The evaluation of stress management strategies in general practice: an evidence-led approach

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SUMMARY

Recent surveys have highlighted sources of stress for UK general practitioners (GPs). Interventions to reduce stress in general practice have been introduced at both an individual and an organizational level, but there is little published evidence of their effectiveness. This paper systematically reviews the literature and reports that the research evidence from stress management programmes employed with other workforces is equivocal. Results so far suggest that relaxation and cognitive behavioural skills are helpful and that group methods are both more cost-effective and more beneficial than individual counselling. It is important for scientific, practical, and financial reasons that stress management programmes be properly evaluated. This paper suggests possible avenues for future interventions to alleviate stress.

Keywords: stress control; research methodology; evaluation.

Introduction

MOST people would agree that stress can be detrimental to health and that work stress can impinge upon other areas of life,[1] although the chronic effects of work stress may remain undetected for some time.[2] In a cross-sectional study, Sims[3] reported an association between job versus non-job conflict — an indicator of work stress and blood pressure. Stress management has become a growth industry, yet not all the methods used have been well founded in theoretical terms. Several authors have highlighted the methodological weaknesses of early studies of stress management interventions.[4-8] While the 1980s saw an increase in rigour, there is room for improvement. Reynolds and Briner[9] recently questioned the blanket introduction of stress management programmes. We need to know for whom various techniques might be suitable and how long the benefits might last. Individual differences that may modify the response to stress must be considered.

The purpose of the current research was to systematically review the existing evidence of the possible benefits of stress management interventions to see if any findings might be relevant to GPs and their patients.

Method

The literature was searched for papers from 1970 onwards using MEDLINE, CINAHL, ASSIA and PsychINFO databases. This was supplemented by correspondence with practitioners and researchers in the field. Papers that discussed the evaluation of stress management interventions were sought. The search was then refined to focus on studies where a controlled trial was conducted. Papers that focused on the use of stress management for particular disease conditions were omitted, as the purpose was to investigate stress management mainly as a primary prevention technique. In assessing the quality of papers, the following criteria were used: the purpose of the study was clearly defined, methods and design were outlined, and there was sufficient detail to determine the validity and the limitations of the findings. The following discussion highlights the theoretical, empirical, and practical limitations of the existing literature.

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Factors to be considered in choosing a stress management intervention

Subjects

Several stress management strategies have their origins in psychotherapeutic techniques. Reynolds and Briner[9] cautioned against their wholesale use in a non-patient population; methods suited to ameliorating various disease conditions may not be suitable for healthy individuals. Programme participants are usually volunteers, which does not necessarily equate to their need for assistance. This poses a dilemma for the therapist or educator. The use of essentially healthy people can dilute the impact of an intervention. It is important to assess need at the outset so as to maximize the effect size of an intervention.

Strategy

Any intervention needs to clarify its aims and objectives, and to seek means to achieve these and modes of assessing outcome. The chief aim must be to equip individuals with information and skills that will help them to cope more effectively with the stressors of work. Objectives of treatment vary. They may include imparting general coping skills or reducing a particular disease risk factor, such as type A behaviour, cholesterol, or hypertension.[10,11] There is much empirical evidence to suggest that stress management has potential benefits, although comparatively few studies have chosen outcomes to reflect the goal(s) of the intervention.[5,9] Most have used self-report measures to assess outcome. It is important to also include observational and objective measures.[6,12-14] De Frank and Cooper[15] found blood pressure (BP) and anxiety to be the commonest measures in the studies they reviewed. Outcome measures should be chosen to maximize effect size and stability. For example, several studies have reported reduced absenteeism, but have recognized that large effects would not be expected.

The choice of intervention should also be guided by stress theory.[16,17] Cox[18] categorized three approaches to defining stress: the engineering, the physiological, and the psychological approach.[19-22] The psychological model recognizes stress as one of the potential products of the dynamic interaction between a person and their environment which may create ill health. It focuses upon cognitive (and contextual) appraisal of situations, where individuals assess the perceived degree of control over the situation and their ability to cope.[23] Stress occurs when the individual perceives that he or she cannot cope with the imposed demands (and is concerned). The model therefore incorporates and emphasizes individual differences in the response to stress.[24]

Many interventions have used a combination of techniques, which confounds the determination of their independent effects. Although a holistic approach to stress management may be useful in practical terms,[25] scientifically it poses problems in deter-

mining the sensitivity and specificity of an intervention's effect. Small sample sizes have also limited such comparative studies.[14,26] Comparing interventions across studies is also problematic, particularly since there has been little commonality in the outcomes used.

