% CI): NR p = NR	Overall: NR G1: NR G2: NR Mean Between-group difference (95% CI): NR p = NR	Loss to follow-up Overall: NR G1: 3 G2: 4 Mean Between-group difference (95% CI): NR p = NR Fatigue Overall: NR G1: 4 (12.9%) G2: 4 (10.8) Mean Between-group difference (95% CI): NR p = NR Sedation Overall: NR G1: 3 (9.7%) G2: 1 (2.7%) Mean Between-group difference (95% CI): NR p = NR Muscle spasms Overall: NR G1: 2 (6.5%) G2: 2 (5.4%) Mean Between-group difference (95% CI): NR p = NR Sleep disorder Overall: NR G1: 2 (6.5%) G2: 2 (5.4%)	NA

Evidence Table 67. Binge eating disorder drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
McElroy, 2013[80] (continued)					Mean Between-group difference (95% CI): NR p = NR Myalgia Overall: NR G1: 1 (3.2%) G2: 3 (8.1%) Mean Between-group difference (95% CI): NR p = NR	
McElroy, 2015[81]	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: 22 (33.3%) G2: 22 (33.8%) G3: 27 (41.5%) G4: 5 (7.9%) Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	G1: NR G2: NR G3: NR G4: NR Mean Between-group difference (95% CI): NR p = NR	Decreased appetite G1: 17 (25.8%) G2: 13 (20.0%) G3: 12 (18.5%) G4: 4 (6.3%) Mean Between-group difference (95% CI): NR p = NR Constipation G1: 6 (9.1%) G2: 3 (4.6%) G3: 5 (7.7%) G4: 1 (1.6%) Mean Between-group difference (95% CI): NR p = NR Nasopharyngitis G1: 8 (12.1%) G2: 1 (1.5%) G3: 3 (4.6%) G4: 2 (3.2%)	NA

Evidence Table 67. Binge eating disorder drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
McElroy, 2015[81] (continued)					Mean Between-group difference (95% CI): NR p = NR Weight decrease G1: 2 (3.0%) G2: 4 (6.2%) G3: 6 (9.2%) G4: 1 (1.6%) Mean Between-group difference (95% CI): NR p = NR Irritability G1: 5 (7.6%) G2: 3 (4.6%) G3: 3 (4.6%) G4: 4 (6.3%) Mean Between-group difference (95% CI): NR p = NR Anxiety G1: 4 (6.1%) G2: 4 (6.2%) G3: 1 (1.5%) G4: 0 (0%) Mean Between-group difference (95% CI): NR p = NR Feeling jittery G1: 1 (1.5%) G2: 3 (4.6%) G3: 5 (7.7%) G4: 0 (0%)	

Evidence Table 67. Binge eating disorder drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
McElroy, 2015[81] (continued)					Mean Between-group difference (95% CI): NR p = NR Upper respiratory tract infection G1: 1 (1.5%) G2: 3 (4.6%) G3: 5 (7.7%) G4: 4 (6.3%) Mean Between-group difference (95% CI): NR p = NR Sleep disorder G1: 1 (1.5%) G2: 3 (4.6%) G3: 4 (6.2%) G4: 0 (0%) Mean Between-group difference (95% CI): NR p = NR	
Pearlstein, 2003[82]	NA	G1: 4 G2: 3	NA	NA	Sedation G1: 8 G2: 3	Side effects only reported if occurred in 3 or more subject

Evidence Table 67. Binge eating disorder drug treatment – part 13 (continued)

First Author's Last Name Year	Somnolence	Dry Mouth	Vomiting	Drug interactions	Harms Other	Harms Comments
Shire, 2014[83,84]	NR	G1: 76 G2: 16	NR	NR	Constipation G1: 11; G2: 4 Fatigue G1: 7; G2: 10 Feeling jittery G1: 11; G2: 2 Irritability G1: 16; G2: 13 Upper respiratory tract infections G1: 8; G2: 11 Heart rate increased G1: 14; G2: 5 Decreased appetite: G1: 17; G2: 6 Anxiety: G1: 13; G2: 2 Hyperhidrosis G1: 10; G2: 1	NR
Shire, 2014[84,85]	NR	G1: 60 G2: 11	NR	NR	Agitation G1: 0; G2: 1 Anxiety G1: 0; G2: 1 Contstipation G1: 10; G2: 1 Fatigue G1: 17; G2: 9 Jittery G1: 10; G2: 0 Decreased appetite: G1: 11; G2: 3	NR
White, 2013[86]	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	Overall: 0 G1: 0 G2: 0 Mean Between-group difference (95% CI): NR p = NR	1 dropout from G1 due to an unnamed medical event

Evidence Table E68. Binge eating disorder drug treatment – part 14

First Author's Last Name Year	Describe Subpopulation	Subpopulation Definition of Eating Related Measure(s)	Subpopulation Outcomes	Subpopulation Outcomes for Eating-Related Measures Continued	Subpopulation Definition of Psychological/ Psychiatric Measure(s)	Subpopulation Outcomes
Arnold, 2002[66]	None	NA	NA	NA	NA	NA
Brownley, 2013[67]	Subpopulation 1: sensitivity analysis, outlier removed from G1	Binges past 28 days	Binges past 28 days Rate of change per month G1: -2.36 (0.72) G2: -0.93 (0.70) G3: -0.97 (0.78) G1 v G2, p = NS G1 v G3, p = NS	NA	NA	NA
Guerdjikova, 2009[68]	None	NA	NA	NA	NA	NA
Guerdjikova, 2008[69]	None	NA	NA	NA	NA	NA
Guerdjikova, 2012[70]	None	NA	NA	NA	NA	NA
Hudson, 1998[71]	None	NA	NA	NA	NA	NA
Leombruni, 2008[72]	None	NA	NA	NA	NA	NA
McElroy, 2007[73]	NA	NA	NA	NA	NA	NA
McElroy, 2006[74]	None	NA	NA	NA	NA	NA
McElroy, 2003[75]	None	NA	NA	NA	NA	NA
McElroy, 2003[76]	None	NA	NA	NA	NA	NA
McElroy, 2000[77]	NA	NA	NA	NA	NA	NA
McElroy, 2011[78]	None	NA	NA	NA	NA	NA
McElroy, 2007[79]	NA	NA	NA	NA	NA	NA
McElroy, 2013[80]	None	NA+CG16:CU16	NA	NA	NA	NA
McElroy, 2015[81]	None	NA	NA	NA	NA	NA
Pearlstein, 2003[82]	None	NA	NA	NA	NA	NA
Shire, 2014[83,84]	None	NA	NA	NA	NA	NA
Shire, 2014[84,85]	None	NA	NA	NA	NA	NA
White, 2013[86]	None	NA	NA	NA	NA	NA

Evidence Table E69. Binge eating disorder drug treatment – part 15

First Author's Last Name Year	Subpopulation Definition of Weight Related Measure(S)	Subpopulation Outcomes	Subpopulation Definition of Biomarker Outcomes Other Than Weight	Subpopulation Outcomes	Subpopulation Quality of Life	Subpopulation Functional Capacity
Arnold, 2002[66]	NA	NA	NA	NA	NA	NA
Brownley, 2013[67]	Weight (kg)	Weight (kg) Rate of change per month G1: -0.23 (0.21) G2: -0.13 (0.18) G3: 0.55 (0.25) G1 v G3, p <0.02 G2 v G3, p <0.02	Fasting glucose (mg/dL)	Fasting glucose (mg/dL) Rate of change per month G1: -1.10 (0.90) G2: -0.67 (0.74) G3: 2.53 (0.80) G1 v G3, p < 0.01 G2 v G3, p <0.01	NA	NA
Guerdjikova, 2009[68]	NA	NA	NA	NA	NA	NA
Guerdjikova, 2008[69]	NA	NA	NA	NA	NA	NA
Guerdjikova, 2012[70]	NA	NA	NA	NA	NA	NA
Hudson, 1998[71]	NA	NA	NA	NA	NA	NA
Leombruni, 2008[72]	NA	NA	NA	NA	NA	NA
McElroy, 2007[73]	NA	NA	NA	NA	NA	NA
McElroy, 2006[74]	NA	NA	NA	NA	NA	NA
McElroy, 2003[75]	NA	NA	NA	NA	NA	NA
McElroy, 2003[76]	NA	NA	NA	NA	NA	NA
McElroy, 2011[78]	NA	NA	NA	NA	NA	NA
McElroy, 2007[79]	NA	NA	NA	NA	NA	NA
McElroy, 2013[80]	NA	NA	NA	NA	NA	NA
McElroy, 2015[81]	NA	NA	NA	NA	NA	NA
Pearlstein, 2003[82]	NA	NA	NA	NA	NA	NA
Shire, 2014[83,84]	NA	NA	NA	NA	NA	NA
Shire, 2014[84,85]	NA	NA	NA	NA	NA	NA
White, 2013[86]	NA	NA	NA	NA	NA	NA

Evidence Table E70. Binge eating disorder drug treatment – part 16

First Author's Last Name Year	Subpopulation Overall Discontinuation From Study	Subpopulation Discontinuation Due to AEs	Subpopulation Discontinuation due to Lack of Efficacy	Subpopulation Serious AEs (Define in Addition to Reporting Rates)	Subpopulation Any AE	Subpopulation Diarrhea
Arnold, 2002[66]	NA	NA	NA	NA	NA	NA
Brownley, 2013[67]	NA	NA	NA	NA	NA	NA
Guerdjikova, 2009[68]	NA	NA	NA	NA	NA	NA
Guerdjikova, 2008[69]	NA	NA	NA	NA	NA	NA
Guerdjikova, 2012[70]	NA	NA	NA	NA	NA	NA
Hudson, 1998[71]	NA	NA	NA	NA	NA	NA
Leombruni, 2008[72]	NA	NA	NA	NA	NA	NA
McElroy, 2007[73]	NA	NA	NA	NA	NA	NA
McElroy, 2006[74]	NA	NA	NA	NA	NA	NA
McElroy, 2003[75]	NA	NA	NA	NA	NA	NA
McElroy, 2003[76]	NA	NA	NA	NA	NA	NA
McElroy, 2000[77]	NA	NA	NA	NA	NA	NA
McElroy, 2011[78]	NA	NA	NA	NA	NA	NA
McElroy, 2007[79]	NA	NA	NA	NA	NA	NA
McElroy, 2013[80]	NA	NA	NA	NA	NA	NA
McElroy, 2015[81]	NA	NA	NA	NA	NA	NA
Pearlstein, 2003[82]	NA	NA	NA	NA	NA	NA
Shire, 2014[83,84]	NA	NA	NA	NA	NA	NA
Shire, 2014[84,85]	NA	NA	NA	NA	NA	NA
White, 2013[86]	NA	NA	NA	NA	NA	NA

Evidence Table E71. Binge eating disorder drug treatment – part 17

First Author's Last Name Year	Subpopulation Dizziness	Subpopulation Headache	Subpopulation Insomnia	Subpopulation Nausea	Subpopulation Sexual Dysfunction	Subpopulation Cognitive Functioning
Arnold, 2002[66]	NA	NA	NA	NA	NA	NA
Brownley, 2013[67]	NA	NA	NA	NA	NA	NA
Guerdjikova, 2009[68]	NA	NA	NA	NA	NA	NA
Guerdjikova, 2008[69]	NA	NA	NA	NA	NA	NA
Guerdjikova, 2012[70]	NA	NA	NA	NA	NA	NA
Hudson, 1998[71]	NA	NA	NA	NA	NA	NA
Leombruni, 2008[72]	NA	NA	NA	NA	NA	NA
McElroy, 2007[73]	NA	NA	NA	NA	NA	NA
McElroy, 2006[74]	NA	NA	NA	NA	NA	NA
McElroy, 2003[75]	NA	NA	NA	NA	NA	NA
McElroy, 2003[76]	NA	NA	NA	NA	NA	NA
McElroy, 2000[77]	NA	NA	NA	NA	NA	NA
McElroy, 2011[78]	NA	NA	NA	NA	NA	NA
McElroy, 2007[79]	NA	NA	NA	NA	NA	NA
McElroy, 2013[80]	NA	NA	NA	NA	NA	NA
McElroy, 2015[81]	NA	NA	NA	NA	NA	NA
Pearlstein, 2003[82]	NA	NA	NA	NA	NA	NA
Shire, 2014[83,84]	NA	NA	NA	NA	NA	NA
Shire, 2014[84,85]	NA	NA	NA	NA	NA	NA
White, 2013[86]	NA	NA	NA	NA	NA	NA

Evidence Table E72. Binge eating disorder drug treatment – part 18

First Author's Last Name Year	Subpopulation Somnolence	Subpopulation Vomiting	Subpopulation Drug Interactions	Subpopulation Other
Arnold, 2002[66]	NA	NA	NA	NA
Brownley, 2013[67]	NA	NA	NA	NA
Guerdjikova, 2009[68]	NA	NA	NA	NA
Guerdjikova, 2008[69]	NA	NA	NA	NA
Guerdjikova, 2012[70]	NA	NA	NA	NA
Hudson, 1998[71]	NA	NA	NA	NA
Leombruni, 2008[72]	NA	NA	NA	NA
McElroy, 2007[73]	NA	NA	NA	NA
McElroy, 2006[74]	NA	NA	NA	NA
McElroy, 2003[75]	NA	NA	NA	NA
McElroy, 2003[76]	NA	NA	NA	NA
McElroy, 2000[77]	NA	NA	NA	NA
McElroy, 2011[78]	NA	NA	NA	NA
McElroy, 2007[79]	NA	NA	NA	NA
McElroy, 2013[80]	NA	NA	NA	NA
McElroy, 2015[81]	NA	NA	NA	NA
Pearlstein, 2003[82]	NA	NA	NA	NA
Shire, 2014[83,84]	NA	NA	NA	NA
Shire, 2014[84,85]	NA	NA	NA	NA
White, 2013[86]	NA	NA	NA	NA

Evidence Table E73. Course of illness studies – part 1

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Agras, 1997[87] NA To examine 1-year posttreatment followup of patients with BED treated with gropu CBT followed by weight loss treatment, data is from 3 controlled studies US Government	cohort study NR NR NA	76 of 93 available for 1 year follow-up	G1: treatment sample at 1 year fu	G1: 76	3	NR	outpatient	NA
Busetto, 2005[88] NA To investigate 5 year outcomes of morbidly obese patients with BED (compared to those without BED) treated surgically with LAGB Italy NR	cohort study NA LAGB between 1-1996 &12-1998 5 years	379	G1: With BED prior to surgery G2: Without BED prior to surgery	G1: 130 G2: 249	1	Padova	NA	NA

Evidence Table E73. Course of illness studies – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Castellini, 2013[89] NA Three year COI in a BED treatment pop compared to BN Italy NR	cohort study NR 1/2003-2/2005 3 yr post-tx fu	N=218	G1: BED G2: BN purging type	G1: 133; G2: 85	1	Florence	outpatient and community fu	NA
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92] Eisenberg, 2010[90]: Eating Among Teens and Young Adults (EAT)-II Neumark-Sztainer, 2011[91]: Project EAT-III (Eating among Teens and Young Adults, 1999-2010) Goldschmidt, 2014[92]: Eating	cohort study NR EAT I:1998-1999 academic year Eisenberg, 2010[90]: 5 years (2003-2004) Neumark-Sztainer, 2011[91]: 10 years Goldschmidt, 2014[92]: 10 years	Eisenberg, 2010[90]: 2516 Neumark-Sztainer, 2011[91]: 2287 Goldschmidt, 2014[92]: EAT participants with binge eating at T1 (n=132) and/or T2 (n=130)	Eisenberg, 2010[90]: One group, analyses stratified by gender G1: Females G2: Males Neumark-Sztainer, 2011[91]: At 10-yr fu, data available for 2,287 (48% of original cohort) G1: 308	Eisenberg, 2010[90]: One group, participated in EAT I & EAT II: (N=2,516) analyses stratified by gender G1: 1386 G2: 1130 Neumark-Sztainer, 2011[91]:	31	Eisenberg, 2010[90]: NR, 31 Minnesota public schools Neumark-Sztainer, 2011[91]: Minneapolis/St. Paul metropolitan area Goldschmidt, 2014[92]: Minneapolis/St. Paul metropolitan area	Eisenberg, 2010[90]: in-class surveys, anthropometric measures at 31 Minnesota public schools and mail survey at 5-year fu Neumark-Sztainer, 2011[91] and Goldschmi	Grant #R40 MC00319-02 from the Maternal and Child Health Bureau (Title V, Social Security Act), HRSA, US DHHS

Evidence Table 73. Course of illness studies – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92] (continued) Among Teens and Young Adults (EAT)-I, II, & III Eisenberg, 2010[90]: To examine the influence of friends on disordered eating behaviors in adolescents Neumark-Sztainer, 2011[91]: To examine the prevalence and tracking of dieting, unhealthy and extreme weight control behaviors, and binge eating from adolescence to young adulthood Goldschmidt, 2014[92]: To examine the course of binge eating from			Analyses stratified by gender and age: G1: Younger cohort females (early adolescence at BL) G2: Older cohort females (middle adolescence at BL) G3: Younger cohort males (early adolescence at BL)	G2: 722 G3: 377 G4: 880 Goldschmidt, 2014[92]: G1: 132 G2: 130			dt, 2014[92]: public schools	

Evidence Table 73. Course of illness studies – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92] (continued) adolescence to young adulthood US Government			G4: Older cohort males (middle adolescence at BL) Goldschmidt, 2014[92]: G1: Binge eating at T1 G2: Binge eating at T2					
Fichter, 1993[93] Fichter, 1998[94] Fichter, 2003[95] Fichter, 2008[96] NA 3 and 6 year and 12 year outcomes post inpatient intensive multimodal therapy Germany Government	cohort study NR 1985-1988 6 years post tx	N=68	G1: inpatient tx for BED	G1: 68	I inpatient hospital	Upper Bavaria	inpatient	grant (FKZ 0702623-8) from the German Bundesministerium fu¨ r Bildung, Forschung and Technologie (BMBF) (3-year course), and a grant (No. 91.004.1) from the Wilhelm-Sander-Stiftung, Munich, Germany.

Evidence Table 73. Course of illness studies – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Field, 2012[97] Sonneville, 2013[98] Growing Up Today Study (GUTS) To investigate the association between overeating (without LOC) and binge eating (overeating with LOC) and adverse outcomes NR Government	cohort study NR Enrollment occurred in 1996 (months not specified) 11 years	16882	No groups	Completed baseline questionnaire: 16882 14166 Met inclusion criteria for at least one of the 5 outcome analyses (provided information in 1 or more consecutive questionnaire cycles and were not prevalent cases at baseline): Overweight/obesity analysis: 10246 High depressive symptoms analysis: 7694 Binge drinking analysis: 10100 Marijuana analysis: 7513 Other drugs analysis: 8000	NR	NR	NR	NIMH grant MH087786-01 Additional information about setting reported in Solomon CG, Willett WC, Carey VJ, et al. A prospective study of pregravid determinants of gestational diabetes mellitus. JAMA. 1997; 278 (13): 1078-1083.

