Psychosocial Interventions to Improve the School Performance of Students with Attention-Deficit/Hyperactivity Disorder

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ABSTRACT

Children with attention-deficit/hyperactivity disorder (ADHD) typically show impairments throughout the school day. A number of interventions have been demonstrated to address both the academic and behavioral impairments associated with this disorder. Although the focus of research has been on classroom-based strategies of intervention for children with ADHD, school-based interventions applicable for nonclassroom environments such as lunchrooms and playgrounds are beginning to emerge. This paper provides a brief description of the guiding principles of behavioral intervention, identifies selected strategies to address behavioral and academic concerns, discusses how school contextual factors have an effect on intervention selection and implementation, and considers the effects of using psychosocial interventions in combination with medication.

Keywords: ADHD, School, Intervention, Behavior, Psychosocial, Academic, RTI

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INTRODUCTION

Attention-deficit/hyperactivity disorder (ADHD) is among the most prevalent behavioral health concerns in youth, occurring in an estimated 3–10% of all children.1 ADHD has two broad symptom clusters: (1) inattention, which includes behaviors such as being easily distractible, disorganized, and forgetful, and (2) hyperactivity/impulsivity, which includes behaviors such as having difficulty sitting still, being “driven by a motor,” and having difficulty awaiting turn.2 ADHD is a chronic disorder that impacts functioning at school, at home, and in the community.3 As a result of the significant impairment experienced by children diagnosed with this disorder and its high incidence rate, ADHD is recognized as a major public health concern.4

Evidence-based interventions for ADHD fall into two major classes: pharmacological and psychosocial. This article describes school-based, psychosocial intervention strategies for children with ADHD, and includes a description of how the family can become involved in supporting education. Included in this article are strategies and accommodations that are empirically supported for use with children with ADHD as well as strategies that are grounded in substantiated theory and consistent with the existing evidence base. The article will present (a) an overview of behavioral principles underlying most psychosocial interventions, (b) a brief description of evidence-based classroom, nonclassroom, and home interventions, and (c) contextual factors influencing school-based intervention.

BEHAVIORAL PRINCIPLES: CHANGING ANTECEDENTS AND CONSEQUENCES

In general, behavioral interventions are designed to change the antecedents and/or consequences of behavior. Antecedent is a broad term used to describe circumstances or events that precede a behavior. For example, the way in which a teacher gives a command may influence the subsequent behavior of the child. Additionally, the environment of the classroom (ie, clear rules, structure, and predictability) has a significant impact on the behavior of children. Consequences, on the other hand, can be defined as anything that follows a behavior and has the effect of either increasing or decreasing the probability that the behavior will happen again in the future. There are two types of consequences: reinforcement and punishment. Reinforcement increases the likelihood that a behavior will happen again, whereas punishment decreases the likelihood that a behavior will happen again.

The basic components of most consequence-based intervention programs can be summarized with the following acronym: CISS-4. The components of CISS-4 are Consistency, Immediacy, Specificity, Saliency, and a 4:1 (positive reinforcement to punishment) ratio.5 Consistency refers to a steadfast adherence to a specified behavioral plan. The parent and/or teacher needs to be strongly committed to the plan, and needs to be willing to implement it in virtually all circumstances. Ideally, the child should see that the consequence system is in place with all adults and at all times of the day.
Behavioral Interventions

Classroom-Based Interventions

Behavioral Interventions

A number of classroom-based interventions have been found to improve the behavior of children with ADHD. The following selected interventions are examples of how to apply antecedent- and consequence-based strategies in accordance with the four hallmarks of behavioral intervention components (consistency, immediacy, specificity, and saliency) described above.

Effective intervention begins with an emphasis on an antecedent strategy that provides the child with clear rules and expectations for behavior. Rules and expectations should be limited in number (three to five), and posted in a location that is easily viewed by the child. In addition, effective classroom rules should be stated in a positive manner and thus tell a child what to do (eg, raise hand to speak as opposed to no calling out). A routine review of the rules should include both examples and nonexamples of following the rules and examples should be elicited from the child to ensure understanding.