Evaluating stress management interventions: methodological considerations

A randomized controlled trial (RCT) is needed to scientifically test whether any observed improvement is due solely to the intervention. Evaluations in which an RCT design has been used are included in Table 1. A suitable control group is needed to offset the Hawthorne effect, which seems to have led to the overall improvements across subjects seen in one study.[14] Because differential efficacy expectancies between treatment and control groups can weaken the findings,[27] use of an attention control group[28] or a waiting list control group[16] may be preferable alternatives.

Follow-up is needed to establish whether significant, permanent lifestyle changes can be expected. Where follow-up has occurred in studies it has tended to be rather short, with notable exceptions (Table 1); this places limitations on the interpretation of the findings.

Examples of evaluations of stress management interventions

Sallis *et al*[29] compared relaxation alone with relaxation as part of a cognitive-behavioural skills package. The control group had an educational programme but no skills input. Similar reductions in anxiety, depression, and hostility were seen in all groups. No effect was seen upon job stress, job satisfaction, or BP. The authors concluded that learning about different approaches through the combined intervention did not lead to workers choosing a favoured technique, as had been expected.

Bruning and Frew[30] randomly allocated 62 workers to three groups receiving different interventions (management skills, meditation, exercise), or to a control group. Blood pressure and pulse were assessed blind. All three interventions produced significant improvements compared to the control group. Effects were maintained at 10-week follow-up. Following this, a quasi-experimental design was introduced: intervention groups received an alternative intervention and controls received them all. The authors concluded that combined interventions led to greater improvement, with no one intervention being preferable to another.

Carrington *et al*[31] found meditation to be superior to relaxation in reducing depression, anger, hostility, and symptoms, although the controls also had fewer symptoms. Peterson[32] found a combination of cognitive behavioural skills and relaxation less effective than the single interventions.

West *et al*[33] reported a significant difference in outcomes (anxiety, burnout, and systolic BP) at four-month follow-up among those who had skills-based input compared with those receiving information only. However, the multiple post hoc analyses conducted may have led to over-interpretation of the data.

Several researchers have aimed to modify coronary prone (type A) behaviour in a non-clinical population. A Type A behaviour pattern can be an unhelpful means of responding to stress. Gill *et al*[34] used a cognitive behavioural programme, based on one used to prevent the recurrence of coronary events in post-infarction patients. Assessment was conducted blind. A significant reduction in Type A behaviour was observed after 21 group sessions held over nine months. No consistent differences in total serum cholesterol or plasma HDL cholesterol levels were noted (except in a subgroup comparison involving those with a profound reduction in Type A behaviour). Generalizability is limited: the group were particularly well-motivated army officer students living in a campus environment.

In a smaller study, the maintenance of Type A behaviour modification gains from cognitive behavioural group therapy over a follow-up period of one year was investigated.[35] While scores for the control group remained relatively stable, the intervention groups continued their positive trend, with no additional benefits in the group that also had assertiveness training.

A controlled trial of cognitive behavioural-based relaxation using Chinese nurses showed how different outcomes develop over time.[36] While health was improved at two weeks' follow-up, self-reported stress did not decrease until three weeks later, the end point of this short study.

Even when long interventions are conducted, the effect size can be small, as exemplified by Ganster *et al*'s study.[16] Subjects had 16 hours of group work over an eight-week period. In addition to the RCT, this study included a four-month follow-up and a replication of the treatment in the waiting list control group. However, outcomes here were somewhat confounded by seasonal variation in catecholamine level, the physiological dependent variable used.