Evidence Table 73. Course of illness studies – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Hilbert, 2013[99] Hilbert, 2014[100] NA Hilbert, 2013[99]: Course of preadolescent LOC eating Germany Government	case control study none NR min of 3 of 5 assessments time points: avg 6.28 months between assessments (2.2 years total)	N =112	G1: LOC eating at baseline G2: matched controls	G1: 55 G2: 57	NR	NR	community	grants
Linna, 2013[101] NA To examine whether BED is associated with elevated reproductive health risk Finland NA	case control study 1995-2010 first occurrence of childbirth, induced abortion or miscarriage	149	NA	NA	1	Helsinki	NA	NA

Evidence Table 73. Course of illness studies – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Maxwell, 2014[102] NA (1) to examine whether decreases in attachment anxiety and avoidance is maintained up to 12 months following GPIP for women with BED, (2) to examine whether these changes in attachment anxiety and avoidance are related to improvement in other outcomes including binge eating, symptoms of depression, and interpersonal problems in the longer term, and (3) to examine whether the significant relationship between reduced attachment insecurity and other outcomes strengthen overtime, thus testing an adaptive spiral hypothesis Canada Government	cohort study provider/clinician NR 1 year following tx	Started tx: 102, 12 month fu: 55 for days binged, Less than 50 for other outcomes	One group, separating individuals based on attachment anxiety and attachment avoidance	Started tx: 102, 12 month fu: 55 for days binged, Less than 50 for other outcomes	NR	NR	outpatient tx	NA

Evidence Table 73. Course of illness studies – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Preti, 2011[103] NA Evaluate risk of suicide in BED population Germany, UK, Italy NA	cohort study none SR through 2010 5 years or more followup	3 studies, N=246	G1: BED patients	NA	NR	NA	NA	NA
Ricca, 2010[34] NA To evaluate the effectiveness of individual and group CBT and the possible predictors of BED outcome Italy NR	randomized controlled trial assessor January 2000 to June 2003 24 weeks of treatment + 3 years follow-up after treatment	144	G1: Individual CBT G2: Group CBT	Randomized: G1: 72 G2: 72 Analyzed: ITT analysis G1: 72 G2: 72	1	Florence	outpatient ED clinic	NA

Evidence Table 73. Course of illness studies – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Suokas, 2014[104] Prevalence of hospital-treated suicide attempts among eating disorder patients Finland Helsinki U Central Hospital, and Academy of Finland	case control study not applicable 1-1-1995 to 9-30-2010 5 year followup	BED (N=171) 4 controls for each patient	Patients treated for BED and controls	BED (N=171) 4 controls for each patient	1 Eating disorder clinic and matching Finnish Central Registry Matches	Clinic is in Helsinki	Eating disorder clinic	
White, 2010[105] NA To investigate 12 and 24 month outcomes, post-bariatric surgery, among those with LOC eating (prior to and post-surgery) and those without United States NA	Longitudinal postsurgical cohort with comparison group NA NA 12 & 24 months post surgery	361	G1: Cases with LOC eating prior to surgery (N = 220) G2: Comparisons without LOC prior to surgery (N = 141)	G1: Cases with LOC eating prior to surgery (N = 220) G2: Comparisons without LOC prior to surgery (N = 141)	NA	NA	NA	NA

Evidence Table 73. Course of illness studies – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Wilfley et al., 2000[106] Wilfley et al., 2002[45], 2000[106] NA Wilfley et al., 2000[106]: The aims of this study were to examine the relation of comorbid psychopathology to severity of binge eating, degree of overall eating pathology, and treatment outcome. Wilfley et al., 2002[45]:To compare the effects of group CBT and group interpersonal psychotherapy (IPT) across BED-related symptoms among overweight individuals with BED Wilfley et al., 2000[106]: NA Wilfley et al., 2002[45]: United States Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: Government	Wilfley et al., 2000[106]: non-randomized trial Wilfley et al., 2002[45]:randomized controlled trial NR NR 1 year follow-up post treatment (treatment was 20 weeks)	162	Wilfley et al., 2000[106]: NA Wilfley et al., 2002[45] G1: CBT G2: IPT	Wilfley et al., 2000[106]: NA Wilfley et al., 2002[45]: Analyzed: 12-month G1: 67 G2: 71	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: 2	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: New Haven, CT San Diego, CA	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: outpatient, ED clinic	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: NIH grants R29MH51384, R29MH138403

Evidence Table 73. Course of illness studies – part 1 (continued)

First Author's Last Name Year Trial/Study Name Research Objective Country Funding Source	Study Design If Trial, Report Blinding Enrollment Period Study Duration, In Weeks Or Months	Overall Sample Size	Define Groups	Group Sample Sizes	Number Of Sites	Location Of Sites (Cities)	Type Of Setting	Study Characteristics Comments
Wilson, 2010[47] NA To test whether BED patients require specialty therapy beyond behavioral weight loss (BWL) treatment and whether interpersonal therapy is more effective than either BWL or CBTgsh in patients with a high negative affect after 2y follow-up. US Government	randomized controlled trial assessor nr 24 months	205	G1: Behavioral weight loss G2: CBT guided self help G3: Interpersonal therapy	Randomized: G1: 64 G2: 66 G3: 75 Analyzed: G1: 64 G2: 66 G3: 75	2	New Brunswick, NJ St. Louis, MO	University outpatient clinics	NIH grants R010638363, R01064153, K24070446, R01063862

Evidence Table E74. Course of illness studies - part 2

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Agras, 1997[87]	BED criteria not specified but say its diagnostic NR	CBT post-tx pop of women from 3 research studies 46	100 0.08 36.7	had completed 30 sessions of group tx over 36-weeks, CBT and weight loss	NR	NR no	NA
Busetto, 2005[88]	DSM-IV established through clinical interview NR	Morbidly obese adults Prior to LAGB G1: 36.0 (10.3) G2: 38.3 (10.9) (p <0.05)	G1: 79% G2: 72% (P < 0.05) NR Prior to LAGB Weight (kg) G1: 129.4 (23.9) G2: 132.2 (24.2) (P = NS) BMI G1: 47.6 (7.4) G2: 46.6 (7.3) (P = NS)	morbidly obese, underwent LAGB, criteria standardized by NIH for obesity	Depression measure not specified G1: 36.2% G2: 18.5% (P <0.001)	Night eating G1: 10.8% G2: 0.8% (P <0.001) Grazing G1: 49.2% G2: 32.5% (P <0.01) no	NA

Evidence Table E74. Course of illness studies - part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Castellini, 2013[89]	BED or BN according to DSM-IV-TR assessed by Structural Clinical Interview comorbid severe mental disorders, such as schizophrenia, bipolar disorder, major depression disorder with psychotic symptoms, suicide ideation, psychoactive substance dependence; severe medical conditions that preclude an outpatient treatment, such as severe heart, renal and/or liver failure; – prior CBT for eating disorders and/or obesity; – current or recent (3 months) use of psychoactive medications, with the exception of benzodiazepines; – previous surgical treatment for obesity; – illiteracy and mental retardation.	Adults 18-60 with BED in CBT tx, some comparison to BN patients 18-60	G1: 88% G2: 96.5% NR G1: 38.0 (7.3) G2: 22.8 (5.8)	18-60 years old; agree not to participate in any other CBT program	BDI G1: 18.0 (13-25) G2: 18.0 (13.5-26)	OBEs/wk G1: 5 (2-10) G2: 8 (3-12) SBEs/wk G1: 4 (0-8) G2: 4 (0-8) no	NA

Evidence Table 74. Course of illness studies part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92]	Eisenberg, 2010[90]: Eating disorder not required for entry into longitudianal cohort. Binge eating was assessed with two questions ‘‘In the past year, have you ever eaten so much food in a short period of time that you would be embarrassed if others saw you (binge eating)?’’ and ‘‘During the times when you ate this way, did you feel you couldn’t stop eating or control what or how much you were eating?’’(yes/no; test-retest k = .64). Those who indicated feeling loss of control were classified as binge eaters. Neumark-Sztainer, 2011[91]: No LOC or binge eating was required for study eligibility +B11 Goldschmidt, 2014[92]: Binge eating was assessed with two questions ‘‘In the past year, have you ever eaten so much food in a	Eisenberg, 2010[90]: EAT-II, a longitudinal study of the socio-environmental, personal, and behavioral determinants of dietary intake and weight status among a large ethnically and socioeconomically diverse adolescent population, middle and high school students from 31 Minnesota public schools Neumark-Sztainer, 2011[91]: Data come from EAT-III, a 10-year longitudinal study aimed at examining eating, activity, and weight-related variables among	Eisenberg, 2010[90]: Overall: 55% G1: 100% G2: 0% Neumark-Sztainer, 2011[91]: 45% Goldschmidt, 2014[92]: 85% Eisenberg, 2010[90]: Overall: 50% G1: 52% G2: 47% Neumark-Sztainer, 2011[91]: 51.6% Goldschmidt, 2014[92]: 42%	Eisenberg, 2010[90]: Data come from EAT-II, a longitudinal study of the socio-environmental, personal, and behavioral determinants of dietary intake and weight status among a large ethnically and socioeconomically diverse adolescent population, middle and high school students from 31 Minnesota public schools. Inclusion criteria NR.	Eisenberg, 2010[90]: Overall: NR G1: NR G2: NR Neumark-Sztainer, 2011[91]: NR Goldschmidt, 2014[92]: Depression scale (Kandel and Davies, 1982) T1: 12.5 (2.7) T2: 13.0 (3.1)	Eisenberg, 2010[90]: SES Low Overall: 429 (18%) G1: 273 (20%) G2: 157 (15%) Lower-middle Overall: 459 (19%) G1: 257 (19%) G2: 202 (19%) Middle Overall: 647 (27%) G1: 345 (26%) G2: 302 (28%) High-middle Overall: 567 (23%) G1: 290 (22%) G2: 277 (26%) High SES Overall: 323 (13%) G1: 177 (13%) G2: 146 (14%) Neumark-Sztainer, 2011[91]: Low SES: 18.0%	Neumark-Sztainer, 2011[91]: Attrition not equal across sociodemographic characteristics. When compared to nonrespondents in Project EAT-III, respondents were more likely to be girls, white, and of higher SES. Thus, in all analyses, weighted data so longitudinal sample was more

Evidence Table 74. Course of illness studies part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92] (continued)	short period of time that you would be embarrassed if others saw you (binge eating)?" and ''During the times when you ate this way, did you feel you couldn't stop eating or control what or how much you were eating?''(yes/no; test-retest k = .64). Those who indicated feeling loss of control were classified as binge eaters. NR	young people in Minnesota public schools. Goldschmidt, 2014[92]: Data come from EAT, a 10-year longitudinal study aimed at examining eating, activity, and weight-related variables among young people in Minnesota public schools. Eisenberg, 2010[90]: Middle school at baseline/hs at time 2 Overall: 807 (32%) G1: 440 (32%) G2: 367 (33%) HS at baseline, Young adult T2 Overall: 1709 (68%) G1: 946 (69%) G2: 763 (68%)	Eisenberg, 2010[90]: BMI Overall: 22.4 (SD 4.5) G1: 22.3 (SD 4.8) G2: 22.4 (SD 4.6) Neumark-Sztainer, 2011[91]: NR Goldschmidt, 2014[92]: BMI T1: 24.2 (5.5) T2: 26.2 (6.1)	Of total, at baseline: binge eating group (N=212, 8.7%) at time 2 (N=193, 7.9%) Neumark-Sztainer, 2011[91]: Data come from EAT-III, a 10-year longitudinal study aimed at examining eating, activity, and weight-related variables among young people. Inclusion criteria NR. Goldschmidt, 2014[92]: Data from EAT I,II, and III, subgroup that reported binging at an earlier assessment		Mid-low SES: 19.0% Mid SES: 26.2% Mid-high SES: 23.3% Goldschmidt, 2014[92]: High SES: 13.5% Eisenberg, 2010[90]: females/males	similar to the original cohort, and more representative of an adolescent/ young adult population. Data weighted using the response propensity method where the inverse of the estimated probability that an individual responded at follow-up was used as the weight; compared responders at fu with nonresponders for the key

Evidence Table 74. Course of illness studies part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92] (continued)		Neumark-Sztainer, 2011[91]: Baseline: Younger cohort (G1 and G3): 12.8 (SD 0.7) Older cohort (G2 and G4): 15.9 (SD 0.8) Goldschmidt, 2014[92]: Baseline: Mean 14.8 years					variables (ie, dieting, unhealthy and extreme weight control behaviors, and binge eating with loss of control). These comparison analyses were stratified by sex and adjusted for SES, ethnicity/race, and nonresponse weights. In all but one case (responding boys reported lower extreme weight control

Evidence Table 74. Course of illness studies part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92] (continued)							behaviors than nonrespon ders) no sig differences found for the targeted variables at baseline, indicating that weighting was generally successful in correcting for any response bias

Evidence Table 74. Course of illness studies part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Fichter, 1993[93] Fichter, 1998[94] Fichter, 2003[95] Fichter, 2008[96]	DSM-IV through self report, chart and therapist diagnosis NR	Adults who had received inpatient tx for BED 29.3 (8.4)	100% NR 33.7 (9.0)	NR	BDI: 23.2	NA NA	NA
Field, 2012[97] Sonneville, 2013[98]	Binge eating was assessed with two questions ''In the past year, have you ever eaten so much food in a short period of time that you would be embarrassed if others saw you (binge eating)?'' and ''During the times when you ate this way, did you feel you couldn't stop eating or control what or how much you were eating?''(yes/no). Those who indicated at least weekly edisodes of eating a large amount of food with LOC during the episodes were classified as binge eaters. none	cohort of 9-15 year olds tracked for up to 11 years 9-15, mean: 12.0 (1.6)	NR Sonneville, 2013[98]: <10% Field, 2012[97]: 100% Sonneville, 2013[98]: Overweight or obese: 22.3% Field, 2012[97]: Overweight: 15.7% Obese: 3.8%	9 to 15 years of age at entry; children of women in the Nurses' Health Study II; data available for consecutive questionnaire cycles	NR	NA no	NA

Evidence Table 74. Course of illness studies part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Hilbert, 2013[99] Hilbert, 2014[100]	LOC eating at least 1 episode during past 3 mo The diagnostic version of the semistructured eating disorder interview ChEDE (Bryant-Waugh et al., 1996; Hilbert et al., 2013) was used to assess LOC eating The ChEDE was used to diagnose BED according to the DSM–IV–TR (APA, 2000), and partial BED. Partial BED was defined as: having at least one episode of LOC eating per week over the previous 3 months, based on Tanofsky-Kraff et al.'s definition (2011); having at least some degree of distress associated with the LOC episodes; meeting at least two or more of the five behavioral symptoms, as derived from an empirical classification analysis using this study's sample (Hilbert & Czaja, 2009); an absence of regular inappropriate compensatory behaviors (e.g., purging, fasting, excessive exercise); and an absence of anorexia nervosa and bulimia nervosa as defined in the DSM–IV–TR.	8-13 year old children, with and without LOC eating 10.72 (8-13)	60% NR BMI: 23.99 kg/m2 (SD =5.45).	8-13 years old, sufficient German language skills of the child and participating parent Children without LOC eating were individually matched to the LOC children on age, sex, percentile of BMI, education (school type and grade), and the mother's education (years of education). Inclusion criteria for nonLOC children were absence of past or present LOC eating, compensatory behaviors, or an eating disorder.	NR	no	NA

Evidence Table 74. Course of illness studies part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Hilbert, 2013[99] Hilbert, 2014[100] (continued)	compensatory behaviors (more than once over the past 3 months); psychotic disorder in child or parent; medical conditions affecting eating behavior; treatment for overweight; special education; or a planned move or commute time of more than 30 minutes to the laboratory site.						
Linna, 2013[101]	DSM IV research criteria ≥ 50 years old at baseline	treatment sample of women compared to matched registry controls 34.1 (29.3-40.1)	100 NR NR	Female patients matched for age and geographical area	NR	NA no	NA
Maxwell, 2014[102]	DSM-IV using EDE current or past compensatory behaviors (e.g., vomiting or diuretic use), diagnosis of bipolar or psychotic disorder, drug or alcohol abuse in the past 6 months, taking medication that may affect weight during treatment, being pregnant or planning on becoming pregnant in the following year, and plans to enroll or current enrolment in a weight-loss program.	Treatment population who received Group Psychodynamic Interpersonal Psychotherapy (GPIP), 1 year post tx 44.3	100% 11% NA	the ability to speak and read in English and being overweight (i.e., a body mass index [kg/m2]	NA	NA no	NA

Evidence Table 74. Course of illness studies part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Preti, 2011[103]	DSM IV Studies reported data on suicidal behaviour other than completed suicide (e.g. suicide-attempt or selfinjury behaviour); were unrelated to the topic; when they were in the form of reviews or past meta-analyses; or were duplicate publications [literature repeatedly reports studies with different follow-ups of the same sample, e.g. the often detailed University of Minnesota study (16)]; or when they did not comply with the main inclusion criteria because their sample was <40 (n = 18); because of a follow-up shorter than 5 years (n = 5), or because they gave no details of mortality (n = 8) (The list is available on request). Some exceptions were allowed for studies with a follow-up very close to the selected interval (4.5 or longer).	3 studies of patients with BED who were followed for at least 5 years. NR	NR NR NR	reported death by suicide, N ≥40, 5 year fu or longer, details of BED diagnosis, English	NR	NR NA	NA

Evidence Table 74. Course of illness studies part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Ricca, 2010[34]	DSM-IV criteria for BED OR subthreshold BED. BED: minimum average frequency of binge eating twice a week for a minimum duration of 6 consecutive months; subthreshold BED: binges occurred at a minimum average frequency of once a week for a minimum duration of 6 consecutive months Recurrent severe compensatory behaviors (fasting, purging, excessive exercise for weight control). Individuals were excluded if they reported a lifetime history of such behaviors at a frequency exceeding five times in any consecutive 6m period Current comorbid severe mental disorders, such as schizophrenia, bipolar disorder, severe major depression, suicide ideation, psychoactive substance dependence (per SCID) Severe medical conditions that preclude an outpatient treatment, such as severe heart, renal, and/or liver failure	Adults 18-60 years old with BED or subthreshold BED G1: 46.5 (SD 12.4) G2: 47.4 (SD 11.9) p=NR, NS	G1: 86.1% G2: 90.3% p=NR, NS Overall: NR G1: NR G2: NR p=NR Overall: NR G1: NR G2: NR p=NR	Age 18-60 years To accept not to participate in a CBT program other than the experimental one	Any psychiatric comorbidity Overall: NR G1: 37 (51.4%) G2: 41 (56.9%) p=NR, NS Adjustment disorder with depressed mood Overall: NR G1: 27 (37.5%) G2: 20 (27.8%) p=NR, NS Obsessive-compulsive disorder Overall: NR G1: 2 (2.8%) G2: 3 (4.2%) p=NR, NS Panic	Subthreshold binge eating Overall: NR G1: 32 (44.4%) G2: 31 (43.1%) p=NR, NS Overweight during childhood Overall: NR G1: 17 (23.6%) G2: 26 (36.1% p=NR, NS Previous use of amphetamine derivatives Overall: NR G1: 27 (37.5%) G2: 25 (34.7%) p=NR, NS Number of previous diet attempts, median (quartiles) Overall: NR G1: 4.0 (2.0, 10.0) G2: 4.0 (3.0, 10.0) p=NR, NS None	NA

Evidence Table 74. Course of illness studies part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Ricca, 2010[34] (continued)	Prior cognitive behavioral treatments for eating disorders and/or obesity Current or recent (3m) use of psychoactive medications Previous surgical treatment for obesity Illiteracy and mental retardation						
Suokas, 2014[104]	BED based on DSM IV none	BED and registry controls BED: 37.0 (10.6) Controls: 26.2 (8.4)	NR NR NR	Referred to the Eating Disorder Clinic of the Helsinki U Central Hospital	NR	Number who had attempted suicide prior to f/u: BED: N=1 (0.6%) Controls: N=81 (0.8%) no	
White, 2010[105]	LOC eating: any LOC eating episodes in the previous 28 day period, as measured by the EDE-Q. Includes both objective binge episodes (OBEs) and subjective binge episodes (SBEs) NA	NA 43.7 (10.0)	86% 18.60% NA	NA	Mean depression score: Pre-Op LOC: 17.1 (9.7); No pre-op LOC: 11.1 (8.0) (P = 0.000)	Mean BMI: 51.1 (8.3) NA	NA