Compliance with specific requests improves when commands or instructions are provided in a clear and precise manner. As with classroom rules, instructions should be stated in terms of what the child should do. Brief statements spoken in a firm and neutral tone of voice are also more likely to elicit compliance. These antecedent strategies are a necessary first step to developing an effective classroom behavior management system.

As a next step, teachers and other adults should reinforce adaptive behaviors with positive reinforcement. One of the simplest reinforcement strategies for teachers is to provide attention and/or praise. This strategy is aimed at increasing the frequency of appropriate and adaptive behaviors and has been demonstrated to be an effective strategy for changing behavior. In keeping with the four hallmarks of intervention, praise should be provided (a) each time the behavior is performed at the outset of intervention (intermittent reinforced may be sufficient at a later point), (b) as close in time to the targeted behavior as possible, (c) in conjunction with a statement specifying the behavior being reinforced, and (d) in a manner that is meaningful to the child.

If praise and/or attention are not sufficiently meaningful, it may be necessary to strengthen the reinforcement system. One method of doing so is to provide concrete reinforcers such as privileges or small toys that are of interest to the child. Given that it is often difficult to provide concrete reinforcers immediately following a behavior, points or tokens can be used in place of concrete rewards. Students and teachers can then develop a menu of rewards that may be exchanged for a specified number of points or tokens. Token reinforcement systems allow for consistent, immediate, specific, and salient feedback.

Although a system based on clear expectations and positive reinforcement may be sufficient, children with ADHD often benefit from plans that incorporate punishment strategies. Strategic use of verbal correction is a consequent strategy aimed at decreasing undesired behavior and is frequently used in the classroom. It is most useful when used in conjunction with a positive reinforcement system and when correction is provided immediately after the behavior occurs, is stated briefly, and provides direction as to what the child should be doing (ie, “you should be sitting in your chair right now”). When using a punishment strategy in conjunction with a reinforcement system, it is necessary to monitor the ratio of reinforcement to punishment statements. As previously indicated, a general rule is to provide at least four times more praise statements than verbal correction.

A response cost system is a second method of incorporating punishment strategies into a behavioral intervention. A response cost system involves both the awarding of points or tokens for adaptive behavior as described above and the removal of points or tokens contingent on maladaptive behavior. In general, response cost systems should be introduced once the reinforcement-based point system has been consistently implemented. As noted above, it is also necessary to carefully monitor the ratio of positive reinforcers to punishment.

Frequent and clear communication between home and school can also be an important component to effective classroom behavior management. One method that has been found to be effective in improving classroom behavior for children with ADHD is the use of a home–school note or daily report card. The daily report card typically includes three-to-five target behaviors identified mutually by parents and teachers. These target behaviors are stated positively and provide the child with...
clear behavioral expectations. The teacher then rates the child on each target behavior during the day. Depending on the level of intensity necessary, ratings may be once daily, or multiple times throughout the school day. The daily report card is then taken home where the family provides positive reinforcement contingent on the number of points earned in school that day.

Academic Interventions

Children with ADHD often exhibit academic difficulties in addition to behavior concerns. Difficulties are directly related to ADHD symptoms, such as attention difficulties during classroom instruction and failure to complete in-class and homework assignments, as well as comorbid learning disorders. It is estimated that between 20% and 30% of children with ADHD also are diagnosed with a specific learning disability, with estimates up to 80% of children with ADHD demonstrating some academic underachievement.11,12

A key component to an effective academic intervention is to identify appropriate academic expectations for the child, that is, to ensure an instructional match. By first assessing a child’s instructional level in each subject area, interventions can be individualized to a child’s specific needs. Such an approach may have the added benefit of preventing maladaptive behavior that is the result of academic frustration. Interventions and instructional modifications resulting from such an assessment include direct instruction in areas of need and activities that provide for frequent practice, repetition, and feedback.13 Providing interesting, novel tasks, and increasing the amount of time a child is spent actively engaged in motor activities related to the task (eg, computer-based instruction) may also increase task engagement and improve the academic performance of children with ADHD.14

Peers generally are an underutilized resource that can aid a teacher in providing frequent, immediate feedback for success and increased opportunities for engagement in academic materials.7 Specifically, peer tutoring has been demonstrated to be a promising approach to improving attention and academic performance for children with ADHD.15 Greenwood et al.16 have provided an informative review of peer tutoring strategies and how to apply these approaches in practice.