Elsewhere, historical confounding has clouded follow-up studies. Long[37] attempted to compare the effectiveness of stress inoculation training (a cognitive behavioural approach) plus exercise with stress inoculation training alone in a group of teachers. The design meant that the latter condition was measured during the exam season, which seemed to offset its benefits. Overall, the study demonstrated that both exercise and cognitive-behavioural interventions could improve coping patterns, indicating a non-specific intervention effect.

Rational emotive therapy (RET) has been widely used in individual clinical therapy. A non-clinical population was used to assess its usefulness as a group approach to stress management.[38] Subjects had 20 hours of training as part of a professional development programme. Although benefits were maintained after 18 months, the effect sizes were small. Group cohesion may partially explain the accrued benefit: there was no attention placebo group to test for this effect. The findings are also limited because the control group comprised those who completed the programme a year after the subjects (minus the training). Historical confounding factors may have arisen.

Implications for the GP

Stressors in general practice and current support schemes

Stressors experienced by GPs include night calls, emergencies during surgery hours, interruptions to family life, and the prevailing time pressures of a heavy workload.[39-41] In relation to Karasek's 'job demands, decision latitude' model of stress,[22] GPs seem to have high demands but also high control over these demands. However, in practice, many would argue that the degree of control GPs exercise over their work has been eroded by the increasing demands placed upon them by the 1990 GP Contract.[42,43] Several authors have shown an association between self-reported stress and deterioration in health.[41,44,45] Morbidity and mortality statistics highlight an increased risk of conditions such as cirrhosis and suicide among all doctors compared with the general population.[46]

In response to this evidence, specialized counselling services have been introduced (e.g. National Counselling Service for Sick Doctors, the BMA counselling service, GP Care) and various stress management programmes have been developed nationwide (e.g. the Staffordshire Scheme and the GP Stress Factory). While they may produce non-specific benefits by providing a forum for GPs' difficulties to be discussed, there is no formal, scientific

Table 1. Evaluations of stress management interventions.

Author(s)	Intervention	Subjects	Follow-up	Outcomes
Carrington et al 1980[31]	Meditation, muscle relaxation	Telephone company workers (n = 154)	5 months	Reduced depression, anxiety, hostility, somatization
Peters 1981[62]	Meditation, relaxation	Office workers (n = 194)	6 months	Improvements in relaxation group, symptoms, performance, BP, satisfaction
Forman 1981[66]	Cognitive-behavioural skills, muscle relaxation	School psychologists (n = 16)	None	Reduced anxiety, improved job satisfaction, positive attitudes to work
Peterson 1981[32]	Cognitive-behavioural skills, muscle relaxation	Clerical staff (n = 81)	6 weeks	Relaxation reduced BP, HR, head temperature; improved coping ability
Ganster et al 1982[16]	Stress inoculation, rational emotive therapy, progressive muscle relaxation, biofeedback	Public employees (n= 79)	4 months	Reduced epinephrine level and depression score
Aderman & Tecklenburg 1983[67]	Seminar, relaxation	Managers (n = 55)	None	Decreased anxiety, improved locus of control, self-actualization
Murphy 1983[68]	Biofeedback, muscle relaxation	Nurses (n = 28)	3 months	Relaxation reduced EMG, improved coping; biofeedback reduced head temperature, improved satisfaction
Murphy 1984[14]	Muscle relaxation, biofeedback	Road maintenance workers (n = 38)	3 months	Reduced forehead muscle tension (EMG) especially in biofeedback group
McNulty 1984[69]	Stress management training	Police recruits (n = 44)	None	Reduced catecholamine levels
Orpen 1984[70]	Conditioned relaxation	Middle managers (n = 36)	3 months	Reduced strain, higher job satisfaction
Gill et al 1985[34]	Type A behaviour modification	Army officers(n = 118)	9 months	Reduced Type A behaviour
Sharp & Forman 1985[71]	Stress inoculation training vs classroom management training	Teachers (n = 60)	1 month	Improved classroom behaviour, reduced anxiety
Thurman 1985[35]	Rational emotive therapy plus anger management and assertiveness training	University staff (n = 34)	6 months, 1 year	Reduced Type A behaviour, anger
Admi & Shirom 1987[72]	Stress inoculation training or in clinic training	Nursing students (n = 46)	3 months to 1 year	Improved clinical performance, reduced heart rate, norepinephrine levels
Bruning & Frew 1987[30]	Cognitive modification (management skills) meditation, exercise	Hospital equipment workers (n = 62)	6 months	Decreased blood pressure, heart rate
Norvell 1987[26]	Stress management programme including cognitive behavioural techniques, deep muscle relaxation	Health care workers (n = 12)	None	Reduced intensity of emotional exhaustion, hassles (measured on Maslach Burnout Inventory)
Roskies 1987[10]	Cognitive behaviour therapy (including relaxation, stress inoculation), jogging	Business executives (n = 107)	None	Reduced Type A behaviour, hostility
Sallis et al 1987[29]	Relaxation, multicomponent programme	Corporate employees (n = 76)	3 months	Reduced anxiety, depression, hostility
Long 1988[37]	Stress inoculation with/without exercise	Teachers (n = 66)	2 months	Improved coping strategies