Evidence Table 74. Course of illness studies part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Wilfley et al., 2000[106] Wilfley et al., 2002[45], 2000[106]	DSM-IV through EDE pregnant or plan on becoming pregnant; and not be taking weight-loss, psychorropic, or weight-affecting prescription medications. In addition, women and men were excluded for current drug or alcohol dependence, psychiatric conditions warranting hospitalization, and current enrollment in other therapy or weight-loss programs.	BED post tx cohort Wilfley et al., 2000[106]: 45.2 (18-65) Wilfley, et al., 2002[45]: G1: 45.6 (SD 9.6) G2: 44.9 (SD 9.6)	Wilfley et al., 2000[106]: 83% Wilfley, et al., 2002[45]: G1: 67 (82.7%) G2: 67 (82.7%) Wilfley et al., 2000[106]: 7% Wilfley, et al., 2002[45]: G1: 5 (6.2%) G2: 7 (8.6%) Wilfley et al., 2000[106]: BMI: 37.1 Wilfley, et al., 2002[45]	between 18 and 65 years of age; have a body mass index (BMI [kg/m2]) between 27 and 48; patients receiving CBT or IPT post tx	Wilfley et al., 2000[106]: Current mood disorder: 22% lifetime mood disorder: 61% Wilfley, et al., 2002[45]: DSM-III-R dx mood disorders overall, current G1: 21 (25.9%) G2: 15 (18.5%) DSM-III-R dx anxiety disorders overall, current G1: 10 (12.3) G2	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: Age at onset of disorder Overall: NR G1: 24.1 (SD 13.5) G2: 25.7 (SD 12.9) DSM-III-R dx substance use disorders overall, current G1: 5 (6.2%) G2: 1 (1.2%) no	NA

Evidence Table 74. Course of illness studies part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Wilfley et al., 2000[106] Wilfley et al., 2002[45], 2000[106] (continued)			BMI Overall: NR G1: 37.4 (SD 5.3) G2: 37.4 (SD 5.1)				

Evidence Table 74. Course of illness studies part 2 (continued)

First Author's Last Name Year	BED or LOC Inclusion Definition Exclusion Criteria	Brief Summary of Population Mean Age (Range)	% Female % Non-White Weight	Other Inclusion Criteria (in Addition to BED or LOC Eating Criteria)	Current Major Depressive Disorder: % of Group or Mean (SD) Baseline Depression Score	Other Relevant Characteristics Subgroup Analysis?	Population Comments
Wilson, 2010[47]	DSM-IV Current psychosis, bipolar disorder, or suicidal state Alcohol or drug dependence within the past 6 months Medical disorders that would affect weight and ability to participate Insufficient fluency with English to participate in therapy Current participation in a weight-control program Taking medication that would affect weight Pregnancy Participants currently taking antidepressants were entered into the study provided that they had been taking a stable dosage for at least 2 months	Adults with BED and BMI 27-45 Overall: NR G1: 46.2 (SD 10.9) (range 19-69) G2: 50.3 (SD 13.6) (range 19-77) G3: 48.7 (SD 11.2) (range 23-68)	Overall: NR G1: 89 G2: 82 G3: 85 Overall: NR G1: 12 G2: 18 G3: 23 BMI Overall: NR G1: 36.8 (SD 5.5) G2: 36.2 (SD 4.3) G3: 36.3 (SD 5.1)	>18 years old BMI 27-45	Current depression Overall: NR G1: 13 G2: 15 G3: 16 History depression Overall: NR G1: 47 G2: 37 G3: 47	Substance abuse Overall: NR G1: 11 G2: 11 G3: 5 College degree Overall: NR G1: 34 G2: 38 G3: 30 Personality disorder Overall: NR G1: 27 G2: 20 G3: 23 High vs. low negative affect (defined using BDI cutoff >18 at baseline) High vs. low frequency of binge days (>14 days vs. ≤14 days during the past 28 days) High vs. low global EDE score (median split of 2.675) High vs. low self-esteem score (median sp	NA

Evidence Table E75. Course of illness studies – part 3

First Author's Last Name Year	Co-Interventions	Group 1	Group 2
Agras, 1997[87]	NA	group CBT for 12 week followed by weight loss 24	NA
Busetto, 2005[88]	Post-LAGB, all patients followed the same modified liquid diet for 4 weeks, followed by a solid food diet. Band adjustments were not performed before 3 months post-surgery.	Patients with BED prior to surgery LAGB + brief course of psychological therapy before LAGB and psychological support offered as needed during follow up.	Patients without BED prior to surgery LAGB
Castellini, 2013[89]	none	CBT using Fairburn manual	CBT using Fairburn manual
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92]	NA	NA	NA
Fichter, 1993[93] Fichter, 1998[94] Fichter, 2003[95] Fichter, 2008[96]	NA	Patients received a broad spectrum of behavioral treatment, very similar to that described by Fichter [20] for bulimic syndromes. It consisted of information, nutritional counseling, functional analysis of antecedent events and eating behavior, training of interoceptive and emotional perception using body-oriented and emotion-provoking approaches, training of social skills and emotional expression in role-play sessions, cognitive therapy, activation of one's own responsibility and initiative, an antidiet approach to body shape and weight [21], and maintenance training. The average duration of the treatment was 76.7 +/- 40 days	NA
Field, 2012[97] Sonneville, 2013[98]	NA	NA	NA

Evidence Table E75. Course of illness studies – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2
Hilbert, 2013[99] Hilbert, 2014[100]	NA	NA	NA
Linna, 2013[101]	NA	NA	NA
Maxwell, 2014[102]	NA	none	Group Psychodynamic Interpersonal Psychotherapy (GPIP) combines principles from theories of psychotherapeutic treatment including psychodynamic, interpersonal, and group therapies (Malan, 1979; Tasca et al., 2005; Yalom & Leszcz, 2005). GPIP theory descri
Preti, 2011[103]	NA	NA	NA
Ricca, 2010[34]	In both groups, CBT is based on the manual of Fairburn, Marcus, and Wilson (1993), with 3 phases: 1) aims to eliminate binge eating and adopt a regular eating pattern; 2) reduce food intake and modify dysfunctional beliefs involved in the maintenance of t	Individual CBT: 22 individual sessions of 50 minutes each for 24 weeks. Phase 1 was 8 sessions, phase 2 was 8 sessions, and phase 3 was 6 sessions. When someone did not attend a session, it was repeated.	Group CBT: 20 group sessions of 60 minutes for 22 weeks. Phase 1 was 7 sessions, phase 2 was 7 sessions, and phase 3 was 6 sessions. Treatment groups consisted of up to 12 members. A therapist and co-therapist led each group.
Suokas, 2014[104]	NA	BED treatment population	Matched registry controls
White, 2010[105]	NA	Analyses compare outcomes between those with and without LOC at baseline, Pre-Op LOC: Objectively large eating episodes: 42% (N = 153) LOC for small episodes: 40% (N = 145) LOC-general (either small or large episodes: 61% (N = 221) No LOC-general (neither small nor large): 39% (N =)	NA

Evidence Table 75. Course of illness studies – part 3 (continued)

First Author's Last Name Year	Co-Interventions	Group 1	Group 2
Wilfley et al., 2000[106] Wilfley et al., 2002[45], 2000[106]	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: Twenty 90-minute, weekly group sessions and 3 supplemental individual sessions (pre-treatment, mid-treatment, post-treatment) specifically addressing each participant's goals and progress. Part	Wilfley et al., 2000[106]: group cognitive-behavioral therapy (CBT) or group interpersonal therapy (IPT) Wilfley, et al., 2002[45]: Group CBT: First phase (sessions 1-6): behavioral strategies (e.g., self-monitoring) help patients identify episodes of overrestriction and underrestriction and encourage normalization of eating patterns. Second phase (sessions 7-14): patients learn cognitive skills and cognitive restructuring to counter negative thoughts identified as predisposing binge eating. Third phase (sessions 15-20): patients learn relapse prevention techniques (e.g., problem-solving and coping with high-risk situations), identify reasonable goals and strategies for weight loss that will not promote bingeing	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: Group IPT: IPT is a brief, focused treatment focusing on problem resolution within 4 social domains: grief, interpersonal role disputes, role transitions, and interpersonal deficits. Phase 1 (
Wilson, 2010[47]	NR	BWL: 16 individual weekly sessions each lasting 50 minutes and followed by 4 sessions at 2-week intervals aimed at continuing weight loss and enhancing maintenance of such losses. Based on NIDDK's Diabetes Prevention Program's manual. Moderate caloric restriction and exercise, reduction of fat intake to 25% of calories from fat. Weight loss goal of 7% of starting weight. Self-monitoring of exercise, fat intake, and (if necessary) caloric intake. Treatment delivered by master's-level therapists in clinical psychology or nutrition, who received supervision	CBTgsh: 10 treatment sessions, each lasting approximately 25 minutes, except for 1st session which was 60 minutes. First 4 sessions were weekly, next 2 occurred at 2wk intervals, and last 4 occurred at 4wk intervals. Based on Fairburn's book Overcoming Bi

every other week.	

Evidence Table E76. Course of illness studies – part 4

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Agras, 1997[87]	# of days with one or more binges objective binges: consumption of large amounts of food and feeling out of control subjective binges: loss of control over eating	NA	# of days with one or more binge: Post hoc tests revealed the groups to be significantly different (achieved abstinence by 12 wks vs not) at 70 weeks, F(l, 73) = 4.19, p= .04; and at 88 weeks, F(l, 73) = 3.90, p = .05, but not at 52 weeks. Of the 31 participants who were abstinent after 12 weeks of CBT, 45% (n = 14) continued abstinence at the 1-year followup, 29% (n = 9) were binge eating no more than once per week, and 26% (n = 8) had relapsed and again met criteria for BED.
Busetto, 2005[88]	NA	NA	NR
Castellini, 2013[89]	Objective binge episodes were defined as the consumption of a large amount of food in a discrete episode, while experiencing a sense of loss of control. Subjective binge episodes were defined as the consumption of a not objectively large quantity of food in a discrete episode, while experiencing a sense of loss of control. The number of weekly objective and subjective binge episodes was evaluated by means of a face-to-face clinical interview, according to specific questions extracted from the Eating Disorder Examination Interview and from DSM-IVTR.	NA	Change in OBEs (per week episodes) from baseline to 3 year fu: baseline OBE frequence: B= 0.65 (p < 0.001) EES anxiety: B= -0.23 (p <0.01) EES depression: B = -0.39 (p < 0.001) Other non-sig vars in model: gender, age, BMI, SCL-90 GSI Change in SBEs (per week episodes) from baseline to 3 year fu: baseline SBE frequence: B= 0.74 (p < 0.001) BDI: B= -0.34 (p <0.001) EES depression: B = -0.39 (p < 0.001) Other non-sig vars in model: gender, age, BMI, depression Baseline OBEs and SBEs were also sig predictors of OBE and SBE change over time in the BN group

Evidence Table E76. Course of illness studies – part 4 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92]	Eisenberg, 2010[90]: Binge/LOC eating, assessed with 2 questions: -"In the past year, have you ever eaten so much food in a short period of time that you would be embarrassed if others saw you (binge eating)?" -During the times when you ate this way, did you feel you couldn't stop eating or control what or how much you were eating?" Those who indicated feeling LOC in the 2nd question were classified as binge eaters Neumark-Sztainer, 2011[91]: Binge/LOC eating, assessed with 2 questions: -"In the past year, have you ever eaten so much food in a short period of time that you would be embarrassed if others saw you (binge eating)?" -During the times when you ate this way, did you feel you couldn't stop eating or control what or how much you were eating?" Those who indicated feeling LOC in the 2nd question were classified as binge eaters Goldschmidt, 2014[92]: Binge/LOC eating,	Eisenberg, 2010[90]: Binge/LOC eating, percent of larger sample Overall: 212 (8.7%) G1: 168 (12.6%) G2: 43 (4.0%) Neumark-Sztainer, 2011[91]: Binge/LOC eating used at predictor Prevalence: Girls: Baseline: 9.9% FU: 14.1% boys: baseline: 3.0% FU:	Eisenberg, 2010[90]: Outcome: 5y Binge/LOC eating Overall: 193 (7.9%) G1: 154 (11.4%) G2: 39 (3.5%) General linear modeling was used to generate probability of binge eating at follow-up Model adjusted for binge eating at BL, friends dieting behavior at BL, same sex parent's dieting at BL, BMI at 5y, race, and SES. All analyses were conducted separately by gender (G1: females, G2: males). Data were weighted using a response propensity method "to be more fully generalizable to the population of young people in this area." G1 (Females) Predictors in multivariate model: BL Friends' dieting, F=3.25, (p=0.021) trend in friends' dieting (p = 0.012) BL Mother's dieting, F=1.5, p=0.212 5y BMI, F=12.7, p < 0.001 White race, F=0.74, p=0.391 SES, F=0.41, p=0.520 Binge/LOC eating, F=22.9, p<0.001 Neumark-Sztainer, 2011[91]: Log binomial model of fu behavior on baseline behaviors stratified by cohort and sex and controlling for nonresponse weight. Probability of binge eating w LOC, controlling for this behavior at baseline: Younger females (n = 308) RR = 2.21 (95% CI, 1.31, 3.71) Older females: (n=722) RR = 2.42 (95% CI, 1.68, 3.47) Younger males (n = 377) RR = 0.47 (95% CI, 0.03, 7.12) Older males (n = 880) RR = 5.27 (95% CI, 2.68, 10.34) Goldschmidt, 2014[92]: Binge eating at T1 and T2: 15.8% Binge eating at T2 and T3: 42%

Evidence Table 76. Course of illness studies – part 4 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92] (continued)	assessed with 2 questions: -"In the past year, have you ever eaten so much food in a short period of time that you would be embarrassed if others saw you (binge eating)?" -During the times when you ate this way, did you feel you couldn't stop eating or control what or how much you were eating?" Those who indicated feeling LOC in the 2nd question were classified as binge eater		OR for Binge eating cessation (controlling for baseline value of the change variable to ensure that individual differences in functioning at the previous time point did not confound our results. All models additionally controlled for age cohort, sex, race/ethnicity (categorized as non-Hispanic White vs. all others), and SES and weighted to control for attrition) cessation at T2 based on value at previous time point: BMI: 1.10 (1.00–1.21); p =0.06 Body satisfaction: 1.00 (0.94–1.06); p =0.88 Depression symptoms:0.96 (0.81–1.13); p= 0.58 Self-esteem: 1.04 (0.92–1.18); p =0.52 Change in BMI: 0.93 (0.81–1.07); p=0.31 Change in body satisfaction: 1.01 (0.96–1.07); p=0.68 Change in depression symptoms: 0.89 (0.73–1.09); p=0.28 Change in self-esteem: 1.21 (1.02–1.44); p=0.03 cessation at T3 based on value at previous time point: BMI: 0.95 (0.88–1.04); p =0.26 Body satisfaction: 1.01 (0.95–1.06); p= 0.84 Depression symptoms: 0.92 (0.81–1.05); p=0.21 Self-esteem: 1.03 (0.91–1.15); p=0.67 Change in BMI: 0.98 (0.88–1.09); p=0.70 Change in body satisfaction: 1.06 (1.00–1.13); p=0.05 Change in depression symptoms: 0.81 (0.68–0.95); p=0.009 Change in self-esteem: 1.23 (1.07–1.41); p =0.004

Evidence Table 76. Course of illness studies – part 4 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Fichter, 1993[93] Fichter, 1998[94] Fichter, 2003[95] Fichter, 2008[96]	BE ≥ 2 times/wk	100%	3 year: 16.1%; 6 years: 34% BED at 6 year FU: 5.9%, 77.9% no major eating disorder SEM results: BED at t1 (start of tx) sig predicted BED at t2 (end of tx); BED at end of tx predicted BED at 3 year fu and at 6 year fu BED at beginning of tx did not sig predict BED at 3-year fu predictors of poor diagnostic outcome at 12 years (any eating disorder-AN, BN, BED or ED-NOS): psychiatric comorbidity OR = 6.00 (1.17 to 30.95) Severe sexual abuse: OR = 4.55 (1.04 to 1.9) Other non-significant predictor: self-injury Predictors of poor bingeing episode outcome at 12 years (one or more binges occurred in the three months preceding follow-up) Psychiatric comorbidity OR = 13.09 (1.45-118.62) other non-significant predictors: self-injury, emotional liability, interoceptive awareness, obesity of patient's father predictors of Poor bingeing severity outcome at 12 years (severe and frequent binges, meeting DSM-IV definition) Impulsivity: OR=13.60 (1.57–117.68) Psychiatric comorbidity: OR=12.37 (1.42–107.79) Other non-sig predictors: self-injury, inefficiency

Evidence Table 76. Course of illness studies – part 4 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Field, 2012[97] Sonneville, 2013[98]	Binge eating was assessed with a 2-part question. Participants were first asked how often during the past year they had eaten a very large amount of food. Participants who had eaten a very large amount of food at least occasionally were asked a follow-up question about whether they felt out of control (y/n) during these episodes, like they could not stop eating even if they wanted to stop. Binge eating was defined as at least weekly episodes of eating a large amount of food with LOC based on DSM-V.	NR	Binge eating prevalence among 16-year-old females: 2.3% Binge eating prevalence among 24-year-old females: 3.1% Binge eating prevalence among 16-year-old males: 0.3% Binge eating prevalence among 24-year-old males: 1.0% Lagged analysis with time-varying covariates so that outcomes were modeled as a function of predictors assessed on the previous questionnaire. Tested for an interaction between overeating status and sex in fully adjusted models for all outcomes. "No overeating" group is referent for ORs. Associations with weekly binge eating on the previous questionnaire (1-2 years prior) : OR (95% CI) Overweight/obesity: 1.73 (1.11-2.69) (adjusting for age, sex, BMI and dieting) High depressive symptoms: 2.19 (1.40-3.45) (adjusting for age, sex, having 1+ parents who drink, having a sibling who started drinking before age 18 years, having 1+ friends who drink, having a sibling who uses drugs, having friends who use drugs) Frequent binge drinking: 1.14 (0.83-1.57) (age, sex, having 1+ parents who drink, having a sibling who started drinking before age 18 years, having 1+ friends who drink, having a sibling who uses drugs, having friends who use drugs) Marijuana use: 1.85 (1.27-2.67) (age, sex, having 1+ parents who drink, having a sibling who started drinking before age 18 years, having 1+ friends who drink, having a sibling who uses drugs, having friends who use drugs) Other drugs use: 1.59 (1.08-2.33) (age, sex, having 1+ parents who drink, having a sibling who started drinking before age 18 years, having 1+ friends who drink, having a sibling who uses drugs, having friends who use drugs)

Evidence Table 76. Course of illness studies – part 4 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Hilbert, 2013[99] Hilbert, 2014[100]	NA	NA	The MLM to examine the stability of LOC eating in LOC+ and LOC- children yielded no significant association between subsequent reports of LOC eating (Y= .333, t = .853, p = .39, OR = .71). Thus, LOC eating at one specific timepoint was not a reliable predictor of LOC eating at the subsequent timepoint. However, children who reported more LOC eating at t1 were more likely to report LOC eating at one of the subsequent assessment timepoints (β = 1.343, t = 3.245, p = .002, OR = 3.83). The prospective change MLM of LOC eating in the LOC+ group only (because of low occurrence of LOC eating in the LOC - group) showed that within-subject decreases in shape concern and increases in depression were associated with a higher likelihood of LOC eating at the subsequent timepoint.LOC+ children's average shape concern and t1 reports of weight-related teasing were predictive of LOC eating episodes between t2 and t5. Regarding control variables, children who were older, who attended an elementary or comprehensive school, and whose parents had a higher BMI were more likely to report episodes of LOC eating across the t2 to t5 assessments. However, greater child BMI was associated with a lower likelihood of LOC eating at t2 through t5. Regarding the stability of LOC eating, 3.6% of the children diagnosed as LOC eaters at study entry showed persistent LOC eating at all five assessment timepoints, 41.8% showed recurring LOC eating at multiple timepoints, and 54.5% remitted from LOC eating and did not show any LOC eating after baseline LOC eating. In MLM model: partial BED was predicted by LOC eating, BMI but this may be cross sectional

Evidence Table 76. Course of illness studies – part 4 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Linna, 2013[101]	NA	NA	NA
Maxwell, 2014[102]	Days binged in the past 28 days	15.25 (5.72)	12 months: 4.78 (5.54) Neither attachment avoidance or attachment anxiety sig related to change in days binged (not controlling for other characteristics)
Preti, 2011[103]	NA	NA	NA
Ricca, 2010[34]	Binge episodes per month, per EDE and DSM-IV-TR (not specified how DSM-IV-TR was used)	Binge episodes per month, median (quartiles) G1: 8.0 (4.0, 10.0) G2: 8.0 (4.0, 10.0) p=NR, NS	3y Binge episodes/month, median (quartiles), p for within-group change posttreatment to 3y G1: 4.0 (0, 6), p=NR, NS G2: 4.0 (0, 8), p<0.05
Suokas, 2014[104]			
White, 2010[105]	LOC eating episodes	NA	NA

