CHAPTER 5

Evaluation of stress management

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Introduction

Evaluation is an attractive concept. Practices want to be assured that professional and administrative time is being used to good effect. Family health services authorities, particularly since the introduction of cash limiting, want to be able to allocate resources to interventions that are effective, and continuing support is likely to rest on evidence of value. Bids for new initiatives in general practice will be approved only if evidence of some evaluation is built into proposals. This is particularly important in the development of new services such as stress management, which have to date been offered by only a small minority of practices. Evaluation includes a wide range of activities of varying complexity, ranging from simple audits to research studies with sophisticated outcome measures.

Evaluation has been defined as "the formal determination of the effectiveness, efficiency and acceptability of a planned intervention in achieving stated objectives" (Holland, 1983). Either the structure, process or outcome of an intervention may be evaluated (Donabedian, 1980). Structure refers to the physical setting of an intervention, and to the resources, both human and financial, committed to it. Process is a measure of the activity of the programme in comparison with stated objectives. Aspects of process that can be measured include coverage rates of a target population, throughput including waiting time, and the extent to which protocols are followed in managing individual cases.

Most audit initiatives, whether managerially or medically led, rely on the collection of such process data. Ultimately the benefit of a programme can be assessed only by measuring how far it achieves its stated objectives for outcome. Outcome studies require a research design to control for such factors as the natural history of a condition and the effects of factors not related to the intervention. Ultimate outcomes, such as incidence of heart disease following a preventive programme, rely on large-scale studies including several years of follow-up. Shorter term outcomes may be used as proxy measures, for example the level of control in hypertension as a measure related to ultimate morbidity from stroke.

General principles

Definition of stress

There are several difficulties in applying the above principles of evaluation to stress management clinics. The first and most basic is that there is no generally agreed definition of what is meant by the word 'stress' (Hobfoll, 1989; Wilkinson, 1991). In general, it is considered as an emotional, physiological and cognitive state usually experienced as negative. Definitions vary but most recent theories of stress argue that individuals and their environments are both essential elements for understanding stress because of their transactional relationship (Powell and Enright, 1990). A person's appraisal of a situation is considered important in explaining the impact of a stimulus or stressor and their appraisal is influenced by the nature of the stimulus — its imminence, intensity, duration and controllability and by the perceptions of the individual (Lazarus, 1966; Cox, 1978; Ostell, 1991). This is discussed in greater detail in chapter 1.

Signs of stress are comparable to those of anxiety, ranging from hyperventilation, nausea, the experience of pain, irritability, insomnia, impaired concentration and social withdrawal. There is inherent conceptual confusion which makes stress potentially difficult to discriminate from general anxiety (Marzillier and Hall, 1987; France, 1990). Stress and anxiety are commonly treated as virtually synonymous (Marzillier and Hall, 1987; France, 1990; Powell and Enright, 1990). However, the national morbidity studies include acute stress with 'transient situational disturbance' and 'adjustment reaction' and distinguish between these and 'anxiety disorder' and 'anxiety state' (RCGP et al., 1986).

Perhaps easier to define are the target groups for whom stress management may be considered. Published reports include significant psychological disorders, such as generalized anxiety disorder, habit and addiction disorders such as smoking and alcohol abuse, and primarily physical complaints such as hypertension, asthma and irritable bowel syndrome.

Objectives of stress management

Central to any evaluation are specific measurable objectives against which process and outcome can be measured. Most reported interventions in stress management have not included specific objectives for the programme, especially in respect of self-reported stress (Cullen and Sandberg, 1987). Stress management tends to concentrate on the subjective experiences of individuals, and on changing their responses or coping strategies to particular stressors. Typically it draws upon a transactional model of stress which can be seen as compatible with a problem-solving approach (Ostell, 1991). In some cases the objective is clear from the selection of cases — for example, stress management as an approach to management of physical or habit disorders (France, 1990). The focus of most evaluations has been on subjective well-being, sometimes supplemented by opinions of the therapist or others. Other outcomes, such as changes in consultation rate with the general practitioner or use of psychotropic drugs, have been included in published studies but are seldom explicitly stated as objectives for the programme.
Levels of evaluation

The structure of a stress management programme is the easiest aspect to define and audit. Approval from family health services authorities for funding (which is always subject to change) is likely to depend on such structural factors as numbers attending and length of session. A particularly relevant issue in the case of stress management is the training and expertise of the staff involved.