Table 1. Evaluations of stress management interventions (contd).

Author(s)	Intervention	Subjects	Follow-up	Outcomes
[a]Murphy & Sorensen 1988[73]	Biofeedback, relaxation	Road maintenance workers (n = 38)	1.5 years	Reduced absenteeism in relaxation group, EMG
Whitney 1990[74]	Group process, structured content (relaxation, assertiveness, cognitive restructuring)	Air force personnel	2 months	Reduced hassles score
Cecil 1990[75]	Stress inoculation, co-worker support groups	Teachers (n = 54)	1 month	Stress, coping, observed anxiety
[a]Cooper & Sadri 1991[65]	Individual counselling	Postal workers (n = 350)	3 months	Reduced absenteeism, anxiety, depression, symptoms, improved self-esteem
Toivanen 1993[76]	Relaxation training	Cleaners (n = 61)	6 months	Reduced absenteeism, EMG
Tsai 1993[36]	Relaxation training (cognitive meditation)	Nurses (n = 137)	5 weeks	Reduced stress, improved health (on Chinese version of GHQ)
[a]Kushnir 1993[38]	Rational emotive therapy workshop	Safety officers (n = 22)	18 months	Improved assertiveness, fewer irrational beliefs and somatic complaints

[a]Non RCT. EMG = electromyograph; BP = blood pressure; HR = heart rate; GHQ = General Health Questionnaire.

evidence as to their effectiveness.

A thorough search of the literature as outlined above failed to uncover published details of any controlled interventions involving GPs. As discussed in earlier sections, it is important that practical interventions in the area of stress management are based upon research evidence.[47,48] However, the degree to which any findings from other occupations can be generalized is limited by the nature of GPs' contract with the National Health Service. Most of the literature referred to above concerned employees, whereas GPs are essentially self-employed.

Barriers to the evaluation of stress management interventions for GPs

In planning an intervention for GPs, there are other limitations on generalizing from other workforces. For example, the length of intervention has to be considered in terms of feasibility. A series of sessions would be the ideal, but this has to be offset by the attendant costs and the likelihood of poor attendance given the many other demands upon a GP's time.

Another challenge within general practice will be to find appropriate outcome measures. Those listed by De Frank and Cooper[15] (turnover, productivity, absenteeism) may not be appropriate. While other researchers[49] have compared absenteeism pre- and post-intervention, given the circumstances among GPs this is unlikely to prove feasible. The current choice may be limited to self-report measures, but long-term measures of changes in practice activity may become helpful, albeit indirect, indicators of progress. Unobtrusive measurement of the GPs is an alternative approach, but the practical implications are considerable.

