CHAPTER 25

Stress Management at Work: Secondary Prevention of Stress

Lawrence R. Murphy
National Institute for Occupational Safety and Health, Ohio, USA

25.1 INTRODUCTION

In the first edition of this handbook, the chapter on stress management provided detailed descriptions of various stress management techniques, reviewed the scientific literature on effectiveness for each technique, identified gaps in research and offered ideas for future research needs (Murphy, 1996b). This chapter follows the same general outline, but with two exceptions. First, the descriptions of each technique are abbreviated in favor of presenting more detail on key elements of successful stress management interventions. Second, the literature on stress management is assimilated with research on job- and organizational-level stress interventions in an effort to bring these two fields into closer proximity. Only when the latter is done will the field make substantial advances in reducing stress at work, and practitioners will be enabled to design effective, comprehensive stress management interventions.

The nature and complexity of occupational stress have been addressed in numerous research articles and books (Caplan et al., 1975; Cooper & Marshall, 1976; Ivancevich & Ganster, 1987; Murphy & Schoenborn, 1989; Quick & Quick, 1984). This literature indicates that stress is a common problem in work settings, and can lead to physical and psychological ill health; that stress is often determined by personal appraisals of work environment situations (one person's meat is another person's poison); and that stress is costing companies substantial amounts of money in the terms of health care costs, productivity losses, and worker compensation claims (Cooper, 1987; DeCarlo, 1987; Sauter et al., 1990). Increasingly, more and more companies are exploring ways to deal with occupational stress.

There are three distinct approaches to the problem of occupational stress, each addressing different aspects of the problem. The most common approach is to provide treatment services to troubled workers, usually in the form of employee assistance programs. This is a reactive approach, in as much as the health problems already exist, and the main efforts are focused on treatment of the health outcomes. This approach typically does not involve efforts to

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identify and reduce job/organizational factors that create stress. In medical terminology, this is *tertiary prevention.*

In contrast, *primary prevention* seeks to identify and reduce the sources of stress, which can be work or non-work factors. This approach can be reactive (that is, dealing with an existing stress problem) or proactive (preventing stressful work conditions from becoming a problem), but deals directly with the source(s) of stress at work, not just the outcomes of exposure to stressors. Evaluations of this type of intervention are relatively rare in the published literature (see Murphy, 1988; Ivancevich et al., 1990). However, a recent review of such interventions in health care settings identified a critical mass of studies that provide guidance on how to design successful interventions (Murphy, 1999).

Intermediate between primary and tertiary approaches is *secondary prevention*, which aims to reduce the severity of stress symptoms before they lead to more serious health consequences. Commonly called *stress management*, these programs are individual-oriented, and usually seek to educate workers about the nature of stress, and to teach workers specific techniques for reducing physiological and psychological symptoms of stress, and fostering a state of relaxation. The most common types of stress management strategies are progressive muscle relaxation, biofeedback, meditation, and cognitive-behavioral skills training.

This chapter focuses primarily on stress management methods as narrowly defined above, and does not review job and organizational interventions for preventing or reducing stress, nor does it review interventions involving individual counseling, physical fitness, or conflict intervention. As noted earlier, however, there is a section that attempts to assimilate research on stress management with research on job- and organizational-level interventions.

25.2 DESCRIPTION OF STRESS MANAGEMENT INTERVENTIONS

With the exception of meditation, the stress management interventions (SMI) described in this chapter were borrowed from the field of clinical psychology, where they had demonstrated success in the treatment of anxiety and psychosomatic disorders (Pomerleau & Brady, 1979). Stress management techniques can be classified in various ways, but the problem-focused versus emotion-focused dichotomy proposed by Lazarus and colleagues (Cohen & Lazarus, 1979; Folkman & Lazarus, 1980) for stress coping strategies is most common. *Problem-focused coping* involves actions to reduce or eliminate the source(s) of stress, such as problem-solving techniques or environmental changes. *Emotion-focused coping*, on the other hand, involves attempts to reduce or eliminate the symptoms of stress, such as relaxation training or biofeedback. Problem- and emotion-focused coping can be further subdivided into somatic and cognitive methods of coping. Somatic methods seek to reduce arousal levels during stress (lower blood pressure, muscle activity, etc.), while cognitive methods seek to alter the thinking patterns and stress appraisal processes.

Because nearly all SMIs include some type of relaxation exercise, however brief, the issue of relaxation-induced anxiety (RIA) needs to be mentioned. Heide & Borkovec (1984) describe RIA as feelings of anxiety and discomfort, and occurring primarily among a small percentage of clinical patients suffering from chronic anxiety, and pervasive, generalized anxiety. Heide & Borkovec (1984) offered several possible reasons for RIA, which include fear of losing control as patients become more deeply relaxed, and becoming frightened of the sensations which accompany relaxation (that is, warmth or tingling in the hands and fingers). There have been no reports of RIA in worksite stress management interventions,

perhaps because the training is offered to all employees, most of whom do not have exceptionally high levels of anxiety. Indeed, workers with very high levels of anxiety require supervised, medical treatment, not brief stress management training.

In the remainder of this chapter, each stress management technique is described in detail, followed by a review of the evidence for the effectiveness of each technique in helping workers manage stress.

25.2.1 Progressive Muscle Relaxation

Progressive muscle relaxation (PMR) involves focusing one's attention on muscle activity levels, learning to identify even small amounts of tension in a muscle group, and practising releasing tension from the muscles (Jacobson, 1938). PMR training aims to foster awareness and heightened control over muscle activity. The underlying theory of PMR is that since relaxation and muscle tension are incompatible states, reducing muscle tension levels indirectly reduces autonomic activity and, consequently, anxiety and stress levels. PMR is usually accomplished by a series of alternating tensing and relaxing exercises; first, creating tension in a muscle group (for example, clenching one's fist), studying the feelings of tenseness, then allowing the muscles to relax, and noticing the difference between the tense and relaxed states. By systematically moving through the major muscle groups of the body, individuals become proficient at recognizing tension in a muscle group and relieving that tension (Bernstein & Borkovec, 1973).