Evaluation of process relies on objectives describing the content of stress management clinics. Important aspects to be considered are how far those referred to this service agree to participate, and whether they complete the full course of stress management. Stress management courses frequently encourage participants to set their own objectives and assess their progress towards them at the end of the intervention (France, 1990). Although such measures are valuable at a practice level, it is important to differentiate between this outcome and an evaluation of the programme as a whole.

Rigorous methodology is particularly important in stress management, as there is evidence that such conditions may be largely self-limiting (Freeman and Button, 1984). The natural history of psychological problems in primary care is poorly understood, emphasizing the need for a control group in any full evaluation. Even with such a design, control and intervention groups need to be assessed for differences arising out of chance or bias allocation.

Methodological considerations for research

As well as having a clearly defined objective for the programme, evaluative studies need to satisfy the criteria of any clinical trial. Ideally these include a clear description of the population to be studied, with explicit inclusion and exclusion criteria. Sampling techniques should be described and refusal rates documented. The design should include random allocation to intervention and control groups and subsequent checks on comparability. In most studies it is advisable to include a range of outcome measures including, for example, both objective psychological scales and subjective impressions. There is also a need to consider the clinical significance of statistical measures of change. Assessment of outcome is best performed by an independent observer, unaware of whether the individual was in the intervention or control group. Control groups are normally offered usual care, but where specific interventions are being tested it may also be useful to control for the professional time given to the intervention group. There are major difficulties in satisfying these criteria and none of the reports we reviewed meets them all.

Early studies included stress as one of a broad mix of problems (Trepa and Griffiths, 1987). For example, Earl and Kincey (1982) included any problem considered amenable to psychological treatment, with very few exclusion criteria. The authors commented that most clients suffered from anxiety, tension and interpersonal problems and that this heterogeneous sample may have biased the study against achieving positive results.

None of the studies emphasizing stress management have defined this concept explicitly. Several have simply used a General Health Questionnaire score (Goldberg, 1978) above a certain threshold as the entry criterion (Klerman et al., 1987). Anxiety management studies tend to describe their sample in more detail; for example, Power et al. (1990) had stringent entry criteria including those from DSM-III-R (APA, 1980) and standard anxiety rating scales. An operational definition of stress in primary care is urgently needed to ensure comparability between approaches to stress management.

A related problem is lack of detail about the intervention that has been evaluated. This is particularly important where self-help packages or a standard approach to group work is being assessed. It may also be relevant to know the background and theoretical approach of those providing the intervention. For example, one study included four clinical psychologists who were described as “behaviourally orientated, but with interests sufficiently widespread to represent the profession as a whole” (Robson et al., 1984). Evaluative studies should include sufficient detail for the intervention to be reproduced in other practices.

Effectiveness and efficiency

Once an intervention has been shown to be effective, the next stage of evaluation is to establish how efficiently it achieves its outcome. All health programmes consume resources at the expense of other activities which may be more efficient. Health economists describe the ‘opportunity cost’ of a resource as the benefit that would be derived from using it in its best alternative use (Drummond, 1980).

Cost benefit analysis involves placing a cost on all the expenditures and benefits of a programme. This allows the efficiency of different programmes to be compared and may inform policy decisions such as whether to devote resources to renal transplantation or coronary artery surgery. Such exercises are complex and there is no agreement over how to cost such benefits as ‘quality of life’. A simpler method of economic appraisal is cost effectiveness analysis. This allows comparison to be made between different methods of achieving the same outcome. It does not involve costing of benefits, and so cannot be used to compare programmes with different objectives. It can, however, make an important contribution to the relative efficiency of programmes, such as transplantation versus dialysis in the treatment of renal failure. Both these methods of economic appraisal involve an estimate of costs and benefits. Some studies only include the cost of a programme. Such cost analysis is not a method of appraisal but may be useful at practice level to give an indication of the resource needs of a programme.