Future approaches to the management of stress

Individual versus organizational approach to stress management intervention

Interventions can change the environment to reduce the potential for stress, help individuals to modify their appraisal of it, or help individuals to cope more effectively with stressors.[7] Most people favour the first, organizational approach. The equivocal evidence for individual-based approaches and the intent to promote occupational health without 'victim blaming' has led to a call for more organizational level interventions.[18,50] While individual-based interventions may improve coping strategies and alter perceptions of work stressors, more organizationally influenced factors, such as job satisfaction, may be less amenable to change by this route.[26] Researchers who have reviewed organizational-based stress management studies have reported generally favourable results.[47,51] The organizational approach should help to attack at source problems that may not be reduced simply by individual-based approaches.[52]

For GPs, organizational approaches used elsewhere (e.g. increased autonomy[49,53]) are not wholly appropriate, but they may have some impact in the general practice setting overall. Some examples in general practice do exist, such as the work on longer booking intervals.[54,55] Morgan[56] has said that a change in organizational culture within the profession may be necessary. There is certainly scope for practices to use some of the change management strategies used by commercial organizations;[57] some have already done so (see, for example, East Anglia's Catalyst programme). The ethos of an organizational approach has been adopted by several schemes aimed at improving practice management and activities, with all the primary health care team being involved in considering possible changes[58] (also P Nash, personal communication, 1996. Increased participation in decision making by other primary health care team members may help to ameliorate stress in all parties. In a controlled trial of hospital outpatient department staff, Jackson[59] found that staff meetings helped to clarify employee's roles, improve job satisfaction, and reduce staff turnover. Another hospital-based study, using matched controls, found that an intervention that promoted participation (e.g. in work redesign as well as relaxation) reduced malpractice claims.[60] Practical strategies (Box 1) need to be revisited at both practice and national level and properly evaluated wherever possible.[48] There will still be the opportunity for

GPs to be assisted by other routes such as mentoring schemes, counselling, education, and training.

As reflected in the previous section, stress management interventions so far have largely been implemented at the individual rather than the organizational level. One also has to consider what is achievable within primary care: GPs may have some responsibility for their own health and that of their patients, but the organizational contexts in which both doctor and patient work are unlikely to be influenced by any one GP.

Stress audits

Psychologists have paid great attention to coping strategies as individual-based problem solving processes, but other options in the organizational and managerial sphere need to be developed. Reynolds and Shapiro[17] suggest stress researchers and therapists move away from the prevailing medical model of 'stress diagnosis' and use strategies from organizational theory. Cooper and Cartwright[61] have emphasized the need for stress audits, whereby needs can be assessed and managed, and outcomes monitored. Similarly, Cox[18] suggests a problem-solving approach for the management of stress. The stressful agent and the target for stress management must be identified through a stress audit process, or 'control cycle'. Both individual and organizational methods of managing stress in the past have suffered from a lack of evaluation: the cycle has not been completed. This paper has emphasized that continuous monitoring is needed.

Conclusions

The difficulties surrounding the evaluation of stress management programmes have been highlighted. Sponsors require evidence of efficacy of schemes if they are to continue funding stress management interventions. There is a need for greater scientific scrutiny of the approach to stress management in general practice. More research is needed to highlight whether interventions 'work' and, if so, by what means. So far, there is no clear evidence of the preventive versus remedial benefits of stress management interventions. In addition, future research should elucidate what is required to maintain any positive changes resulting from an intervention. It is important to sustain motivation.[62]

A number of interventions have produced positive, albeit modest, effects. In particular, relaxation and cognitive behavioural skills appear to be helpful. Apart from non-specific benefits such as group cohesion, interventions have generally given a better outcome than control conditions. Using expert trainers was perceived by several researchers to be beneficial. The cost benefits and cost-effectiveness of the different strategies employed remains unclear owing to the lack of strong data.[63,64] Although benefits can be seen from individual counselling[65] for non-clinical individuals, it is probably more cost-effective to use group methods, particularly since group cohesion seems to be a non-specific benefit of intervention programmes. Furthermore, given the relatively weak effects reported so far, targeting of those individuals most at risk may be preferable. There is little evidence of a preferred mode of intervention: individual preference, availability of expertise, and cost-effectiveness should determine choice.

Delegation, e.g.
- employment of practice managers
- use of counsellors
- deputizing services

Time management

Systems to ameliorate interruptions

Rationalize list size

Review
- amount of non-NHS work
- practice policies
- communication channels and lines of responsibility

Appointment systems

Opportunities for career development

Box 1. Practical strategies for stress management in general practice. (Adapted from Cox,[18] and Rout and Rout.[39])

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