Evidence Table 76. Course of illness studies – part 4 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Wilfley et al., 2000[106] Wilfley et al., 2002[45], 2000[106]	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: Binge-eating days: number of days during previous 28 days on which at least 1 objective bulimic episode occurred (consumption of an unusually large amount of food given the circumstances, accompanied by a loss of control over eating) Percentage of participants in recovery (with no objective bulimic episodes in the past month) Percentage of participants being at or below a comparative level of eating disorder attutides and behaviors	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: Binge Days G1: 17.3 (SD 6.9, range 4-28) G2: 16.3 (SD 7.2, range 5-28) Global eating disorder pathology at or below obese non-BED: G1: 23 (28%) G2: 22 (27%)	Wilfley et al., 2000[106]: Post hoc analyses indicated that although those with Axis II psychopathology began treatment with significantly more binge episodes, they had similar outcome as those without Axis II psychopathology at posttreatment, F(1, 123) = 3.04, ns, rf = .024, and 1-year follow-up, F(2,246) =1.40, ns, rj = .012. These results did not differ by gender. Specific analyses with clusters of Axis II psychopathology indicated that neither Cluster A nor Cluster C psychopathology was related to treatment outcome, and Cluster B was unrelated to outcome for global eating disorder psychopathology. However, the interaction between presence of Cluster B psychopathology and time (pretreatment, posttreatment, or 1-year follow-up) was significant for the outcome of binge eating, F(2, 246) = 6.28, p = .002, rf = .049. Post hoc analyses indicated that participants with Cluster B psychopathology began treatment with significantly more binge episodes per month,5 F(l,123) = 8.62, p - .004, jf = .065. Those with and without Cluster B personality disorders did not statistically differ in OBEs at posttreatment, F(l, 123) = 0.02, ns, rf < .001. However, by 1-year follow-up, those with Cluster B psychopathology were experiencing significantly more binge episodes than those without Clusters psychopathology,F(l, 123) = 5.36,p = .022, -n2 = .042 Wilfley, et al., 2002[45]: Binge-eating days 12-month G1: 1.7 (SD 4.3, range 0-25) G2: 1.2 (2.6, range 0-11) % decrease from pre-treatment to 12-month: 90% in G1, 93% in G2 Recovery 12-month (completers) (abstinent from binge eating) G1: 48 (72%) G2: 50 (70%)

Evidence Table 76. Course of illness studies – part 4 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Wilson, 2010[47]	Number of binge days in the past 28 days, assessed by EDE Remission Abstinence: No longer meeting DSM-IV criteria for BED	Number of binge days G1: 16.3 (SD 5.9) G2: 16.6 (SD 7.3) G3: 16.1 (SD 6.6) Posttreatment Remission Rate (%) Low negative affect G1: 64 G2: 62 G3: 67 High negative affect G1: 43 G2: 52 G3: 61 Odds Ratio low v high negative affect G1:2.4 G2: 1.5 G3: 1.	1y Number of binge days G1: 6.5 (SD 8.7) G2: 4.3 (SD 7.8) G3: 4.8 (SD 7.6) Mean change: NR p=NS, NR 2y Number of binge days G1: 5.8 (SD 8.5) G2: 3.7 (SD 7.3) G3: 4.3 (SD 7.8) Mean change: NR p=NR, no results are reported for the analysis of 2y number of binge days Remission Rate (%) 1 year follow-up Low negative affect G1: 50 G2: 59 G3: 55 High negative affect G1: 32 G2: 62 G3: 55 2 year follow-up Low negative affect G1: 47 G2: 62 G3: 64 High negative affect G1: 39 G2: 62 G3: 70 No significant moderator effect of negative affect subtype on remission from binge eating was found

Evidence Table 76. Course of illness studies – part 4 (continued)

First Author's Last Name Year	Definition of Binges (Days; Frequency; Remission; Abstinence, etc.)	Binges Baseline	Binges Outcomes
Wilson, 2010[47] (continued)			Odds ratio low v high negative affect 1y follow-up G1: 2.1 G2: 0.9 G3: 1.0 2y follow-up G1: 1.4 G2: 1.0 G3: 0.8 An OR greater than 1 indicates better results in the low negative affect category. An OR less than 1 indicates better results in the high negative affect category. 1y No longer meeting DSM-IV criteria for BED G1: NR G2: NR G3: NR Mean change: NR p=NR 2y No longer meeting DSM-IV criteria for BED G1: NR G2: NR G3: NR Mean change: NR p=NR

Evidence Table E77. Course of illness studies – part 5

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Agras, 1997[87]	NA	NA	NA
Busetto, 2005[88]	NA	NA	NA
Castellini, 2013[89]	NA	NA	NA
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92]	NA	NA	NA
Fichter, 1993[93] Fichter, 1998[94] Fichter, 2003[95] Fichter, 2008[96]	Eating Disorder Inventory (EDI): total Anorexia Nervosa Inventory of Self Rating (ANIS) Structured Interview for anorexic and bulimic syndromes (SIAB)	EDI Total: 1.34 ANIS Total: 2.56 SIAB-S: 1.83	EDI total: B v FU3: p < 0.001 EDI total: B v FU6: p < 0.001 ANIS total: B v FU3: p < 0.001 ANIS total: B v FU6: p < 0.001 SIAB total: B v FU3: p < 0.001 SIAB total: B v FU6: p < 0.001
Field, 2012[97] Sonneville, 2013[98]	NA	NA	NA
Hilbert, 2013[99] Hilbert, 2014[100]	NA	NA	MLM used to predict global eating disorder (psychopathology (ChEDE-Q): sig variables were depression, female, weight, concurrent LOC,
Linna, 2013[101]	NA	NA	NA
Maxwell, 2014[102]	NA	NA	NA
Preti, 2011[103]	NA	NA	NA
Ricca, 2010[34]	Binge Eating Scale (BES) Emotional Eating Scale (EES) EDE-Q -total score -restraint -eating concern -weight concern -shape concern Onset of frequent compensatory behaviors (posttreatment only)	Binge Eating Scale (BES), median (quartiles) G1: 19.0 (13.0, 30.0) G2: 21.5 (17.0, 30.0) Emotional Eating Scale (EES), median (quartiles) G1: 1.9 (1.2, 2.7) G2:1.9 (1.4, 2.7) EDE-Q-total score, median (quartiles) G1: 3.2 (2.6, 3.7) G2:3.0 (2.4, 3.6) ED	3y Binge Eating Scale (BES), median (quartiles), p for within-group change posttreatment to 3y G1: 17.5 (12.0, 31.0), p=NR, NS G2: 17.0 (11.0, 25.0), p=NR, NS 3y Emotional Eating Scale (EES), median (quartiles), p for within-group change posttreatment

Evidence Table E77. Course of illness studies – part 5 (continued)

First Author's Last Name Year	Definition of Eating Related Psychopathology (EDE; TFEQ; BES; EDI etc.)	Eating Related Psychopathology Baseline	Eating Related Psychopathology Outcomes
Suokas, 2014[104]			
White, 2010[105]	NA	NA	NA
Wilfley et al., 2000[106] Wilfley et al., 2002[45], 2000[106]	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: EDE subscales: Dietary restraint Shape concern Weight concern Eating concern Global eating disorder psychopathology at or below a sample of patients who were obese and not bingeing	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: EDE dietary restraint G1: 1.8 (SD 1.2) G2: 2.1 (SD 1.3) EDE shape concern G1: 3.8 (SD 1.0) G2: 3.8 (SD 0.9) EDE weight concern G1: 3.3 (SD 1.1) G2: 3.2 (SD 1.1) EDE eating concern G1: 2.4 (	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: EDE Dietary restraint 12-month G1: 1.0 (SD 1.1) G2: 1.3 (SD 1.3) G1 and G2 stable through 12-month follow-up EDE Shape concern 12-month G1: 2.2 (SD 1.3) G2: 2.2 (SD 1.3) No significant GEE ma
Wilson, 2010[47]	EDE -global -dietary restraint -eating concern -shape concern -weight concern	Global EDE score G1: 2.8 (SD 0.8) G2: 2.7 (SD 0.8) G3: 2.8 (SD 0.7) EDE-dietary restraint G1: NR G2: NR G3: NR EDE-eating concern G1: NR G2: NR G3: NR EDE-shape concern G1: NR G2: NR G3: NR EDE-weight concern G1: NR G2: NR G3: NR	1y Global EDE score G1: 2.2 (SD 1.0) G2: 1.7 (SD 0.9) G3: 1.9 (SD 1.0) Mean change: NR p=NR, no results are reported for the analysis of 1y EDE global 2y Global EDE score G1: 2.0 (SD 1.2) G2: 1.7 (SD 1.0) G3: 1.7 (SD 1.1) Mean change: NR p=NR, no results

Evidence Table E78. Course of illness studies – part 6

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Agras, 1997[87]	NA	NA	NA
Busetto, 2005[88]	NA	NA	NA
Castellini, 2013[89]	NA	NA	NA
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92]	NA	NA	NA
Fichter, 1993[93] Fichter, 1998[94] Fichter, 2003[95] Fichter, 2008[96]	BDI	BDI baseline: 23.2	BDI: baseline vs FU3: NR BDI: baseline vs FU6: p <0.001
Field, 2012[97] Sonneville, 2013[98]	NA	NA	NA
Hilbert, 2013[99] Hilbert, 2014[100]	NA	NA	MLM prediction of depression (CDI) predicted by shape concern, male,
Linna, 2013[101]	NA	NA	NA
Maxwell, 2014[102]	NA	NA	NA
Preti, 2011[103]	NA	NA	NA
Ricca, 2010[34]	BDI State-trait anxiety inventory (STAI) SCL-90 GSI	BDI, median (quartiles) G1: 17.0 (11.0, 25.0) G2:17.0 (12.0, 24.0) State-trait anxiety inventory (STAI), median (quartiles) G1: 50.0 (40.0, 58.5) G2: 48.0 (40.0, 59.0) SCL-90 GSI, median (quartiles) G1: 1.2 (0.8, 1.7) G2: 1.18 (0.76, 1.62)	3y BDI, median (quartiles), p for within-group change posttreatment to 3y G1: 17.0 (11.7, 1.5), p=NR, NS G2: 14.0 (7.0, 22.0), p<0.05 3y State-trait anxiety inventory (STAI), median (quartiles), p for within-group change posttreatment to 3y G1: 40.5 (

Evidence Table E78. Course of illness studies – part 6 (continued)

First Author's Last Name Year	Definition of Psychopathology (BDI; STAI; BAI; RSE; BSQ)	Psychopathology Baseline	Psychopathology Outcomes
Suokas, 2014[104]			
White, 2010[105]	NA	NA	NA
Wilfley et al., 2000[106] Wilfley et al., 2002[45], 2000[106]	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: Global Symptom Index (GSI) Rosenberg Self-Esteem Scale (RSE) Symptom Checklist 90-Revised Depression subscale (SCL Depression)	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: GSI G1: 43.3 (SD 7.8) G2: 42.0 (SD 8.9) RSE G1: 26.8 (SD 5.6) G2: 27.3 (SD 5.9) SCL Depression G1: 44.3 (SD 8.3) G2: 42.4 (SD 9.6)	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: GSI 12-month G1: 32.0 (SD 8.9) G2: 30.7 (SD 10.6) No significant GEE main effects of time RSE 12-month G1: 30.4 (SD 5.7) G2: 31.4 (SD 5.6) No significant GEE main effects of time SCL Depres
Wilson, 2010[107]	Beck Depression Inventory (BDI) Rosenberg Self-Esteem (RSE)	BDI >18, % G1: 44% G2: 44% G3: 44% RSE G1: 23.4 (SD 6.2) G2: 22.8 (SD 5.3) G3: 23.7 (SD 5.4)	1y BDI G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 1y BDI 2y BDI G1: NR G2: NR G3: NR Mean change: NR p=NR, no results are reported for the analysis of 2y BDI 1y RSE G1: NR G2: NR G3: NR Mean change: NR p=NR, n

Evidence Table E79. Course of illness studies – part 7

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes
Agras, 1997[87]	BMI	NA	The group that stopped binge eating after CBT lost on average 0.8 kg during CBT, 4.5 kg by the end of weight loss treatment and 4.0 kg by the end of the follow-up period. Those who continued to binge after CBT gained 2.2 kg during CBT and then lost most of this weight (2.05 kg) by the end of weight loss treatment. By the end of follow-up, however, they had gained 3.6 kg over their baseline weight, resulting in a difference of 7.6 kg between the two groups at that time. A repeated measures ANOVfi showed that the two groups differed across time, F(4, 292) = 4.98, p = .001, for change in weight. Post hoc tests indicated that the differences between groups were significant at 36 weeks, F(l, 73) = 7.61,p - .007; 50 weeks, F(l, 73) = 15.3, p = .0002; 70 weeks, F(l, 73) = 19.9, p = .0000; and 88 weeks, F(l, 73) = 24.71, p = .0000.
Busetto, 2005[88]	NA	NA	5 year FU: % of patients with excess weight loss (EWL) >50%: Cases: 23.1%; Comparisons: 25.7% (P = NR) % patients with %EWL < 20%: Cases: 23.8% Comparisons: 24.1% Diff between groups (P = NR) % of patients with wt regain (at least 20% of baseline excess wt): Cases: 20.8% Comparisons: 22.5% (P = NR)

Evidence Table E79. Course of illness studies – part 7 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes
Castellini, 2013[89]	Mean BMI	38.0 (7.3)	3-year fu: 37.1 (7.4) (P < 0.05)
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92]	NA	NA	NA
Fichter, 1993[93] Fichter, 1998[94] Fichter, 2003[95] Fichter, 2008[96]	BMI	33.7 (9.0)	3 year fu: 31.9 (9.9) 6 year fu: 32.7 (10.1) 12 year fu: 32.0 (9.2)
Field, 2012[97] Sonneville, 2013[98]	NA	NA	NA
Hilbert, 2013[99] Hilbert, 2014[100]	NA	NA	BMI growth neither accelerated nor decelerated over time (β= .000, t = .151, p = .439). BMI growth in LOC + children (β= .090; 1.08 kg/m2 per year) did not differ signifi-cantly from that in LOC- children (β= .077; 0.92 kg/m2 per year; Ϋ= .013, t = .867, p = .193). Shape concern, depression, emotional eating, and weight-related teasing were not significant predictors of BMI trajectory (t < 1.131, p > .130).N13
Linna, 2013[101]	NA	NA	NA
Maxwell, 2014[102]	NA	NA	NA
Preti, 2011[103]	NA	NA	NA

Evidence Table 79. Course of illness studies – part 7 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes
Ricca, 2010[34]	BMI Weight loss >5% of initial BMI Weight loss >10% of initial BMI	BMI, median (quartiles) G1: 38.0 (32.7, 43.2) G2: 38.2 (33.3, 42.1)	3y BMI, median (quartiles), p for within-group change posttreatment to 3y G1: 36.0 (31.0, 42.7) G2: 37.0 (31.9, 41.8) 3y Weight loss >5% of initial BMI G1: 27 (37.5%) G2: 23 (31.9%) p=NR, NS 3y Weight loss >10% of initial BMI G1: 13 (18.1%) G2: 12 (16.7%) p=NR, NS
Suokas, 2014[104]			
White, 2010[105]	NA	NA	NA
Wilfley et al., 2000[106] Wilfley et al., 2002[45], 2000[106]	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: BMI	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: G1: 37.4 (5.3) G2: 37.4 (5.1)	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: 12-month G1: 37.2 (SD 5.1) G2: 36.3 (SD 5.4) The GEE linear main effect of time (p=0.008) indicates a decrease during the follow-up period.
Wilson, 2010[47]	BMI Weight (kg) 5% reduction in body weight Mean change in body weight	BMI G1: 36.8 (SD 5.5) G2: 36.2 (SD 4.3) G3: 36.3 (SD 5.1) Weight G1: 103.5 (SD 22.6) G2: 100.3 (SD 14.0) G3: 100.4 (SD 18.6) 5% Reduction in weight (%) G1: 0% G2: 0% G3: 0%	1y BMI G1: 36.0 (SD 6.2) G2: 35.7 (SD 4.9) G3: 35.9 (SD 5.4) Mean change: NR; G1 showed significantly more BMI gain than G2, F=3.1 G1 vs. G2: d=0.52 G1 vs. G3: d=0.29 G1 vs. G3: d=0.20 p<0.05

Evidence Table 79. Course of illness studies – part 7 (continued)

First Author's Last Name Year	Definition of Weight Related Measure(s)	Weight Related Baseline	Weight Related Outcomes
Wilson, 2010[47] (continued)			2y BMI G1: 36.3 (SD 6.2) G2: 35.7 (SD 5.0) G3: 36.1 (SD 5.5) Mean change: p=NR, no results reported for the analysis of 2y BMI 1y Weight G1: 101.7 (SD 25.2) G2: 98.8 (SD 15.1) G3: 99.3 (SD 19.0) Mean change: NR p=NR, no results reported for the analysis of 1y weight 2y Weight G1: 102.1 (SD 24.6) G2: 99.3 (SD 15.6) G3: 99.5 (SD 18.7) Mean change: p=NR, NS, "G1 was no longer significantly different from the other treatments in terms of weight loss." 1y 5% reduction in weight G1: 27% G2: 26% G3: 21% Mean change:NR p=NR, , no results reported for the analysis of 1y reduction in weight 2y 5% reduction in weight G1: 27% G2: 23% G3: 21% Mean change: NR p=NR, NS, "G1 was no longer significantly different from the other treatments in terms of weight loss."