Costing a stress management programme need not be complex. The main cost involved is likely to be staff time, with some expenditure on written materials and other resources. If existing staff are being diverted to run the clinic, an additional cost is the loss of their previous activity. Such opportunity costs are likely to be very difficult to estimate. Benefits from stress reduction which may be readily estimated are reductions in prescribing and reduced number of consultations with the general practitioner and referrals outside the practice. Costs incurred outside the practice, such as earlier return to work by clients, are much more difficult to estimate, and there is no agreed way of costing the main outcome, that
of reduction in stress. Research studies on stress management should include an economic appraisal, at least of costs and benefits borne by the practice.

Results of evaluation studies

Psychological conditions in primary care

There is little published material referring specifically to the evaluation of stress management. Kiely and McPherson's study (1986) addressed the issue of evaluating a strategy aimed at helping people whom their general practitioner regarded as having psychological problems in which stress may have played a part. The randomly chosen experimental group was given a self-help leaflet plus routine general practice care and compared with a control group who received only routine general practice care. There was a significant difference in General Health Questionnaire scores at the end of the intervention and in the number of consultations with the general practitioner for psychological problems indicating positive effects of the self-help leaflet. However, there were no significant differences between the two groups in consulting for non-psychological problems and both groups received more psychotropic medication in the three-month follow-up period. Deficiencies in the design of the study included the lack of pre-treatment/control General Health Questionnaire data and the short follow-up period. However, the results do support further development evaluation of self-help material for people with stress-related problems presenting in a primary care setting.

Milne and Covitz (1988) found similarly encouraging results from evaluating the impact of a short leaflet and a detailed manual on a small sample of patients with clinical anxiety compared with a waiting list control group. The numbers of subjects in the experimental and control groups were too small to yield significant results, but the findings suggest that both written materials were equally helpful in reducing anxiety scores over a 6-month period. The intervention group had fewer consultations with their general practitioner, and reported using less anxiolytic medication than the control group.

Similarly, beneficial results of a booklet have been reported by Sorby et al. (1991) who randomly allocated patients with generalized anxiety and panic disorder to a control group receiving usual general practitioner care and an intervention group which also received a self-help booklet. They found that the booklet had a statistically significant effect on anxiety levels, especially in the few weeks after initial presentation, although there were some problems in lack of comparability of pre-treatment anxiety levels between intervention and control groups.

Few studies have evaluated specific stress management programmes in primary care and definitions of anxiety and stress frequently overlap and are confused. A number of studies evaluating anxiety management with general practice patients will be reviewed. We have not included studies evaluating interventions also aimed at helping patients with depression or obsessive-compulsive disorder or those with entirely psychiatric populations.

Two studies have evaluated individual interventions carried out by psychologists. In a well-designed study Butler et al. (1987) examined general practitioner referrals with generalized anxiety disorder who were randomly allocated to individual anxiety management sessions or a waiting list. The intervention group improved significantly on a range of anxiety and mental health measures, recorded subjectively by an independent assessor 3 months later. These results were also found in the waiting list control group when they received treatment at a later point in time. Improvements were maintained at 6-month follow-up. Similarly, Robson et al. (1984) reported improvements in the self-rating of the severity of a wide range of problems for a randomly selected group who received individual psychological treatment, compared with a control group receiving usual general practice care. After one year, the difference between the intervention and control group had become substantially less marked on measures of the severity of the problem and its effect on the sufferer and the household. Unlike Butler, Robson also examined behavioural outcomes such as consultations with the doctor and receipt of prescription. The intervention group was found to have significantly fewer contacts with the doctor over the 12-month follow-up period and incurred less cost for the prescription of psychotropic drugs. Cases in this study were defined as "patients . . . the general practitioner thought . . . might benefit from the intervention of a clinical psychologist". Within this heterogeneous group the authors noted the comparative amenability of anxiety and stress-related problems to psychological help compared with habit disorders, interpersonal problems and depression.