Children with ADHD may also benefit from becoming actively involved in goal setting and time management.5 This strategy is often used to improve performance on in-class assignments and homework. The teacher or parent actively engages the child in setting goals for work completion, accuracy, and time, as well as evaluating performance in relation to goals. When used in conjunction with a reinforcement system applied by parents or teachers, this strategy has the potential to promote greater independence, reduce frustration, and reduce the amount of time spent on an assignment.5

Nonclassroom, School-Based Interventions

Although most of the research on school interventions for ADHD has focused on the classroom, investigators have begun to examine interventions for nonclassroom settings. For example, the lunchroom is a setting in which rule violations occur frequently and may even be encouraged by peers.17 Recent studies of lunchroom-based behavioral interventions have been found to be effective in reducing maladaptive behaviors.15,18 The approach used in these studies is referred to as a group contingency, whereby individuals can earn a reward when the group as a whole meets its goal.

The playground is another setting in which rule violations often occur. Leff and colleagues19 have explored the utility of a playground-based intervention in which playground supervisors are positioned strategically such that every area of the playground is monitored carefully. This is a promising and much-needed intervention. Additionally, making organized games available on the playground increases the level of structure provided and prevents the occurrence of aggressive behavior. Token reinforcement systems may also be effective for use on the playground with regard to increasing children’s rates of prosocial behavior.

Home-Based Interventions to Support School Performance

There are many ways in which the family can support the educational process and increase the likelihood that the child will meet learning demands and follow rules in school. One way in which parents can support their child’s education is through partnership with the teacher in the creation and use of a daily report card. In addition, parents support their child’s education by demonstrating a commitment to learning through modeling (eg, reading in the evenings), limiting noneducational television and computer time, making available engaging and varied educational activities, taking advantage of natural teaching opportunities (eg, using measurement when cooking), and providing reinforcement when the child engages in educational activities.10

Homework and studying are two additional opportunities for parents to support their child’s education. Children with ADHD have been shown to have significantly more difficulties with homework than their peers.21 For example, children with ADHD often forget to record assignments and bring materials home, rush through homework, make careless mistakes, and need constant supervision to remain on task. Providing a consistent homework routine, such as identifying an appropriate place and time, limiting distractions, and providing easy access to any necessary materials, is an antecedent strategy that promotes improved homework performance. Additional strategies include the goal-setting, time management, and positive reinforcement strategies described above.5,22

Studying is often a frustrating experience for both parent and child. It is typically less structured than homework, has no clear end point, and focuses on new material. Thus, children with ADHD benefit from well-defined study periods in which previously mastered material is interspersed with unknown material to insure high rates of success. This serves to reduce frustration and allows for frequent positive feedback. Specifically, the “folding in” flashcard method has been shown to increase learning.13
RESPONSE TO INTERVENTION FRAMEWORK

With the support and encouragement of the 2004 authorization of IDEA, many schools are now implementing a response to intervention (RTI) framework, whereby children struggling behaviorally or academically are provided with evidence-based intervention prior to evaluation and identification for special education services. Interventions are typically implemented within a tiered framework and include three to four levels of programming.25–28 Data are collected at all levels of intervention to inform decision making and to identify students in need of higher-intensity intervention. Data collected on individual students are also utilized to individualize interventions at higher-intensity tiers. Figure 1 illustrates a tiered approach to ADHD intervention.

The first tier includes universal interventions aimed at prevention of problem behaviors and academic deficits for all students. Such interventions may include school-wide positive behavior support, classroom positive reinforcement plans, and evidence-based classroom instructional strategies. Although children with ADHD may derive some benefit from such programs, it is not likely that this level of intervention will be sufficient to address all behavior and learning problems.