Evidence Table E80. Course of illness studies – part 8

First Author's Last Name Year	Definition of Other	Other Baseline	Other Outcomes
Agras, 1997[87]	NA	NA	NA
Busetto, 2005[88]	NA	NA	Stoma Stenosis: G1: 34/130 (26.2%), G2: 65/249 (26.1%) (P = NS) Pouch Dilatation G1: 33/130 (25.4%), G2: 44/249 (17.7%) (P = 0.05) Esophageal Dilatation G1: 13/130 (10.0%), G2: 12/249 (4.8%) (P = 0.05) Stomach Slippage: G1: 11/130 (8.5%), G2: 13/249 (5.2%) (P = NS) Erosion G1: 1/130 (0.8%), G2: 3/249 (1.2%) (P = NS) Port-related complications: Port Leakage G1: 40/130 (30.8%), G2: 68/249 (27.3%) (P = NS) Port twisting G1: 1/130 (0.08%), G2: 1/249 (0.4%) (P = NS) Port Infection G1: 2/130 (1.5%), G2: 1/249 (0.4%) (P = NS) Revisional surgery requested related to pouch dilatation: G1: 33.3%, G2: 4.1% (P = NS) Revisional surgery requested in cases of esophageal dilatation: G1: 23.1%, G2: 8.3% (P = NS)

Evidence Table E80. Course of illness studies – part 8 (continued)

First Author's Last Name Year	Definition of Other	Other Baseline	Other Outcomes
Busetto, 2005[88] (continued)			Revisional Surgery: G1: 15 (11.5%), G2: 22 (8.8%) (P= NS) Band removed: G1: 7 (5.4%), G2: 9 (3.6%) (P = NS) Band repositioned: G1: 7 (5.4%), G2: 11 (4.4%) (P = NS) Revised to a secondary operation. G1: 2 (0.8%), G2: 11 (4.4%) (P = NS) Minor portrelated surgery: G1: 28 (21.5%), G2: 54 (21.7%) (P = NS) Postoperative band adjustments: G1: 3.0 (2.1), G2: 2.6 (1.9) (P = 0.05) Max band fill-volume after surgery: G1: 3.2 (1.2), G2: 2.8 (1.3) (P < 0.01)
Castellini, 2013[89]	NA	NA	NA
Eisenberg, 2010[90] Neumark-Sztainer, 2011[91] Goldschmidt, 2014[92]	NA	NA	NA
Fichter, 1993[93] Fichter, 1998[94] Fichter, 2003[95] Fichter, 2008[96]	NA	NA	NA
Field, 2012[97] Sonneville, 2013[98]	NA	NA	NA
Hilbert, 2013[99] Hilbert, 2014[100]	NA	NA	NA

Evidence Table 80. Course of illness studies – part 8 (continued)

First Author's Last Name Year	Definition of Other	Other Baseline	Other Outcomes
Linna, 2013[101]	NA	NA	NA
Maxwell, 2014[102]	NA	NA	NA
Preti, 2011[103]	NA	NA	NA
Ricca, 2010[34]	NA	NA	NA
Suokas, 2014[104]	Suicide attempts	Number who had attempted suicide prior to f/u: BED: N=1 (0.6%) Controls: N=81 (0.8%)	RR = 2.66 (95% CI: 0.82-8.63)
White, 2010[105]	NA	NA	NA
Wilfley et al., 2000[106] Wilfley et al., 2002[45], 2000[106]	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: Inventory of Interpersonal Problems (IIP) Social Adjustment Scale (SAS)	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: IIP G1: 1.2 (SD 0.6) G2: 1.2 (SD 0.6) SAS G1: 2.1 (SD 0.5) G2: 2.1 (SD 0.6)	Wilfley et al., 2000[106]: NA Wilfley, et al., 2002[45]: IIP 12-month G1: 0.8 (SD 0.6) G2: 0.9 (SD 0.6) GEE linear main effect of time (p<0.001) indicates further improvement during the follow-up period SAS 12-month G1: 1.8 (SD 0.4) G2: 1.8 (SD 0.5) No significant GEE main effects of time
Wilson, 2010[47]	NA	NA	NA

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Appendix F. Strength of Evidence Tables

Section 1: Binge-Eating Disorder Pharmacological Treatment

Key Question 1: Benefits Outcomes

Anticonvulsant Interventions Versus Placebo

Table F1. Detailed strength of evidence grading table, binge-eating frequency, abstinence, eating-related and general psychopathology outcomes, and weight-related outcomes

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Anticonvulsants (3 trials: 1 lamotrigine, 2 topiramate), binge eating, 14-16 weeks	3; 516	Medium	Inconsistent	Direct	Imprecise	Undetected	Low RR (95% CI): 1.42 (0.70, 2.86) (p=0.335)
Anticonvulsants (3 trials: 1 lamotrigine, 2 topiramate), eating-related psychopathology, 14-16 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient
Anticonvulsants (3 trials: 1 lamotrigine, 2 topiramate), weight-related, 14-16 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient
Anticonvulsants (3 trials: 1 lamotrigine, 2 topiramate), general psychopathology, 14-16 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient
Anticonvulsants (3 trials: 1 lamotrigine, 2 topiramate), other, 14-16 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient

Table F1. Detailed strength of evidence grading table, binge-eating frequency, abstinence, eating-related and general psychopathology outcomes, and weight-related outcomes (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Lamotrigine, binge eating, 8 weeks	1; 51	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff frequency or abstinence
Lamotrigine, eating-related psychopathology, 8 weeks	1; 51	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff EDE, EOC, YBOCS, TFEQ
Lamotrigine, weight-related, 8 weeks	1; 51	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff weight or BMI
Lamotrigine, general psychopathology, 8 weeks	1; 51	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff symptoms of depression, CGI severity
Lamotrigine, other, 8 weeks	1; 51	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, lamotrigine greater reduction in insulin, glucose, and triglycerides; no diff impulsivity, disability
Topiramate, binge eating, 14-16 weeks	2; 465	Low	Consistent	Direct	Imprecise	Undetected	Moderate, topiramate better in reducing binge days/wk, binge episodes/wk, and in achieving abstinence (ps<0.2)
Topiramate, eating-related psychopathology, 14-16 weeks	2; 468	Low	Consistent	Direct	Imprecise	Undetected	Moderate, topiramate better in reducing obsessions and compulsions, cognitive restraint, hunger, disinhibition (ps<0.05)
Topiramate, weight-related, 14-16 weeks	2; 468	Low	Consistent	Direct	Imprecise	Undetected	Moderate, topiramate better in reducing weight and BMI (ps<0.01)

Table F-1. Detailed strength of evidence grading table, binge-eating frequency, abstinence, eating-related and general psychopathology outcomes, and weight-related outcomes (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Topiramate, general psychopathology, 14-16 weeks	2; 468	Low	Consistent	Direct	Imprecise	Undetected	Moderate, topiramate better reduction in CGI severity (ps< 0.01), no diff symptoms of depression
Topiramate, other, 16 weeks	1; 407	Low	Consistent	Direct	Imprecise	Undetected	Low, topiramate better reduction in social and family life disability (ps<0.001), motor and nonplanning impulsiveness (ps<0.01)

BMI= body mass index; CGI= Clinical Global Impressions scale; CI= confidence interval; EDE= Eating Disorder Examination; EOC= Eating Obsessive-Compulsive Questionnaire; NA= not applicable; TFEQ= Three Factor Eating Questionnaire; wk= week; YBOCS= Yale-Brown Obsessive Compulsive Scale

Antidepressant Interventions Versus Placebo

Table F2. Detailed strength of evidence grading table, binge-eating frequency, abstinence, eating-related and general psychopathology outcomes, and weight-related outcomes

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Bupropion, binge eating, 8 weeks	1; 61	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Bupropion, eating-related psychopathology, 8 weeks	1; 61	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff EDE-Q, food cravings
Bupropion, weight-related, 8 weeks	1; 61	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, bupropion better for reducing BMI (p<0.001)
Bupropion, general psychopathology, 8 weeks	1; 61	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff symptoms of depression
Bupropion, other, 8 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient
Citalopram, binge eating, 6 weeks	1; 38	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, citalopram better binge days (p<0.02)
Citalopram, eating-related psychopathology, 6 weeks	1; 38	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, citalopram better obsessions (p<0.01), compulsions (p<0.05)
Citalopram, weight-related, 6 weeks	1; 38	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, citalopram better weight (p<0.00), BMI (p<0.00)
Citalopram, general psychopathology, 6 weeks	1; 38	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, citalopram no diff HAM-D, CGI-S
Citalopram, other, 6 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient

Table F2. Detailed strength of evidence grading table, binge-eating frequency, abstinence, eating-related and general psychopathology outcomes, and weight-related outcomes (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Duloxetine, binge eating, 12 weeks	1; 40	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, duloxetine better for reducing binge episodes (p<0.02) and days (p<0.04); no diff abstinence
Duloxetine, eating-related psychopathology, 12 weeks	1; 40	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff obsessions, compulsions, hunger, disinhibition, cognitive restraint
Duloxetine, weight-related, 12 weeks	1; 40	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, duloxetine better for reducing weight (p=0.04); no diff BMI
Duloxetine, general psychopathology, 12 weeks	1; 40	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, duloxetine better for reducing CGI severity (p=0.02); no diff symptoms of depression or anxiety
Duloxetine, other, 12 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient
Escitalopram, binge eating, 12 weeks	1; 44	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, escitalopram better for reducing binge episodes (p<0.04) and binge days (p<0.05
Escitalopram, eating-related psychopathology, 12 weeks	1; 44	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, escitalopram no diff obsessions, compulsions

Table F-2. Detailed strength of evidence grading table, binge-eating frequency, abstinence, eating-related and general psychopathology outcomes, and weight-related outcomes (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Escitalopram, weight-related, 12 weeks	1; 44	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, escitalopram better for reducing weight (p<0.04), BMI (p<0.05)
Escitalopram, general psychopathology, 12 weeks	1; 44	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, escitalopram better for reducing CGI severity (p<0.03)
Escitalopram, other, 12 weeks	1; 44	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, escitalopram no diff depression symptoms, insulin, glucose, leptin, ghrelin, cholesterol
Fluoxetine, 80 mg/day, binge eating, 6 weeks	1; 60	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, fluoxetine better for reducing binge episodes (p<0.04)
Fluoxetine, 80 mg/day, eating-related psychopathology, 6 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient
Fluoxetine, 80 mg/day, weight-related, 6 weeks	1; 60	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, fluoxetine better for reducing weight and BMI (ps<0.0001)
Fluoxetine, 80 mg/day, general psychopathology, 6 weeks	1; 60	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, fluoxetine better for reducing CGI severity (p<0.02), depression symptoms (p=0.003)

Table F-2. Detailed strength of evidence grading table, binge-eating frequency, abstinence, eating-related and general psychopathology outcomes, and weight-related outcomes (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Fluoxetine, 80 mg/day, other, 6 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient
Fluoxetine, 60 mg/day, binge eating, 16 weeks	1, 54	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff binge episodes, abstinence
Fluoxetine, 60 mg/day, eating-related psychopathology, 16 weeks	1; 54	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff EDE-Q, TFEQ, BSQ
Fluoxetine, 60 mg/day, weight-related, 16 weeks	1; 54	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff BMI
Fluoxetine, 60 mg/day, general psychopathology, 16 weeks	1; 54	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff depression symptoms
Fluvoxamine, binge eating, 9 weeks	1; 85	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, fluvoxamine better (p=0.006)
Fluvoxamine, eating-related psychopathology, 9 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient
Fluvoxamine, weight-related, 9 weeks	1; 85	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, fluvoxamine faster reduction in weight (p=0.04)
Fluvoxamine, general psychopathology, 9weeks	1; 85	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, fluvoxamine faster rate of reduction in CGI severity (p=0.002); no diff depression symptoms

Table F-2. Detailed strength of evidence grading table, binge-eating frequency, abstinence, eating-related and general psychopathology outcomes, and weight-related outcomes (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Fluvoxamine, other, 9 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient
Sertraline, binge eating, 6 weeks	1; 34	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient single small study, sertraline better for reducing binge episodes (p<0.008)
Sertraline, eating-related psychopathology, 6 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient
Sertraline, weight-related, 6 weeks	1; 34	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient single small study, sertraline better for reducing BMI (p<0.001)
Sertraline, general psychopathology, 6 weeks	1; 34	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient single small study, sertraline better for reducing CGI severity (p<0.001); no diff depression symptoms
Sertraline, other, 6 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient
Imipramine, binge eating, 8 weeks	1; 31	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, imipramine better for reducing binge episodes at post-tx (p<0.02) and after 16 week f/up (p<0.01)
Imipramine, eating-related psychopathology, 8 weeks	0; 0	NA	NA	NA	NA	NA	Insufficient

Table F-2. Detailed strength of evidence grading table, binge-eating frequency, abstinence, eating-related and general psychopathology outcomes, and weight-related outcomes (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Imipramine, weight-related, 8 weeks, 16 wk post-tx f/up	1; 31	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, imipramine better for reducing weight at post-tx ($p<0.05$) and after 16 week f/up($p=0.003$)
Imipramine, general psychopathology, 8 weeks	1; 31	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, imipramine better for reducing symptoms of depression at post-tx($p=0.02$) and after 16 week f/up ($p=0.01$)
Imipramine, other, 8 weeks	1; 31	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, imipramine better

BMI= body mass index; BSQ= Body Shape Questionnaire; Diff= difference, CGI= Clinical Global Impressions scale; CGI-S= Clinical Global Impressions Severity of illness scale; EDE-Q= Eating Disorder Examination Questionnaire; f/up= followup; HAM-D= = Hamilton Depression Rating Scale; mg= milligram; NA= not applicable; TFEQ= Three Factor Eating Questionnaire; tx= treatment; wk=week

Meta-Analyses of Antidepressants Compared With Placebo

Table F3. Detailed strength of evidence grading table, binge-eating frequency, abstinence, eating-related and general psychopathology outcomes, and weight-related outcomes

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Antidepressants, abstinence, 6-16 wks	8; 416	5 low 3 medium	Consistent	Direct	Precise	Undetected	High OR (95% CI): 2.15 (1.40 to 3.31 ($p < 0.001$)
Antidepressants, binge episodes per wk, 6-16 wks	7; 331	5 low 2 medium	Consistent	Direct	Precise	Undetected	Moderate SMD (95% CI): −0.37 (−0.58, −0.15) ($p < 0.001$)
Antidepressants, binge days per wk, 6-12 wks	3; 122	3 low	Consistent	Direct	Imprecise	Undetected	Low SMD (95% CI): −0.57 (−0.93, −0.21) ($p < 0.001$)
Antidepressants, eating-related psychopathology, 6-16 wks	0; 0	NA	NA	NA	NA	NA	Insufficient
Antidepressants, BMI, 6-16 wks	6; 297	5 low 1 medium	Consistent	Direct	Imprecise	Undetected	Low SMD (95% CI): −0.15 (−0.38, 0.08) ($p = 0.194$)
Antidepressants, weight, 6-12 wks	4; 182	3 low 1 medium	Consistent	Direct	Imprecise	Undetected	Low SMD (95% CI): −0.41 (−0.74, −0.07) ($p < 0.001$)
Antidepressants, depression symptoms, 6-12 wks	3; 142	2 low 1 medium	Consistent	Direct	Imprecise	Undetected	Low SMD (95% CI): −0.58 (−0.92, −0.24) ($p < 0.001$)
Antidepressants, other outcomes, 6-16 wks	0; 0	NA	NA	NA	NA	NA	Insufficient

BMI= body mass index; CI= confidence interval; NA= not applicable; OR= odds ratio; SMD= standardized mean difference; wk= week

Table F4. Detailed strength of evidence grading table, binge eating outcomes

Intervention, Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Atomoxetine, All binge-eating outcomes	1, 40	Medium	Unknown	Direct	Imprecise	Undetected	Insufficient, single small trial
Lisdexamfetamine, Reduction in binge days per week	3; 966	Medium	Consistent	Direct	Precise	Undetected	High, Superior outcomes in each of 3 trials with lisdexamfetamine, (50 mg/day and 70 mg/day dosages)
Lisdexamfetamine Abstinence	3, 966	Medium	Consistent	Direct	Precise	Undetected	High, Larger percentage of patients abstinent for 4 weeks at end of treatment with lisdexamfetamine, (50 mg/day and 70 mg/day dosages) (RR, 2.61; 95% CI, 2.04 to 3.33; p=0.000; $I^{2=}$0%)

mg= milligram

Table F5. Detailed strength of evidence grading table, eating related psychopathology outcomes

Intervention, Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Direct-ness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Atomoxetine, YBOCS-BE total	1, 40	Medium	Unknown	Direct	Imprecise	Undetected	Insufficient, single small trial
Lisdexamfetamine, YBOCS-BE total	3; 966	Medium	Consistent	Direct	Precise	Undetected	High, Superior change over time in each of 3 trials with lisdexamfetamine, (50 mg/day and 70 mg/day dosages)

YBOCS-BE=Yale-Brown Obsessive Compulsive Scale Modified for Binge Eating

Table F6. Detailed strength of evidence grading table, eating related weight outcomes

Intervention, Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Direct-ness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Atomoxetine Weight	1, 40	Medium	Unknown	Direct	Imprecise	Undetected	Insufficient, single small trial
Lisdexamfetamine Weight	3; 966	Medium	Consistent	Direct	Precise	Undetected	High, Superior reduction in each of 3 trials with lisdexamfetamine, (50 mg/day and 70 mg/day dosages)

Table F7. Detailed strength of evidence grading table, psychological and other outcomes

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Direct-ness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Depression	2; 299	Medium	Consistent	Direct	Imprecise	Undetected	Insufficient, depression outcomes were not superior to placebo through either medication. Depression was measured through the MADRS in the Phase 2 lisdexamfetamine trial and through the HAM-D in the atomoxetine trial. It was not measured in the Phase 3 lisdexamfetamine trials

MADRS= Montgomery-Asberg Depression Rating Scale; HAM-D= Hamilton Depression Rating Scale

Key Question 2: Harms

Harms Outcomes

Placebo-Controlled Medication Alone and Combination Treatments

Table F8. Detailed strength of evidence grading table, GI upset, SNS arousal, sleep disturbance, headache, and other harms

Intervention, Outcome, Time to Outcome	Number of Studies; Number of Subjects; Number of Harms	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Acamprosate, GI upset, 8 weeks	1; 40; 31	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Acamprosate, SNS arousal, 8 weeks	1; 40; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Acamprosate, Sleep disturbance, 8 weeks	1; 40; 5	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Acamprosate, Headache, 8 weeks	1; 40; 5	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Acamprosate, other, 8 weeks	1; 40; 34	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
ALKS-33, GI upset, 8 weeks	1; 62; 23	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
ALKS-33, SNS arousal, 8 weeks	1; 62; 6	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
ALKS-33, Sleep disturbance, 8 weeks	1; 62; 31	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
ALKS-33, Headache, 8 weeks	1; 62; 15	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
ALKS-33, other, 8 weeks	1; 62; 18	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Atomoxetine, GI upset, 8 weeks	1; 40; 23	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Atomoxetine, SNS arousal, 8 weeks	1; 40; 33	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff

Table F8. Detailed strength of evidence grading table, GI upset, SNS arousal, sleep disturbance, headache, and other harms (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Number of Subjects; Number of Harms	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Atomoxetine, Sleep disturbance, 8 weeks	1; 40; 14	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Atomoxetine, Headache, 8 weeks	1; 40; 10	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Atomoxetine, other, 8 weeks	1; 40; 18	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Bupropion, GI upset, 8 weeks	1; 61; 0	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Bupropion, SNS arousal, 8 weeks	1; 61; 0	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Bupropion, Sleep disturbance, 8 weeks	1; 61; 0	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Bupropion, Headache, 8 weeks	1; 61; 0	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Bupropion, other, 8 weeks	1; 61; 0	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Chromium, GI upset, 6 months	1; 21; 38	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Chromium, SNS arousal, 6 months	1; 21; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Chromium, Sleep disturbance, 6 months	1; 21; 41	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Chromium, Headache, 6 months	1; 21; 14	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Chromium, other, 6 months	1; 21; 28	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Citalopram, GI upset, 6 weeks	1; 38; 20	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Citalopram, SNS arousal, 6 weeks	1; 38; 25	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Citalopram, Sleep disturbance, 6 weeks	1; 38;18	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff

Table F-8. Detailed strength of evidence grading table, GI upset, SNS arousal, sleep disturbance, headache, and other harms (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Number of Subjects; Number of Harms	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Citalopram, Headache, 6 weeks	1; 38;13	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Citalopram, other, 6 weeks	1; 38; 4	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Duloxetine, GI upset, 12 weeks	1; 40; 28	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Duloxetine, SNS arousal, 12 weeks	1; 40;24	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Duloxetine, Sleep disturbance, 12 weeks	1; 40;1	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Duloxetine, Headache, 12 weeks	1; 40;NR	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Duloxetine, other, 12 weeks	1; 40; 2	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Escitalopram, GI upset, 12 weeks	1; 44; 19	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Escitalopram, SNS arousal, 12 weeks	1; 44; 19	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Escitalopram, Sleep disturbance, 12 weeks	1; 44; 17	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Escitalopram, Headache, 12 weeks	1; 44; 7	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Escitalopram, other, 12 weeks	1; 44; 18	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Fluoxetine, 80 mg/day, GI upset, 6 weeks	1; 60; 30	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Fluoxetine, 80 mg/day, SNS arousal, 6 weeks	1; 60; 22	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff

Table F-8. Detailed strength of evidence grading table, GI upset, SNS arousal, sleep disturbance, headache, and other harms (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Number of Subjects; Number of Harms	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Fluoxetine, 80 mg/day, Sleep disturbance, 6 weeks	1; 60; 36	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Fluoxetine, 80 mg/day, Headache, 6 weeks	1; 60; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine, 80 mg/day, other, 6 weeks	1; 60; 16	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Fluoxetine, 60 mg/day, GI upset, 16 weeks	1, 54; NR	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine, 60 mg/day, SNS arousal, 16 weeks	1; 54; NR	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine, 60 mg/day, Sleep disturbance, 16 weeks	1; 54; NR	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine, 60 mg/day, Headache, 16 weeks	1; 54; NR	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine, 60 mg/day, other, 16 weeks	1; 43; NR	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine + CBT, GI upset, 16 weeks	1; 54; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine + CBT, SNS arousal, 16 weeks	1; 54; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine + CBT, Sleep disturbance, 16 weeks	1; 54; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine + CBT, Headache, 16 weeks	1; 54; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence

Table F-8. Detailed strength of evidence grading table, GI upset, SNS arousal, sleep disturbance, headache, and other harms (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Number of Subjects; Number of Harms	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Fluoxetine + CBT, other, 16 weeks	1; 54; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine + CBT + BWL, GI upset, 5 months	1; 53; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine + CBT + BWL, SNS arousal, 5 months	1; 53; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine + CBT + BWL, Sleep disturbance, 5 months	1; 53; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine + CBT + BWL, Headache, 5 months	1; 53; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluoxetine + CBT + BWL, other, 5 months	1; 53; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Fluvoxamine, GI upset, 9-12 weeks	2; 105; 19	Medium/High	Unknown, single study	Direct	Imprecise	Undetected	Low, higher in fluvoxamine group
Fluvoxamine, SNS arousal, 9-12 weeks	2; 105; 22	Medium/High	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no diff
Fluvoxamine, Sleep disturbance, 9-12 weeks	2; 105; 57	Medium/High	Unknown, single study	Direct	Imprecise	Undetected	Low, higher in fluvoxamine group
Fluvoxamine, Headache, 9-12 weeks	2; 105; 2	Medium/High	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no diff
Fluvoxamine, other, 9-12 weeks	2; 105; 3	Medium/High	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no diff
Imipramine + Diet + Psychological Support, GI upset, 6 weeks	1; 31; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence

Table F-8. Detailed strength of evidence grading table, GI upset, SNS arousal, sleep disturbance, headache, and other harms (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Number of Subjects; Number of Harms	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Imipramine + Diet + Psychological Support, SNS arousal, 6 weeks	1; 31; 1	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study,
Imipramine + Diet + Psychological Support, Sleep disturbance, 6 weeks	1; 31; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Imipramine + Diet + Psychological Support, Headache, 6 weeks	1; 31; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Imipramine + Diet + Psychological Support, other, 6 weeks	1; 31; 1	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study,
Lisdexamfetamine, GI upset, 12 weeks	3; 938; 119	Medium	Consistent	Direct	Imprecise	Undetected	Moderate, higher in lisdexamfetamine group (17% vs. 7%)
Lisdexamfetamine, SNS arousal, 12 weeks	3; 938; 111	Medium	Consistent	Direct	Imprecise	Undetected	Moderate, higher in lisdexamfetamine group (15% vs. 8%)
Lisdexamfetamine, Insomnia, 12 weeks	3; 938; 78	Medium	Consistent	Direct	Precise	Undetected	High, higher in lisdexamfetamine group (RR, 2.66; 95% CI, 1.63 to 4.31; p=0.00; I^2=0%); 11% vs 5%
Lisdexamfetamine, Headache, 12 weeks	3; 938; 111	Medium	Consistent	Direct	Precise	Undetected	High, higher in lisdexamfetamine group (RR, 1.63; 95% CI, 1.13 to 2.36; p=0.009; I^2=0%); 14% vs 9%
Lisdexamfetamine, decreased appetite, 12 weeks	3; 938; 66	Medium	Consistent	Direct	Imprecise	Undetected	Moderate, higher in lisdexamfetamine group; 10% vs. 3%
Sertraline, GI upset, 6 weeks	1; 34; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence

Table F-8. Detailed strength of evidence grading table, GI upset, SNS arousal, sleep disturbance, headache, and other harms (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Number of Subjects; Number of Harms	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Sertraline, SNS arousal, 6 weeks	1; 34; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Sertraline, Sleep disturbance, 6 weeks	1; 34; 8	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Sertraline, Headache, 6 weeks	1; 34; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Sertraline, other, 6 weeks	1; 34; NR	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no evidence
Topiramate, GI upset, 14-16 weeks	2; 468; 94	Low/Medium	Consistent	Direct	Imprecise	Undetected	Low, no diff
Topiramate, SNS arousal,14-16 weeks	2; 468; 243	Low/Medium	Consistent	Direct	Imprecise	Undetected	Medium, higher in topiramate group
Topiramate, Sleep disturbance, 14-16 weeks	2; 468; 89	Low/Medium	Inconsistent	Direct	Imprecise	Undetected	Insufficient, mixed results
Topiramate, Headache, 14-6 weeks	2; 468; 73	Low/Medium	Inconsistent	Direct	Imprecise	Undetected	Insufficient, mixed results
Topiramate, other, 14-16 weeks	2; 468; 199	Low/Medium	Consistent	Direct	Imprecise	Undetected	Medium, higher in topiramate group
Topiramate + CBT, GI upset, 21 weeks	1; 73; 40	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no diff
Topiramate + CBT, SNS arousal, 21 weeks	1; 73; 33	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no diff
Topiramate + CBT, Sleep disturbance, 21 weeks	1; 73; 34	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no diff
Topiramate + CBT, Headache, 21 weeks	1; 73; 38	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no diff
Topiramate + CBT, other, 21 weeks	1; 73; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, no diff
Zonisamide, GI upset, 6 weeks	1; 40; 59	High	Consistent	Direct	Imprecise	Undetected	Insufficient, single small study, no diff

Table F-8. Detailed strength of evidence grading table, GI upset, SNS arousal, sleep disturbance, headache, and other harms (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Number of Subjects; Number of Harms	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
Zonisamide, SNS arousal, 6 weeks	1; 40; 68	High	Consistent	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Zonisamide, Sleep disturbance, 6 weeks	1; 40; 25	High	Inconsistent	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Zonisamide, Headache, 6 weeks	1; 40; 20	High	Inconsistent	Direct	Imprecise	Undetected	Insufficient, single small study, no diff
Zonisamide, other, 6 weeks	1; 40; 44	High	Consistent	Direct	Imprecise	Undetected	Insufficient, single small study, no diff

CBT = cognitive behavioral therapy; CI = confidence interval; diff = difference; GI = gastrointestinal; NR = not reported; vs. = versus.

Section 2: Binge-Eating Disorder Behavioral Treatment

CBT Versus No or Limited Intervention (Therapist-Led and Self-Help)

Table F9. Detailed strength of evidence grading table, binge eating

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. Waitlist, reduction in binge frequency[a], post-tx	5; 344	Medium	Consistent 4/5 trials	Direct	Precise	Undetected	High CBT better 1 trial=no difference
CBT-TL v. Waitlist, abstinence, post-tx	4; 298	Medium	Consistent 4/4 trials	Direct	Imprecise	Undetected	High CBT better
CBT-PTL v. Waitlist, binge frequency[a], post-tx	2; 162	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low CBT better
CBT-PTL v. Waitlist, abstinence, post-tx	2; 162	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low CBT better
CBTssh v. Waitlist, reduction in binge frequency[a], post-tx	2; 162	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low CBT better
CBTssh v. Waitlist, abstinence, post-tx	2; 162	Medium	Inconsistent 1/2 trials	Direct	Imprecise	Undetected	Insufficient 1 trial: CBT better 1 trial: No difference
CBTgsh v. waitlist control, reduction in binge frequency[a], post-tx	2; 122	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low CBT better
CBTgsh v. waitlist control, abstinence, post-tx	2; 122	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low CBT better
CBTpsh v. waitlist control, reduction in binge frequency[a], post-tx	1; NR (Total N=48)	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study CBT better
CBTpsh v. waitlist control, abstinence, post-tx	1; NR (Total N=48)	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study CBT better

Table F9. Detailed strength of evidence grading table, binge eating (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBTgsh v. AC, reduction in binge frequency[a], post-tx	1; 52	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study CBT better
CBTgsh v. AC, abstinence, post-tx	1; 52	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study CBT better
CBTpsh+UC v. UC, reduction in binge frequency[a], post-tx	1; 48	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study CBT better on EDEQ but not EDE
CBTpsh+UC v. UC, abstinence, post-tx	1; 48	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study NS; 25% v. 8.3%

AC = active control; CBT = cognitive behavioral therapy; CBTgsh = cognitive behavioral therapy, guided self-help; CBTpsh = cognitive behavioral therapy, pure self-help; CBT-PTL = cognitive-behavioral therapy, partially therapist-led; CBTssh = cognitive behavioral therapy, structured self-help; CBT-TL = cognitive behavioral therapy, therapist led; EDE = Eating Disorder Examination Inventory; EDEQ = Eating Disorder Examination Questionnaire; mo = months; NR = not reported; ns = nonsignificant; tx = treatment; UC = usual care; v = versus

[a] Unless otherwise noted, reflects binge episodes and binge days

Table F10. Detailed strength of evidence grading table, eating-related psychopathology

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. Waitlist, improvement on EDE or TFEQ, post-tx	5; 344	Medium	Consistent 4/5 trials	Direct	Precise	Undetected	High CBT better 1 trial=no difference; (means in same direction)
CBT-PTL v. Waitlist, improvement on EDE or TFEQ, post-tx	2; 162	Medium	Inconsistent 1/2 trials	Direct	Imprecise	Undetected	Insufficient 1 trial=no difference (means in same direction) 1 trial=CBT better, 2 subscales
CBTssh v. Waitlist, improvement on EDE or TFEQ, post-tx	2; 162	Medium	Inconsistent 1/2 trials	Direct	Imprecise	Undetected	Insufficient 1 trial=no difference (means are equal) 1 trial=CBT better, 2 subscales
CBTgsh v. waitlist control, reduction in binge frequency, post-tx	2; 122	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low CBT better
CBTpsh v. waitlist control, improvement on EDE, post-tx	1; NR (Total N=72)	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study CBT better
CBTgsh v. AC, improvement on EDEQ or TFEQ, post-tx	1; 52	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study CBT better
CBTpsh+UC v. UC, improvement on EDE, post-tx	1; 48	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference

AC = active control; CBT = cognitive behavioral therapy; CBTgsh = cognitive behavioral therapy, guided self-help; CBTpsh = cognitive behavioral therapy, pure self-help; CBT-PTL = cognitive-behavioral therapy, partially therapist-led; CBTssh = cognitive behavioral therapy, structured self-help; CBT-TL = cognitive behavioral therapy, therapist led; EDE = Eating Disorder Examination Inventory; EDEQ = Eating Disorder Examination Questionnaire; mo = months; NR = not reported; ns = nonsignificant; TFEQ = Three Factor Eating Questionnaire; tx = treatment; UC = usual care; v = versus

Table F11. Detailed strength of evidence grading table, weight

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. Waitlist, reduction in BMI, post-tx	5; 344	Medium	Consistent 5/5 trials	Direct	Precise	Undetected	Moderate No difference
CBT-PTL v. Waitlist, reduction in BMI, post-tx	2; 162	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. Waitlist, reduction in BMI, post-tx	2; 162	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low No difference
CBTgsh v. waitlist control, reduction in binge frequency, post-tx	2; 122	Medium	Inconsistent 1/2 trials	Direct	Imprecise	Undetected	Insufficient 1 trial CBT better 1 trial=no difference
CBTpsh v. waitlist control, reduction in BMI, post-tx	1; NR (Total N=72)	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBTgsh v. AC, reduction in BMI, post-tx	1; 52	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBTpsh+UC v. UC, reduction in BMI, post-tx	1; 48	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference

AC = active control; BMI = body mass index; CBT = cognitive behavioral therapy; CBTgsh = cognitive behavioral therapy, guided self-help; CBTpsh = cognitive behavioral therapy, pure self-help; CBT-PTL = cognitive-behavioral therapy, partially therapist-led; CBTssh = cognitive behavioral therapy, structured self-help; CBT-TL = cognitive behavioral therapy, therapist led; mo = months; NR = not reported; ns = nonsignificant; tx = treatment; UC = usual care; v = versus

Table F12. Detailed strength of evidence grading table, psychological outcomes

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. Waitlist, improvement on CESD, BDI, HDRS, or IDS-SR, post-tx	5; 344	Medium	Consistent 4/5 trials	Direct	Precise	Undetected	Moderate No difference 1 trial: CBT better
CBT-PTL v. Waitlist, improvement on HDRS or IDS-SR, post-tx	2; 162	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. Waitlist, improvement on HDRS or IDS-SR, post-tx	2; 162	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low No difference
CBTgsh v. waitlist control, reduction in binge frequency, post-tx	2; 122	Medium	Inconsistent 1/2 trials	Direct	Imprecise	Undetected	Insufficient 1 trial CBT better 1 trial=no difference
CBTpsh v. waitlist control, improvement on SCL-90 (GSI), post-tx	1; NR (Total N=72)	Medium	Unknown, single study	Indirect	Imprecise	Undetected	Insufficient, single small study CBT better
CBTgsh v. AC, improvement on BDI, post-tx	1; 52	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBTpsh+UC v. UC, improvement on BDI, post-tx	1; 48	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference

AC = active control; BDI = Beck Depression Inventory; CBT = cognitive behavioral therapy; CBTgsh = cognitive behavioral therapy, guided self-help; CBTpsh = cognitive behavioral therapy, pure self-help; CBT-PTL = cognitive-behavioral therapy, partially therapist-led; CBTssh = cognitive behavioral therapy, structured self-help; CBT-TL = cognitive behavioral therapy, therapist led; CESD = Center for Epidemiological Studies Depression scale; GSI = Global Severity Index; HDRS = Hamilton Depression Rating Scale; IDS-SR = Inventory of Depressive Symptoms – Self-Report; mo = months; NR = not reported; ns = nonsignificant; SCL-90 = Symptom Checklist-90; tx = treatment; UC = usual care; v = versus

CBT Versus CBT (Therapist-Led and Self-Help)

Table F13. Detailed strength of evidence grading table, binge eating[a]

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-C v. CBT-E, reduction in binge frequency, post-tx	1; 28	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-C v. CBT-E, abstinence, post-tx	1; 28	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-C v. CBT-E, reduction in binge frequency, short-term followup	1; 28	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-C v. CBT-E, abstinence, short-term followup	1; 28	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT v. CBT+EMA, reduction in binge frequency, post-tx	1; 41	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT v. CBT+EMA, abstinence, post-tx	1; 41	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT v. CBT+EMA, reduction in binge frequency, short-term followup	1; 41	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT v. CBT+EMA, abstinence, short-term followup	1; 41	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
Individual CBT v. Group CBT, reduction in binge frequency, post-tx	1; 144	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
Individual CBT v. Group CBT, reduction in binge frequency, long-term followup	1; 144	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference

Table F13. Detailed strength of evidence grading table, binge eating[a] (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. CBT-PTL, reduction in binge frequency, post-tx	3; 193	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBT-TL v. CBT-PTL, abstinence, post-tx	3; 193	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBT-TL v. CBT-PTL, reduction in binge frequency, short-term followup	2; 158	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBT-TL v. CBT-PTL, abstinence, short-term followup	2; 158	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTpsh v. CBTgsh, reduction in binge frequency, post-tx	1; NR (Total N=72)	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBTpsh v. CBTgsh, abstinence, post-tx	1; NR (Total N=72)	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBTpsh v. CBTgsh, reduction in binge frequency, short-term followup	1; NR (Total N=72)	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBTpsh v. CBTgsh, abstinence, short-term followup	1; NR (Total N=72)	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBTssh v. CBT-TL, reduction in binge frequency, post-tx	3; 189	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. CBT-TL, abstinence, post-tx	3; 189	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. CBT-TL, reduction in binge frequency, short-term followup	2; 158	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Insufficient 2 trials NS 1 trial CBT-TL better

Table F-13. Detailed strength of evidence grading table, binge eating (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBTssh v. CBT-TL, abstinence, short-term followup	2; 158	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Insufficient 2 trials NS 1 trial CBT-TL better
CBTssh v. CBT-PTL, reduction in binge frequency, post-tx	3; 198	Medium	Consistent 2/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. CBT-PTL, abstinence, post-tx	3; 198	Medium	Consistent 2/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. CBT-PTL, reduction in binge frequency, short-term followup	2; 164	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. CBT-PTL, abstinence, short-term followup	2; 164	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference

[a] Binge eating measured in binge days, binge episodes, and abstinence

BDI = Beck Depression Inventory; BMI = body mass index; CBT-C-TL = cognitive behavioral therapy – cognitive restructuring, therapist-led; CBT-E-TL = cognitive behavioral therapy – exposure, therapist-led; CBT+EMA-TL = cognitive behavioral therapy plus ecological momentary assessment; CBTgsh = cognitive behavioral therapy, guided self-help; CBTpsh = cognitive behavioral therapy, pure self-help; CBT-PTL = cognitive behavioral therapy, partially therapist-led; CBTssh = cognitive behavioral therapy, structured self-help; CBT-TL = cognitive behavioral therapy, therapist led; EDE = Eating Disorders Examination; EDEQ = Eating Disorders Examination Questionnaire; GCBT = group cognitive behavioral therapy, therapist-led; GSI = Global Severity Index; HDRS = Hamilton Depression Rating Scale; IDS-SR = Inventory of Depressive Symptoms – Self-Report; ICBT = individual cognitive behavioral therapy, therapist-led; TFEQ = Three Factor Eating Questionnaire; tx = treatment; v = versus

Table F14. Detailed strength of evidence grading table, eating-related psychopathology

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-C v. CBT-E, improvement on EDE subscale scores, post-tx	1; 28	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-C v. CBT-E, improvement on EDE subscale scores, short-term followup	1; 28	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT v. CBT+EMA, improvement on EDE-Q subscale scores, post-tx	1; 41	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT v. CBT+EMA, improvement on EDE-Q subscale scores, short-term followup	1; 41	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
Individual CBT v. Group CBT, improvement on EDE-Q subscale scores, post-tx	1; 144	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study ICBT better
Individual CBT v. Group CBT, improvement on EDE-Q subscale scores, long-term followup	1; 144	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study ICBT better
CBT-TL v. CBT-PTL, improvement in EDE or TFEQ subscale scores, post-tx	3; 189	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBT-TL v. CBT-PTL, improvement in EDE or TFEQ subscale scores, short-term followup	2; 158	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference

Table F14. Detailed strength of evidence grading table, eating-related psychopathology (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBTpsh v. CBTgsh, improvement on EDE subscales, post-tx	1; NR (Total N=72)	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study CBTgsh better, 1 subscale
CBTpsh v. CBTgsh, improvement on EDE subscales, short-term followup	1; NR (Total N=72)	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study CBTgsh better, 1 subscale at 3mo but not 6mo followup
CBTssh v. CBT-TL, improvement in TFEQ or EDE subscales, post-tx	3; 189	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. CBT-TL, improvement on TFEQ or EDE subscales, short-term followup	2; 158	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. CBT-PTL, improvement on TFEQ or EDE subscales, post-tx	3; 198	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. CBT-PTL, improvement in TFEQ or EDE subscales, short-term followup	2; 164	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference

BDI = Beck Depression Inventory; BMI = body mass index; CBT-C-TL = cognitive behavioral therapy – cognitive restructuring, therapist-led; CBT-E-TL = cognitive behavioral therapy – exposure, therapist-led; CBT+EMA-TL = cognitive behavioral therapy plus ecological momentary assessment; CBTgsh = cognitive behavioral therapy, guided self-help; CBTpsh = cognitive behavioral therapy, pure self-help; CBT-PTL = cognitive behavioral therapy, partially therapist-led; CBTssh = cognitive behavioral therapy, structured self-help; CBT-TL = cognitive behavioral therapy, therapist led; EDE = Eating Disorders Examination; EDEQ = Eating Disorders Examination Questionnaire; GCBT = group cognitive behavioral therapy, therapist-led; GSI = Global Severity Index; HDRS = Hamilton Depression Rating Scale; IDS-SR = Inventory of Depressive Symptoms – Self-Report; ICBT = individual cognitive behavioral therapy, therapist-led; N = number; TFEQ = Three Factor Eating Questionnaire; tx = treatment; v = versus