Psychological management of anxiety has been compared with drug treatment. Power et al. (1990) randomly allocated patients to one of five groups: cognitive behaviour therapy, diazepam, placebo, diazepam plus cognitive behaviour therapy, and placebo plus cognitive behaviour therapy. After 10 weeks, all groups showed some improvement as assessed by the general practitioner. The gain was greatest in the groups receiving cognitive behaviour therapy and least in the group receiving placebo treatment. After 6 months the groups were compared in their subsequent use of psychiatric drugs and for referrals. There were no differences in the use of drugs, but those in the experimental group receiving diazepam alone were more likely than the other group to have been referred to a psychologist or psychiatrist in the follow-up period. In a similar study, Lindsay et al. (1987) randomly assigned subjects to one of four groups: cognitive behaviour therapy, anxiety management training, lorazepam, and a waiting list control. The lorazepam group showed the greatest improvements in the initial weeks but these were minimal by the end of a 3-month follow-up period. Both groups receiving psychological treatments improved more than the controls, and this difference increased as the trial progressed. There was no difference in outcome between the groups receiving cognitive behaviour therapy and anxiety management training.

Trepana et al. (1986) compared two types of groups — anxiety management and support groups — with matched patients who had received individual psychological treatment. They found that individual treatment produced greater reductions in anxiety than group management, and unlike the latter, this was sustained
over a 12-month period. Neither type of group was more effective that the other and both reduced demand for primary care services, but this finding is difficult to interpret because of the lack of a control group.

Stress management and physical disorders

The relationship between stress and physical disorders is complex and is discussed more fully in chapter 2. Illness itself is a potent stressor and there is a continuing debate about whether high stress levels in individuals with, for example, inflammatory bowel disease are due to the condition itself or are causal agents. Although resolution of such issues has implications for prevention, the association between disease and stress, whether causal or not, suggests that stress control may have a place in management. Objectives for such approaches have included improving psychological well-being and functioning, as well as affecting the disease process itself. The place of such therapies in cancer patients has recently been reviewed (Simms, 1987).

Trials of stress management for physical disorders face many of the same problems as those for psychological conditions. Improvements in the disease process may be easier to define using, for example, standard measures of severity in hypertension, inflammatory bowel disease or diabetes, but psychological and social outcomes create the same difficulty in measurement, and many studies are difficult to interpret because of small numbers and testing for multiple outcomes.

A trial of stress management on rheumatoid arthritis found an effect on joint tenderness but not on any of the other eight outcomes. The authors' interpretation was that the study gave no support to the use of stress management in this condition (Shearn and Fireman, 1985). More encouraging results have been reported by Milne et al. (1986) in a trial of stress management for inflammatory bowel disease. They found that the intervention group reported fewer symptoms and suffered less psychologically and socially than a control group which received no intervention. One difficulty with such studies is choice of control group. It is plausible that any benefit of stress management may be due to the group itself, sharing problems with fellow sufferers, or information about the disease. As well as a stress management and control group, Shearn and Fireman (1985) included a mutual support group led by a psychologist with the aims of enhancing self-responsibility, exchanging information, building relationships and decreasing isolation. Although the results of the trial were essentially negative, the one outcome showing benefit improved almost equally in the stress management and mutual support groups. Hellman et al. (1990) used a control group that focused exclusively on information about stress management, with intervention groups involving training in relaxation-response, awareness, and cognitive restructuring. The study was based on primary care and involved people with a wide variety of physical symptoms in which it was thought psychosocial factors played an important role. The intervention groups were found to consult less frequently during the study's 6-month follow-up period and, unlike the control group, reported reductions in both physical and psychological symptoms. The programme, which was based in a health maintenance organization, was costed and thought to save approximately £54* per patient. These results strongly suggest that training patients in techniques of psychological management is more beneficial than merely giving them information and support.

As well as those conditions mentioned above, stress management has been described for multiple sclerosis (Crawford and McIvor, 1987), irritable bowel syndrome (Clare, 1985), muscle contraction headaches (Smith, 1988) and diabetes (Evans, 1985; McGrady and Gerstenmaier, 1990). Because of its importance in public health terms, much energy has been devoted to ascertaining the place of stress management in the prevention and management of ischaemic heart disease. In a detailed review of this question, Bennett and Carroll (1990) concluded that stress management techniques were effective in reducing three of the major risk factors for heart disease, namely type A behaviour, raised serum cholesterol and hypertension. One of the most rigorous studies of these risk factors was conducted by Patel et al. (1985). A group of men at higher than average risk of heart disease were randomly assigned to a control or intervention group. Both received education on how to reduce the risk of heart disease, and in addition the intervention group had a series of eight weekly sessions, lasting 1 hour, where stress management and relaxation techniques were taught. The groups were followed up for 4 years. Those attending stress management sessions showed significantly greater reductions in blood pressure, smoking and cholesterol at the 8-month follow-up, but only the first of these was maintained over four years. The study attempted to detect differences in mortality and morbidity. The intervention group contained fewer individuals with angina and with clinical or electrocardiographic evidence of myocardial infarction, compared with the control group. Although the numbers are too small for firm conclusions, this evidence strongly supports further examination of the role of stress management programmes in heart disease prevention programmes.