Second-tier interventions are more intensive than those at the universal level, and are targeted for selected at-risk students. These interventions generally are relatively easy to use and can be implemented within the regular classroom setting. Such interventions may include environmental modifications (preferred seating for the targeted student), peer tutoring, and organizational aides.27 Children with ADHD being served by interventions in the second tier may or may not have a formal Section 504 plan. Children at this level are often placed on medication for ADHD, which may have the effect of precluding the need for more intensive intervention.28

Many students with ADHD require additional resources and more intense interventions to succeed behaviorally and academically. Generally, third-tier interventions are individualized for the target child. Functional behavioral assessments (FBA) are often utilized at this tier to identify the most appropriate intervention. FBA typically include teacher interview and behavior observation data and are useful in identifying settings or tasks (ie, antecedents) in which a behavior is more likely to occur as well as what is reinforcing the child’s behavior (eg, avoiding a task, and attention from teacher or peer). In addition, the third tier typically incorporates interventions that include additional school personnel, are more time intensive, and are individualized to address the needs of the targeted student. Examples of interventions for children with ADHD at the third tier include a response cost system tailored specifically for the student, a daily report card used in conjunction with a home and/or school reinforcement system, use of a classroom assistant to manage behavior or support academic skills, and specialized services to address academic skill deficits. Although the child with ADHD at this level of intervention may receive support outside of the classroom (eg, in special education), their primary placement is in the general education setting. At
this level of intensity the child may or may not have an IEP. If they do not, a Section 504 plan is likely. Additionally, psychoso-
cial interventions for children at this tier are often not sufficient;
medication used in combination with behavioral and academic
approaches often is indicated.

Children at the fourth level of intervention require highly
specialized intervention. These children generally receive most
of their schooling in a special education setting within their
school district, or may attend an alternative education setting.
Intensive mental health services outside of the school setting
(eg, wraparound services or partial hospital program) may also
be warranted.

To comment further about medication, there is consider-
able evidence that children with ADHD benefit from a com-
bined medication and psychosocial approach to treatment.28,2930
Combining behavioral and pharmacological treatment may
reduce the need for highly intensive services. For example,
a combined approach to treatment generally results in lower
doses of medication than a medication only approach.29,31
More recent evidence also suggests that combining a low dose
of medication with low-intensity behavior treatment often
produces effects similar to those found with higher doses on one
type of treatment alone.28

SUMMARY

A wide range of behavioral and academic interventions
are available for the treatment of ADHD. These interven-
tions can be differentiated into (a) those directed at changing
events that are antecedent to targeted behaviors, (b) those
that focus on the consequences of behavior, and (c) those
that include antecedent-based and consequence-based com-
ponents. Hallmarks of effective psychosocial intervention are
consistency, immediacy, and specificity of implementation,
and saliency of consequences. Virtually every effective approach to
psychosocial intervention places emphasis on the use of posi-
tive reinforcement strategies. Punishment is a useful compo-
nent of intervention, but it is essential that positive reinforce-
ment be implemented four times more frequently than punish-
ment. Families serve a critical role in the educational process.
Family involvement through the use of homework interven-
tions and problem-solving partnerships with teachers can add
substantially to the effectiveness of a psychosocial approach to
intervention.

Children with ADHD with significant educational impair-
ments may qualify for special education programming includ-
ing an IEP to guide implementation. Children with ADHD
who do not qualify for special education may be protected
under Section 504, which entitles them to accommodations to
address their learning and social needs. In addition, schools
increasingly are adopting an RTI framework whereby students
receive low-intensity interventions at the outset and proceed to
higher levels of intensity in response to previous attempts at
intervention.

Although this article has focused on psychosocial school
interventions, the most effective approach to treating ADHD
often includes a combination of pharmacological and psy-
chosocial methods. The use of psychosocial interventions in
combination with medication often enables children with
ADHD to be treated effectively with lower doses of medication
than needed when medication alone is used.

Acknowledgment: This project was supported by grant
R01MH068290 funded by the National Institute of Mental Health
and the Department of Education, and R34MH080782 funded by the
National Institute of Mental Health.

Disclosure: The authors declare no conflict of interest.

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