Table F15. Detailed strength of evidence grading table, weight

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-C v. CBT-E, reduction in BMI, post-tx	1; 28	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-C v. CBT-E, reduction in BMI, short-term followup	1; 28	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT v. CBT+EMA, reduction in BMI, post-tx	1; 41	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT v. CBT+EMA, reduction in BMI, short-term followup	1; 41	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
Individual CBT v. Group CBT, reduction in BMI, post-tx	1; 144	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
Individual CBT v. Group CBT, reduction in BMI, long-term followup	1; 144	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBT-TL v. CBT-PTL, reduction in BMI, post-tx	3; 189	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBT-TL v. CBT-PTL, reduction in BMI, short-term followup	2; 158	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTpsh v. CBTgsh, reduction in BMI, post-tx	1; NR (Total N=72)	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBTpsh v. CBTgsh, reduction in BMI, short-term followup	1; NR (Total N=72)	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBTssh v. CBT-TL, reduction in BMI, post-tx	3; 189	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference

Table F15. Detailed strength of evidence grading table, weight (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBTssh v. CBT-TL, reduction in BMI, short-term followup	2; 158	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. CBT-PTL, reduction in BMI, post-tx	3; 198	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. CBT-PTL, reduction in BMI, short-term followup	2; 164	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference

BDI = Beck Depression Inventory; BMI = body mass index; CBT-C-TL = cognitive behavioral therapy – cognitive restructuring, therapist-led; CBT-E-TL = cognitive behavioral therapy – exposure, therapist-led; CBT+EMA-TL = cognitive behavioral therapy plus ecological momentary assessment; CBTgsh = cognitive behavioral therapy, guided self-help; CBTpsh = cognitive behavioral therapy, pure self-help; CBT-PTL = cognitive behavioral therapy, partially therapist-led; CBTssh = cognitive behavioral therapy, structured self-help; CBT-TL = cognitive behavioral therapy, therapist led; EDE = Eating Disorders Examination; EDEQ = Eating Disorders Examination Questionnaire; GCBT = group cognitive behavioral therapy, therapist-led; GSI = Global Severity Index; HDRS = Hamilton Depression Rating Scale; IDS-SR = Inventory of Depressive Symptoms – Self-Report; ICBT = individual cognitive behavioral therapy, therapist-led; TFEQ = Three Factor Eating Questionnaire; tx = treatment; v = versus

Table F16. Detailed strength of evidence grading table, psychological outcomes

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-C v. CBT-E, improvement on BDI score, post-tx	1; 28	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-C v. CBT-E, improvement on BDI score, short-term followup	1; 28	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT v. CBT+EMA, improvement on BDI score, post-tx	1; 41	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT v. CBT+EMA, improvement on BDI score, short-term followup	1; 41	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
Individual CBT v. Group CBT, improvement on BDI score, post-tx	1; 144	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
Individual CBT v. Group CBT, improvement on BDI score, long-term followup	1; 144	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBT-TL v. CBT-PTL, improvement on BDI, HDRS, or IDS-SR score, post-tx	3; 189	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBT-TL v. CBT-PTL, improvement on BDI, HDRS, or IDS-SR score, short-term followup	2; 158	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTpsh v. CBTgsh, improvement on GSI scores, post-tx	1; NR (Total N=72)	Medium	Unknown, single study	Indirect	Imprecise	Undetected	Insufficient, single small study No difference

Table F16. Detailed strength of evidence grading table, psychological outcomes (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBTpsh. V. CBTgsh, improvement in GSI scores, short-term followup	1; NR (Total N=72)	Medium	Unknown, single study	Indirect	Imprecise	Undetected	Insufficient, single small study No difference
CBTssh v. CBT-TL, improvement on HDRS, BDI, or IDS-SR scores, post-tx	3; 189	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. CBT-TL, improvement on HDRS, BDI, or IDS-SR scores, short-term followup	2; 158	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. CBT-PTL, improvement on HDRS, BDI, or IDS-SR scores, post-tx	3; 198	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference
CBTssh v. CBT-PTL, improvement on HDRS, BDI, or IDS-SR scores, short-term followup	2; 164	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Low No difference

BDI = Beck Depression Inventory; BMI = body mass index; CBT-C-TL = cognitive behavioral therapy – cognitive restructuring, therapist-led; CBT-E-TL = cognitive behavioral therapy – exposure, therapist-led; CBT+EMA-TL = cognitive behavioral therapy plus ecological momentary assessment; CBTgsh = cognitive behavioral therapy, guided self-help; CBTpsh = cognitive behavioral therapy, pure self-help; CBT-PTL = cognitive behavioral therapy, partially therapist-led; CBTssh = cognitive behavioral therapy, structured self-help; CBT-TL = cognitive behavioral therapy, therapist led; EDE = Eating Disorders Examination; EDEQ = Eating Disorders Examination Questionnaire; GCBT = group cognitive behavioral therapy, therapist-led; GSI = Global Severity Index; HDRS = Hamilton Depression Rating Scale; IDS-SR = Inventory of Depressive Symptoms – Self-Report; ICBT = individual cognitive behavioral therapy, therapist-led; TFEQ = Three Factor Eating Questionnaire; tx = treatment; v = versus

CBT Versus BWL (Therapist-Led and Self-Help)

Table F17. Detailed strength of evidence grading table, binge eating[a]

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. BWL-TL, reduction in binge frequency, post-tx	2; 170	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low CBT better
CBT-TL v. BWL-TL, abstinence, post-tx	2; 170	Medium	Inconsistent 1/2 trials	Direct	Imprecise	Undetected	Insufficient CBT better (1 trial)
CBT-TL v. BWL-TL, reduction in binge frequency, short-term followup	2; 170	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low CBT better
CBT-TL v. BWL-TL, abstinence, short-term followup	2; 170	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low No difference
CBT-TL v. BWL-TL, reduction in binge frequency, long-term followup	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study CBT better
CBT-TL v. BWL-TL, abstinence, long-term followup	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL+BWL-TL v. BWL-TL, reduction in binge frequency, post-tx	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL+BWL-TL v. BWL-TL, abstinence, post-tx	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL+BWL-TL v. BWL-TL, reduction in binge frequency, short-term followup	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL+BWL-TL v. BWL-TL, abstinence, short-term followup	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference

Table F17. Detailed strength of evidence grading table, binge eating[a] (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBTgsh v. BWLgsh, reduction in binge frequency, post-treatment	1; 75	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study CBT better
CBTgsh v. BWLgsh, abstinence, post-treatment	1; 75	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study CBT better
CBTgsh v. BWL-TL, reduction in binge frequency, post-tx	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. BWL-TL, abstinence, post-tx	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. BWL-TL, reduction in binge frequency, short-term followup	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study, NR
CBTgsh v. BWL-TL, abstinence, short-term followup	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study, NR
CBTgsh v. BWL-TL, reduction in binge frequency, long-term followup	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study, NR
CBTgsh v. BWL-TL, abstinence, long-term followup	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study, CBT better

[a] Binge eating measured in binge days and binge episodes

BWLgsh = behavioral weight loss, guided self-help; BWL-TL = behavioral weight loss, therapist-led; CBT = cognitive behavioral therapy; CBTgsh = cognitive behavioral therapy, guided self-help; CBT-TL = cognitive behavioral therapy, therapist led; NR = not reported; tx = treatment; v = versus

Table F18. Detailed strength of evidence grading table, eating-related psychopathology

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. BWL-TL, improvement on EDE subscales, post-tx	2; 170	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low No difference
CBT-TL v. BWL-TL, improvement on EDE subscales, short-term followup	2; 170	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low No difference
CBT-TL v. BWL-TL, improvement on EDE subscales, long-term followup	1; 52	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL+BWL-TL v. BWL-TL, improvement on EDE subscales, post-tx	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL+BWL-TL v. BWL-TL, improvement on EDE subscales, short-term followup	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBTgsh v. BWLgsh, improvement on EDE/TFEQ subscales, post-treatment	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study, BWL worse (1 subscale)
CBTgsh v. BWL-TL, improvement on EDE subscales, post-treatment	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study, BWL worse (1 subscale)
CBTgsh v. BWL-TL, improvement on EDE subscales, short-term followup	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study, NR

Table F18. Detailed strength of evidence grading table, eating-related psychopathology (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBTgsh v. BWL-TL, improvement on EDE subscales , long-term followup	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study, NR

BWLgsh = behavioral weight loss, guided self-help; BWL-TL = behavioral weight loss, therapist-led; CBT = cognitive behavioral therapy; CBTgsh = cognitive behavioral therapy, guided self-help; CBT-TL = cognitive behavioral therapy, therapist led; EDE = Eating Disorder Examination Inventory; NR = not reported; TFEQ = Three Factor Eating Questionnaire tx = treatment; v = versus

Table F19. Detailed strength of evidence grading table, weight

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. BWL-TL, reduction in BMI, post-tx	2; 170	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Moderate BWL better
CBT-TL v. BWL-TL, reduction in BMI, short-term followup	2; 170	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low No difference
CBT-TL v. BWL-TL, reduction in BMI, long-term followup	1; 52	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL+BWL-TL v. BWL-TL, reduction in BMI, post-tx	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL+BWL-TL v. BWL-TL, reduction in BMI, short-term followup	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBTgsh v. BWLgsh, reduction in BMI, post-treatment	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v BWL-TL reduction in BMI, post-treatment	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study BWL better
CBTgsh v. BWL-TL, reduction in BMI, short-term followup	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study NR
CBTgsh v. BWL-TL, reduction in BMI, long-term followup	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference

BMI = body mass index; BWLgsh = behavioral weight loss, guided self-help; BWL-TL = behavioral weight loss, therapist-led; CBT = cognitive behavioral therapy; CBTgsh = cognitive behavioral therapy, guided self-help; CBT-TL = cognitive behavioral therapy, therapist led; EDE = Eating Disorder Examination Inventory; NR = not reported; TFEQ = Three Factor Eating Questionnaire tx = treatment; v = versus

Table F20. Detailed strength of evidence grading table, psychological outcomes

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. BWL-TL, improvement in BDI, post-tx	2; 170	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low No difference
CBT-TL v. BWL-TL, improvement in BDI scores, short-term followup	2; 170	Medium	Consistent 2/2 trials	Direct	Imprecise	Undetected	Low No difference
CBT-TL v. BWL-TL, improvement in BDI scores, long-term followup	1; 52	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL+BWL-TL v. BWL-TL, improvement in BDI scores, post-tx	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL+BWL-TL v. BWL-TL, improvement in BDI scores, short-term followup	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBTgsh v. BWLgsh, improvement on BDI, post-tx	1; 80	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. BWL-TL, improvement on BDI, post-tx	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. BWL-TL, improvement on BDI, short-term followup	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. BWL-TL, improvement on BDI, long-term followup	1; 130	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference

BDI = Beck Depression Inventory; BMI = body mass index; BWLgsh = behavioral weight loss, guided self-help; BWL-TL = behavioral weight loss, therapist-led; CBT = cognitive behavioral therapy; CBTgsh = cognitive behavioral therapy, guided self-help; CBT-TL = cognitive behavioral therapy, therapist led; EDE = Eating Disorder Examination Inventory; NR = not reported; TFEQ = Three Factor Eating Questionnaire tx = treatment; v = versus

PIPT-TL Versus Waitlist Control (Therapist-Led)

Table F21. Detailed strength of evidence grading table, binge eating

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
PIPT-TL v. waitlist control, reduction in binge frequency, post-tx	1; 88	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study PIPT-TL better
PIPT-TL v. waitlist control, abstinence, post-tx	1; 88	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study PIPT-TL better

PIPT-TL = psychodynamic interpersonal therapy, therapist-led; tx = treatment

Table F22. Detailed strength of evidence grading table, eating-related psychopathology

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
PIPT-TL v. waitlist control, improvement in TFEQ subscales, post-tx	1; 88	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study PIPT-TL better (1 of 2 subscales)

PIPT-TL = psychodynamic interpersonal therapy, therapist-led; TFEQ = Three Factor Eating Questionnaire; tx = treatment

Table F23. Detailed strength of evidence grading table, weight

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
PIPT-TL v. waitlist control, reduction in BMI, post-tx	1; 88	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference

BMI = body mass index; PIPT-TL = psychodynamic interpersonal therapy, therapist-led; tx = treatment

Table F24. Detailed strength of evidence grading table, psychological outcomes

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
PIPT-TL v. waitlist control, improvement in CESD scores, post-tx	1; 88	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study PIPT-TL better

CESD = Center for Epidemiological Studies Depression Scale; PIPT-TL = psychodynamic interpersonal therapy, therapist-led; tx = treatment

BWL Versus Active Control (Self-Help)

Table F25. Detailed strength of evidence grading table, binge eating

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
BWLgsh v. active control, reduction in binge frequency, post-tx	1; 53	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
BWLgsh v. active control, abstinence, post-tx	1; 53	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference

BWLgsh = behavioral weight loss, guided self-help; tx = treatment; v = versus

Table F26. Detailed strength of evidence grading table, eating-related psychopathology

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
BWLgsh v. active control, improvement in EDEQ/TFEQ subscales, post-tx	1; 53	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study BWLgsh better

BWLgsh = behavioral weight loss, guided self-help; EDEQ = Eating Disorders Examination Questionnaire; TFEQ = Three Factor Eating Questionnaire; tx = treatment; v = versus

Table F27. Detailed strength of evidence grading table, weight

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
BWLgsh v. active control, reduction in BMI, post-tx	1; 53	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference

BMI = body mass index; BWLgsh = behavioral weight loss, guided self-help; tx = treatment; v = versus

Table F28. Detailed strength of evidence grading table, psychological outcomes

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
BWLgsh v. active control, improvement in BDI scores, post-tx	1; 53	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference

BDI = Beck Depression Inventory; BWLgsh = behavioral weight loss, guided self-help; tx = treatment; v = versus

BWL Versus IPT (Therapist-Led)

Table F29. Detailed strength of evidence grading table, binge eating

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
BWL-TL v. IPT-TL, reduction in binge frequency, post-tx	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
BWL-TL v. IPT-TL, abstinence, post-tx	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
BWL-TL v. IPT-TL, reduction in binge frequency, short-term	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
BWL-TL v. IPT-TL, abstinence, post-tx	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
BWL-TL v. IPT-TL, reduction in binge frequency, long-term	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
BWL-TL v. IPT-TL, abstinence, post-tx	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study IPT-TL better

BWL-TL = behavioral weight loss, therapist-led; IPT-TL = interpersonal therapy, therapist-led; tx = treatment; v = versus

Table F30. Detailed strength of evidence grading table, eating-related psychopathology

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
BWL-TL v. IPT-TL, improvement in EDE subscales, post-tx	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
BWL-TL v. IPT-TL, improvement in EDE subscales, short-term	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
BWL-TL v. IPT-TL, improvement in EDE subscales, long-term	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference

BWL-TL = behavioral weight loss, therapist-led; IPT-TL = interpersonal therapy, therapist-led; tx = treatment; v = versus

Table F31. Detailed strength of evidence grading table, weight

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
BWL-TL v. IPT-TL, reduction in BMI, post-tx	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study BWL better
BWL-TL v. IPT-TL, reduction in BMI, short-term	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
BWL-TL v. IPT-TL, reduction in BMI, long-term	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference

BMI = body mass index; BWL-TL = behavioral weight loss, therapist-led; IPT-TL = interpersonal therapy, therapist-led; tx = treatment; v = versus

Table F32. Detailed strength of evidence grading table, psychological outcomes

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
BWL-TL v. IPT-TL, improvement in BDI, post-tx	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
BWL-TL v. IPT-TL, improvement in BDI, short-term	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
BWL-TL v. IPT-TL, improvement in BDI, long-term	1; 139	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference

BDI = Beck Depression Inventory; BWL-TL = behavioral weight loss, therapist-led; IPT-TL = interpersonal therapy, therapist-led; tx = treatment; v = versus

CBT Versus Interpersonal Therapies (Therapist-Led and Self-Help)

Table F33. Detailed strength of evidence grading table, binge eating

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. PIPT-TL, reduction in binge frequency, post-tx	1; 95	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL v. PIPT-TL, abstinence, post-tx	1; 95	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL v. PIPT-TL, reduction in binge frequency, short-term followup	1; 95	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL v. PIPT-TL, abstinence, short-term followup	1; 95	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL v. IPT-TL, reduction in binge frequency, post-tx	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBT-TL v. IPT-TL, abstinence, post-tx	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBT-TL v. IPT-TL, reduction in binge frequency, short-term followup	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBT-TL v. IPT-TL, abstinence, short-term followup	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBT-TL v. IPT-TL, reduction in binge frequency, long-term followup	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBT-TL v. IPT-TL, abstinence, long-term followup	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study IPT-TL better
CBTgsh v. IPT-TL, reduction in binge frequency, post-tx	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference

Table F33. Detailed strength of evidence grading table, binge eating (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBTgsh v. IPT-TL, abstinence, post-tx	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. IPT-TL, reduction in binge frequency, short-term followup	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. IPT-TL, abstinence, short-term followup	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. IPT-TL, reduction in binge frequency, long-term followup	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. IPT-TL, abstinence, long-term followup	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference

CBTgsh = cognitive behavioral therapy, guided self-help; CBT-TL = cognitive behavioral therapy, therapist led; PIPT-TL = psychodynamic interpersonal therapy, therapist-led; tx = treatment; v = versus

Table F34. Detailed strength of evidence grading table, eating-related psychopathology

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. PIPT-TL, improvement on TFEQ subscales, post-tx	1; 95	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL v. PIPT-TL, improvement on TFEQ subscales, short-term followup	1; 95	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL v. IPT-TL, improvement on EDE subscales, post-tx	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study CBT-TL better on EDE restraint; no difference on all other subscales
CBT-TL v. IPT-TL, improvement on EDE subscales, short-term followup	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study CBT-TL better on EDE restraint; no difference on all other subscales
CBT-TL v. IPT-TL, improvement on EDE-Q and EDE shape/weight subscales, long-term followup	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study CBT-TL worsened on EDE-Q eating concern and EDE shape/weight (12mo to 46mo); IPT-TL improved on EDE-Q eating, shape, global (post- to 46mo)
CBTgsh v. IPT-TL, improvement on EDE subscales, post-tx	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. IPT-TL, improvement on EDE subscales, short-term followup	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study Data not reported
CBTgsh v. IPT-TL, improvement on EDE subscales, long-term followup	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study Data not reported

CBTgsh = cognitive behavioral therapy, guided self-help; CBT-TL = cognitive behavioral therapy, therapist led; EDE = Eating Disorder Examination; EDEQ = Eating Disorder Examination Questionnaire; PIPT-TL = psychodynamic interpersonal therapy, therapist-led; TFEQ = Three Factor Eating Questionnaire; tx = treatment; v = versus

Table F35. Detailed strength of evidence grading table, weight

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. PIPT-TL, reduction in BMI, post-tx	1; 95	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL v. PIPT-TL, reduction in BMI, short-term followup	1; 95	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL v. IPT-TL, reduction in BMI, post-tx	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBT-TL v. IPT-TL, reduction in BMI, short-term followup	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBT-TL v. IPT-TL, reduction in BMI, long-term followup	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. IPT-TL, reduction in BMI, post-tx	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. IPT-TL, reduction in BMI, short-term followup	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study Data not reported
CBTgsh v. IPT-TL, reduction in BMI, long-term followup	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study Data not reported

BMI = body mass index; CBTgsh = cognitive behavioral therapy, guided self-help; CBT-TL = cognitive behavioral therapy, therapist led; PIPT-TL = psychodynamic interpersonal therapy, therapist-led; tx = treatment; v = versus

Table F36. Detailed strength of evidence grading table, psychological outcomes

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. PIPT-TL, improvement on CESD score, post-tx	1; 95	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL v. PIPT-TL, improvement on CESD score, short-term followup	1; 95	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
CBT-TL v. IPT-TL, improvement on SCL-D score, post-tx	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBT-TL v. IPT-TL, improvement on SCL-D score, short-term followup	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBT-TL v. IPT-TL, improvement on BSI-Depression, long-term followup	1; 162	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. IPT-TL, improvement on BDI score, post-tx	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
CBTgsh v. IPT-TL, improvement on BDI score, short-term followup	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study Data not reported
CBTgsh v. IPT-TL, improvement on BDI score, long-term followup	1; 141	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study Data not reported