Conclusions and recommendations

There is strong evidence that patients with a variety of mental health problems fare better if, in addition to care from their general practitioner, they receive a psychological intervention. Several reports have shown that anxiety responds well to this approach. Less is known about patients defined as suffering from stress, although there is anecdotal evidence that this condition is one of the most amenable to psychological management. In practice, programmes for management of stress and anxiety are often very similar in content, and accept clients with similar problems. Such programmes have also been used in the management of physical disorders. The evidence that stress management techniques alter risk factors status for heart disease is strong, and further work is needed using mortality and morbidity as the end points.

The benefit from psychological approaches to the management of anxiety appears greater than with drug therapy alone, and although less immediate, is more

* Originally given in USA dollars. Converted at rate current at the time of going to press (July, 1993).
sustained. While engaging in psychological treatments, patients consult their doctor less often and consume fewer drugs than those treated by the general practitioner alone. Effects on drug usage after completion of the programme are less well established. Long-term benefit is also difficult to demonstrate because of the self-limiting nature of many psychological problems in primary care and because as time elapses, the relative contribution of external factors in the patient’s life is not considered. However, as developing skills for future use is one of the stated aims of stress management programmes, this is an important issue to investigate, and future studies should include longer follow-up periods than those published to date.

Economic evaluation of stress management to date has been very crude. The only published study relevant to general practice was conducted well before the new contract was introduced and concluded that about a quarter of the costs of the programme could be met by drug savings (Robson et al., 1984).

There is no evidence for the superiority of one approach to stress and anxiety management. Cognitive behavioural therapy and anxiety management training were found to be equally effective in treating generalized anxiety disorder. In physical disorders, tuition of stress management techniques is more effective than simply being given information. The only study comparing group with individual management found the former to be less effective and the benefit less sustained. Much more work needs to be done in the evaluation of specific approaches including a more detailed understanding of what aspects of stress management are helpful or unhelpful (for example, problem formulation, relaxation techniques); an assessment of the amount of professional time involved; and further comparisons with less intensive programmes such as those offering group support. The use of self-help packages may provide helpful information for addressing problems of stress in primary care. Few well controlled studies have examined the value of this approach, although results so far suggest effectiveness and relative low cost.

There are problems in extrapolating the results of research into clinical practice — not least the difficulty of defining stress and understanding who might benefit from stress management. Journals are more likely to publish trials showing positive results. Practitioners involved in research may be more highly trained and motivated in that area than their colleagues. A practical concern for general practice is a paucity of professionals from either psychology, nursing or medical backgrounds who have been trained to provide the sort of interventions described in published studies. At our present level of knowledge it would be reasonable for practices to aim to have access to an individual trained in psychological techniques whose referrals would include psychological or physical problems in which stress was thought to play a part. Whether individual or group approaches are used would depend largely on the training and preference of the therapist. The comprehensive evaluation of stress management needs to take account of the methodological issues that have been described as well as the subjective meaningfulness of the process for individuals.

Further research is needed to define the role of stress management in primary care. An agreed definition of stress will encourage comparability between studies. If this is not achievable it is essential that all studies define the population they have included, and describe the intervention provided. Specific questions include what training is needed to provide stress management in general practice, how intensive the intervention needs to be and what aspects of the stress management process and philosophy are helpful in the context of individuals' resources and environmental demands. In response to the trend towards health promotion groups in general practice we need to know how group and individual approaches compare, and if a group approach is beneficial, whether the group should be mixed or consist of people with similar problems.

References

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