BDI = Beck Depression Inventory; BSI-Depression = Brief Symptom Inventory; CBTgsh = cognitive behavioral therapy, guided self-help; CBT-TL = cognitive behavioral therapy, therapist led; CESD = Center for Epidemiologic Studies Depression Scale; PIPT-TL = psychodynamic interpersonal therapy, therapist-led; SCL-D = Symptom Checklist, Depression subscale; tx = treatment; v = versus

Key Question 1

Benefits Outcomes

Meta-Analyses of Therapist-Led CBT Compared With Waitlist

Table F37. Detailed strength of evidence grading table, binge eating outcomes

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Association	Strength of Evidence Grade Magnitude of Effect
CBT-TL v. waitlist, reduction in binge episodes, post-tx	3; 208	Medium	Consistent 3/3 trials	Direct	Imprecise	Undetected	Strong	High CBT better
CBT-TL v. waitlist, abstinence, post-tx	4; 295	Medium	Consistent 4/4 trials	Direct	Imprecise	Undetected	Strong	High CBT better

DBT Versus Waitlist or Active Comparison Group Therapy

Table F38. Detailed strength of evidence grading table, binge eating

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
DBTgsh v. Waitlist, reduction in binge frequency, post-treatment	1; 60	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study DBTgsh better
DBT-TL v. ACGT-TL, reduction in binge frequency, first period (pre- to post-tx)	1; 101	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study DBT-TL better
DBT-TL v. ACGT-TL, abstinence, first period (post-tx to 6mo)	1; 101	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study DBT-TL better
DBT-TL v. ACGT-TL, reduction in binge frequency, second period (post-tx through 12mo)	1; 101	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
DBT-TL v. ACGT-TL, abstinence, second period (6mo-12mo)	1; 101	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference

ACGT-TL = active comparison group therapy, therapist-led; DBTgsh = dialectical behavioral therapy, guided self-help; DBT-TL = dialectical behavioral therapy, therapist-led; mo = months; tx = treatment; v = versus

Table F39. Detailed strength of evidence grading table, eating-related psychopathology

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
DBTgsh v. Waitlist, EDEQ total score, post-treatment	1; 60	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study DBTgsh better
DBT-TL v. ACGT-TL, improvement on EDE subscales, post-tx	1; 101	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study DBT-TL better (2 subscales)
DBT-TL v. ACGT-TL, improvement on EDE subscales, short-term followup	1; 101	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study DBT-TL better (2 subscales)

ACGT-TL = active comparison group therapy, therapist-led; DBT-TL = dialectical behavioral therapy, therapist-led; EDE = Eating Disorder Examination; EDEQ = Eating Disorder Examination Questionnaire; mo = months; tx = treatment; v = versus

Table F40. Detailed strength of evidence grading table, weight

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
DBT-TL v. ACGT-TL, reduction in BMI, post-tx	1; 101	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference
DBT-TL v. ACGT-TL, reduction in BMI, short-term	1; 101	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference

ACGT-TL = active comparison group therapy, therapist-led; BMI = body mass index; DBT-TL = dialectical behavioral therapy, therapist-led; tx = treatment; v = versus

Table F41. Detailed strength of evidence grading table, psychological outcomes

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
DBT-TL v. ACGT-TL, improvement on BDI, post-tx	1; 101	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study DBT-TL better
DBT-TL v. ACGT-TL, improvement on BDI, short-term	1; 101	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single study No difference

ACGT-TL = active comparison group therapy, therapist-led; BDI = Beck Depression Inventory; DBT-TL = dialectical behavioral therapy, therapist-led; tx = treatment; v = versus

Inpatient Treatment

Table F42. Detailed strength of evidence grading table, binge eating

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
IP+VREDIM v. IP+psychonutritional groups, abstinence rate, post-tx	1; NR (Total N = 20)	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference (both abstinent)
IP v. IP+CBT, reduction in binge frequency, post-tx	1; 69	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference (both decreased)
IP v. IP+CBT, reduction in binge frequency, short-term followup	1; 69	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference (both increased)
IP v. IP+CBT+VREDIM, reduction in binge frequency, post-tx	1; 60	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference (both decreased)
IP v. IP+CBT+VREDIM, reduction in binge frequency, short-term followup	1; 60	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference (both increased)
IP+CBT v. IP+CBT+VREDIM, reduction in binge frequency, post-tx	1; 61	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study NO difference (both decreased)
IP+CBT v. IP+CBT+VREDIM, reduction in binge frequency, short-term followup	1; 61	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference (both increased)
IP+CBT v. IP+BST, reduction in binge frequency, post-tx	1; NR (Total N = 60)	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference (data not reported)

Table F42. Detailed strength of evidence grading table, binge eating (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
IP+CBT v. IP+BST, reduction in binge frequency, short-term followup	1; NR (Total N = 60)	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study CBT better than BST

BST = Brief Strategic Therapy; CBT = cognitive behavioral therapy; IP = inpatient program; NR = not reported; VRIDEM = Virtual Reality for Eating Disorders Modification; tx = treatment; vs = versus

Table F43. Detailed strength of evidence grading table, eating-related psychopathology

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
IP+VREDIM v. IP+psychonutritional groups, improvement on DIET subscales, post-tx	1; NR (Total N = 20)	Medium	Unknown, single study	Indirect	Imprecise	Undetected	Insufficient, single small study No difference (means in favor of VREDIM)

DIET = Dieter's Inventory of Eating Temptations; IP = inpatient program; VRIDEM = Virtual Reality for Eating Disorders Modification; tx = treatment; vs = versus

Table F44. Detailed strength of evidence grading table, weight

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
IP v. IP+CBT, reduction in BMI, post-tx	1; 69	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference (both decreased)
IP v. IP+CBT, reduction BMI, short-term followup	1; 69	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference
IP v. IP+CBT+VREDIM, reduction in BMI, post-tx	1; 60	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference (both decreased)
IP v. IP+CBT+VREDIM, reduction in BMI, short-term followup	1; 60	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study IP+CBT+VREDIM better
IP+CBT v. IP+CBT+VREDIM, reduction in BMI, post-tx	1; 61	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference (both decreased)
IP+CBT v. IP+CBT+VREDIM, reduction in BMI, short-term followup	1; 61	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study IP+CBT+VREDIM better
IP+CBT v. IP+BST, absolute weight loss, post-tx	1; NR (Total N = 60)	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference (both decreased)
IP+CBT v. IP+BST, absolute weight loss, short-term followup	1; NR (Total N = 60)	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study No difference (both decreased)

BMI = body mass index; BST = Brief Strategic Therapy; CBT = cognitive behavioral therapy; IP = inpatient program; NR = not reported; VRIDEM = Virtual Reality for Eating Disorders Modification; tx = treatment; vs = versus

Key Question 1: Benefit Outcomes

Combination Treatments

Table F45. Detailed strength of evidence grading table, benefits of combination treatments

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT + Topiramate, binge eating, 21 weeks	1; 73	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff frequency, combination better than CBT in achieving abstinence (p=0.03)
CBT + Topiramate, eating-related psychopathology, 21 weeks	1; 73	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff BES
CBT + Topiramate, weight-related, 21 weeks	1; 73	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination faster rate of reduction in weight (p<0.001) and BMI (p=0.0002) than CBT
CBT + Topiramate, general psychopathology, 21 weeks	1; 73	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff symptoms of depression
CBT + Fluoxetine, binge eating, 16 weeks (12 month followup)	1; 108	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination better in reducing frequency (p=NR) and achieving abstinence (p=0.05) than fluoxetine alone but not better than CBT alone

Table F45. Detailed strength of evidence grading table, benefits of combination treatments (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT + Fluoxetine, eating-related psychopathology, 16 weeks (12 month followup)	1; 108	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination better than fluoxetine alone but not better than CBT alone for reducing eating, shape, and weight concerns and TFEQ hunger and disinhibition (p=NR)
CBT + Fluoxetine, weight-related, 16 weeks (12 month followup)	1; 108	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff weight or BMI than fluoxetine alone or CBT alone
CBT + Fluoxetine, general psychopathology, 16 weeks (12 month followup)	1; 108	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination better than fluoxetine alone but not CBT alone for reducing symptoms of depression (p=NR)
CBT + BWL + Fluoxetine, binge eating, 5 months	1; 116	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff frequency or abstinence than CBT + BWL, BWL + Fluoxetine, BWL alone
CBT + BWL + Fluoxetine, eating-related psychopathology, 5 months	1; 116	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff TFEQ, BSQ than CBT + BWL, BWL + Fluoxetine, BWL alone
CBT + BWL + Fluoxetine, weight-related, 5 months	1; 116	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no diff weight than CBT + BWL, BWL + Fluoxetine, BWL alone

Table F-45. Detailed strength of evidence grading table, benefits of combination treatments (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
CBT + BWL + Fluoxetine, general psychopathology, 5 months	1; 116	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, better for reducing general symptomatology (BSI) but no diff in symptoms of depression, self-esteem, or interpersonal problems than CBT + BWL, BWL + Fluoxetine, BWL alone
CBTgsh + Orlistat, binge eating, 12 weeks	1; 50	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination better than CBTgsh alone for achieving abstinence (p = 0.48) but not for reducing frequency
CBTgsh + Orlistat, eating-related psychopathology, 12 weeks	1; 50	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination not better than CBTgsh for reducing eating, shape, or weight concerns
CBTgsh + Orlistat, weight-related, 12 weeks	1; 50	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination better than CBTgsh alone for reducing weight (p=0.02)
CBTgsh + Orlistat, general psychopathology, 12 weeks	1; 50	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination not better than CBTgsh alone for reducing symptoms of depression or improving self-esteem
BWL + Orlistat, binge eating, 4 months (6 month followup)	1; 40	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination not better than BWL alone for achieving abstinence or reducing frequency

Table F-45. Detailed strength of evidence grading table, benefits of combination treatments (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
BWL + Orlistat, eating-related psychopathology, 4 months (6 month followup)	1; 40	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination not better than BWL for reducing eating, shape, or weight concerns
BWL + Orlistat, weight-related, 4 months (6 month followup)	1; 40	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination not better than BWL alone for reducing BMI
BWL + Orlistat, general psychopathology, 4 months (6 month followup)	1; 40	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination not better than BWL alone for reducing symptoms of depression or improving self-esteem
DIET + Orlistat, binge eating, 24 weeks	1; 89	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination not better than DIET alone for reducing frequency
DIET + Orlistat, eating-related psychopathology, 24 weeks	1; 89	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination better than DIET for reducing perfectionism ($p<0.05$) and improving interoceptive awareness ($p<0.05$)
DIET + Orlistat, weight-related, 24 weeks	1; 89	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination better than DIET alone for reducing weight ($p=0.0001$) and fat mass ($p=0.002$)
DIET + Orlistat, general psychopathology, 24 weeks	1; 89	Low	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination not better than DIET alone for reducing symptoms of depression or anxiety, or for improving QOL

Table F-45. Detailed strength of evidence grading table, benefits of combination treatments (continued)

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude of Effect
DIET counseling + Psychological support + Imipramine, binge eating, 8 weeks (6 month followup)	1; 31	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination better than DIET counseling + Psychological support + Placebo for reducing frequency (p<0.02)
DIET counseling + Psychological support + Imipramine, eating-related psychopathology, 8 weeks (6 month followup)	0; 0	NA	NA	NA	NA	NA	Insufficient
DIET counseling + Psychological support + Imipramine, weight-related, 8 weeks (6 month followup)	1; 31	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination better than DIET counseling + Psychological support + Placebo for reducing weight at end of treatment (p<0.05) and followup (p=0.003)
DIET counseling + Psychological support + Imipramine, general psychopathology, 8 weeks (6 month followup)	1; 31	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, combination not better than DIET counseling + Psychological support + Placebo for reducing symptoms of depression at end of treatment (p=0.02) and followup (p=0.01)

Section 3: Loss of Control Eating In Children Treatment

Key Question 11: Effectiveness of Treatments for LOC Eating Among Children

Behavioral Intervention Versus No or "Attention Only" Intervention

Table F46. Detailed strength of evidence grading table, binge eating

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude/Direction of Effect
Self-help CBT v. waitlist, OBEs and SBEs, 16 wks	1; 105	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no difference
IPT v. Attention-only, Reduction in LOC episodes, 6 mo post-tx	2; 116	Medium	Inconsistent	Direct	Imprecise	Undetected	Insufficient, inconsistent results based on different measures
Self-help CBT v. waitlist, OBEs and SBEs, 9 mo post-tx	1; 105	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, CBT better

mo = month; v. = versus.

Table F47. Detailed strength of evidence grading table, weight

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude/Direction of Effect
Self-help CBT v. waitlist, BMI, 9 mo post-tx	1; 105	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, self-help CBT better
IPT v. Attention-only, BMI, 1 year post-tx	2; 116	Medium	Consistent	Direct	Imprecise	Undetected	Low, no difference

mo = month; v. = versus.

Behavioral Intervention Versus Behavioral Intervention

Table F48. Detailed strength of evidence grading table, binge eating

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude/Direction of Effect
Cue exposure v appetite awareness training, binge measures	1; 36	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no difference

mo = month; v. = versus.

Table F49. Detailed strength of evidence grading table, weight

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude/Direction of Effect
Cue exposure v appetite awareness training, BMI	1; 36	Medium	Unknown, single study	Direct	Imprecise	Undetected	Insufficient, single small study, no difference

mo = month; v. = versus.

Section 4: Course of Illness

Key Question 4: Course of Illness Among Individuals With Binge-eating Disorder

Table F50. Detailed strength of evidence grading table, suicide

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude/Direction of Effect
Case-control observational Suicide and attempted suicide, 5 years	1 review, 1 study; 417	Medium	Consistent	Direct	Imprecise	Undetected	Moderate, no additional risk found among patients with BED compared to matched controls

Key Question 14: Course of Illness Among Children With Loss-of-Control Eating

Table F51. Detailed strength of evidence grading table, binge or loss-of-control eating

Intervention, Outcome, Time to Outcome	Number of Studies; Subjects	Study Limitations	Consistency	Directness	Precision	Reporting Bias	Strength of Evidence Grade Magnitude/Direction of Effect
Longitudinal cohort, 2 or more years	2; 2571	Medium	Consistent	Direct	Imprecise	Undetected	Moderate, early adolescent binge or LOC eating behavior in early adolescence, predicted similar behavior in later adolescence.

LOC = loss-of-control

Appendix G. Abbreviations

µU/mL = microunits
ACGT = active comparison group therapy
AMI = adapted motivational interviewing
ANCOVA = analysis of covariance
ANOVA = analysis of variance
APA = American Psychiatric Association
b/t = between
BDI = Beck Depression Inventory
BE = binge-eating
BED = binge eating disorder
BES = Binge Eating Scale
BIS = Barratt Impulsivity Scale
BL = baseline
BMI = body mass index
BP= blood pressure
BSI = Brief Symptom Inventory
BSQ = Body Shape Questionnaire
BWL = behavioral weight loss
BWLT = behavioral weight loss treatment
CA = California
CBT = cognitive behavioral therapy
CBT-C = cognitive interventions for treatment of body image disturbance
CBT-E = cognitive behavioral therapy with exposure
CBT-L = cognitive behavioral therapy long-term
CBT-S = cognitive behavioral therapy short-term
CEC = Commission of the European Communities
CGI = Clinical Global Impression scale
CGI-I = Clinical Global Impressions-Improvement scale
CGI-S = Clinical Global Impressions-Severity of Illness scale
CI = confidence interval
CO = Colorado
CrPic = chromium picolinate
CT = combined therapy
CT = Connecticut
DBP = diastolic blood pressure
DBT = dialectical behavior therapy
DIC = dietary counseling
diff = difference
dL = deciliter
DSM = Diagnostic and Statistical Manual for Mental Disorders
DSM-IV = Diagnostic and Statistical Manual of Mental Disorders, 4th Edition
DSM-IV-TR = Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision
DSM-V = Diagnostic and Statistical Manual of Mental Disorders, 5th Edition
ECT = experiential cognitive therapy
ED = emergency department
EDE = Eating Disorder Examination
EDE-Q = Eating Disorder Examination Questionnaire
EDI = Eating Disorders Inventory
EFT = emotion-focused therapy
EMA = ecological momentary assessment
EOQ = Error Orientation Questionnaire
ESWLS = Extended Satisfaction with Life Scale
FCI = Food Craving Inventory
FLV = fluvoxamine
FLX = fluoxetine
FU = follow up
G = group
GAD = Generalized Anxiety Disorder

GI= gastrointestinal
HAM-A = Hamilton Anxiety scale
HAM-D = Hamilton Depression Rating Scale (a.k.a., Hamilton Rating Scale for Depression)
HC= hypocaloric
HDL = high density lipoprotein
HDRS = Hamilton Depression Rating Scale
IBW = ideal body weight
IDS-C = Inventory of Depressive Symptomatology
IIP = Inventory of Interpersonal Problems
INTACT= Individually tailored stepped care for women with eating disorders
IP = Inpatient Program
IPT = interpersonal therapy
IST =Information Society Technologies
ITT = intent to treat
IV = fourth edition
kcal = kilocalories
kg = kilogram
kg/m2 = kilogram per meter squared
LDL = low density lipoprotein
LEARN = Lifestyle, Exercise, Attitudes, Relationships, Nutrition, Overview/Synthesis
LOC = “loss of control”
LOC/BE = loss of control/binge eating
m = month
MADRS = Montgomery-Asberg Depression Rating Scale
MANOVA= Multivariate analysis of variance
MANCOVA= Multivariate analysis of covariance
MDD = major depressive disorder
MDE = major depressive episode
mg = milligram
min= minute
m-ITT = modified intent to treat
MIUR FIRB = Ministry of Education, Universities and Research’s Basic research investment fund
mL = milliliter
MMPI2= Minnesota Multiphasic Personality Inventory-2
MN = Minnesota
mo = months
N = number
NA = not applicable
NC = North Carolina
NG = nutritional group
ng/mL = Nanogram/milliliter
NHP= Nottingham Health Profile
NIH = National Institutes of Health
NIMH = National Institute of Mental Health
NR = not reported
NS = not sufficient
NY = New York
OBE = objective binge episode
PDQ-4-R = Personality diagnostic questionnaire-4-revised
post-tx = post-treatment
pre-tx = pre-treatment
PSH = partial self-help
QID-SR16 = Quick Inventory of Depressive Symptomatology (self-report 16 items)
QIDS-SR= Quick Inventory of Depressive Symptomatology-Self-Report
RCT = randomized controlled trial
RMANOVA = Repeated Measures Analysis of Variance
RSE = Rosenberg Self-Esteem Scale
S-BDI = BDI, Spanish version
SBE = subjective binge episode
SCID = Structured Clinical Interview for DSM Disorders
SCID-I = Structured Clinical Interview for DSM-IV Axis 1 Disorders
SCL-90-R = Symptoms checklist-90-revised

SD = standard deviation
SDRS = Self Depression Rating Scale
SDS = Sheehan Disability Scale
SE = standard error
S-EDE = EDE, Spanish version
sig = significant
SNS= sympathetic nervous system
SSH = structured self-help
STAI = State-trait anxiety inventory
STRATOB = Systematic and STRATegic psychotherapy for Obesity
SUD = substance use disorder
TFEQ = Three-Factor Eating Questionnaire
TL = therapist-led
TR = Text Revision
tx = treatment
US = United States
USA = United States
VLCD = very-low calorie diet
WC = waist circumference
WHR = waist-to-hip ratio
wk = week
WL = weight loss
YBOCS = Yale-Brown Obsessive Compulsive Scale
YBOCS-BE = Yale-Brown Obsessions and Compulsion Scale modified for binge-eating
yo = years old
yr= year