The original progressive relaxation exercises were quite long, involving all of the muscle groups of the body (Jacobson, 1938), and could involve 50 or more sessions. However, the exercises have been shortened for use with other clinical therapies. For example, Wolpe (1958) abbreviated the exercises to 10 sessions for use in systematic desensitization therapy. Likewise, other variations of PMR, such as differential relaxation and cue-controlled relaxation, have been offered (Bernstein & Borkovec, 1973). In any case, as proficiency at the exercises increases, the exercises can be abbreviated in length and scope to the point where a state of muscle relaxation can be self-induced in a matter of minutes.

The state of deep muscle relaxation produced by PMR is usually associated with a variety of sensations that are unfamiliar to most participants. For example, in one of my studies (Murphy, 1984), a highway maintenance worker complained of a tingling sensation in his fingertips, and feelings of heaviness in his arms and legs after training. He was relieved to find out that those sensations were simply the by-products of deep muscle relaxation (Bernstein & Borkovec, 1973). This example underscores the fact that people have much more familiarity with the physiological sensations accompanying stress than sensations associated with relaxation.

PMR would be classified as a somatic stress management strategy, since it focuses exclusively on the reduction of muscle tension levels, and the resulting state of deep muscle relaxation. It is emotion-focused because the training helps individuals to reduce the symptoms of stress, but not the sources of stress (the stressors).

25.2.2 Biofeedback

Biofeedback is based on a fundamental principle of learning: people learn best when they are provided with feedback on their performance, that is, "knowledge of results." In biofeedback

training, an individual is provided with continuous information or feedback about the status of a physiological function and, over time, learns to control the activity of that function. Thus, the electrical activity produced when muscles contract or tense can be recorded and transformed into a tone, whose pitch rises as muscle activity increases, and falls as muscle activity decreases. Using the feedback tone as an indicator of muscle tension level, individuals learn how to reduce muscle activity levels, and create a state of relaxation. Biofeedback techniques have been used to teach individuals to exert voluntary control of a wide range of biological functions, including heart rate, blood pressure, blood flow, stomach contractions, and muscle tension (Birk, 1973). Research has demonstrated that biofeedback is especially helpful for people suffering from muscle contraction headaches (Blanchard & Andrasik, 1985, although the use of biofeedback as a generalized relaxation technique has been questioned (Alexander, 1975). Although some of the early research in biofeedback involved feedback of brain waves (alpha rhythms) to achieve relaxation, all of the research in work settings used either feedback of muscle activity levels or blood pressure. Like PMR, biofeedback is a somatic stress management method, and would be classified as emotion-focused coping.

How individuals are able to reduce arousal levels during biofeedback is less well defined. Often, it is recommended that participants visualize a relaxing scene during biofeedback, like lying on a beach, or strolling through woods, and noticing the effects of this imagery on the biofeedback signal. The best advice is to let participants select their own strategy, by letting their mind wander, and noticing which thoughts tend to be associated with lower physiological activity levels. An example will illustrate why it is better to let participants develop their own biofeedback strategy. In a study conducted by the author, one of the nurses in the biofeedback group did remarkably well at lowering her forehead muscle tension levels. When asked how she did it, she replied that she was planning the remainder of her workday on the hospital unit. Her job was to assign staff on the unit to accomplish various tasks, and once she had made the staffing decisions for the day, she could sit back and relax during the session. She had devised a problem-focused strategy, applied the strategy successfully, and reduced her physiological activation levels.

25.2.3 Meditation

Numerous forms of meditation have been developed, the most widely known of which is Transcendental Meditation (TM). TM was developed as a component of yoga by the Maharishi Mahesh Yogi. TM involves sitting upright in a comfortable position with eyes closed, in a quiet place, and mentally repeating a secret mantra (a word or sound), while maintaining a passive mental attitude. The meditation should be performed twice per day.

Two secular versions of meditation, one developed by Herbert Benson (1976), and the other by Patricia Carrington (1978), have been the most widely used forms of meditation in work settings. In Benson's modification of TM, one finds a quiet place and sits comfortably for 20 minutes twice a day. While maintaining a passive attitude toward intruding thoughts, the word "one" is repeated with each exhalation. The choice of the word "one" instead of a mantra reflects Benson's attempt to produce a secular version of meditation. However, Benson recommends that people of faith use whatever they feel is appropriate as a mental focus. For example, Christians might choose to meditate on the first verse of Psalm 23 ("The Lord is my Shepherd"), followers of Judaism might use the word *shalom*, and the nonreligious can use the word *one*, or *relax* as a mental focus (Benson, 1993).

In any case, Benson argues that such meditation invokes a "relaxation response," which is the opposite of the stress response. With practice, individuals learn to invoke the relaxation response whenever they wish. Indeed, Benson has published impressive data showing that the relaxation response can be learned quickly, and is associated with significant decreases in physiological and psychological symptoms of stress, and increases in feelings of relaxation (Benson, 1976, 1993).

The other secular method, clinically standardized meditation (CSM), was developed by Carrington (1978), and is similar to Benson's method, except that the "mental repetition of a sound is not systematically linked with each breath, is allowed to proceed at its own pace, and is intended to be taught by a qualified instructor" (Carrington, 1978). Also, CSM uses a "mantra," and in this sense is more similar to TM than is Benson's technique. CSM has been associated with significant reductions in physiological activity levels (for example, blood pressure) and psychological symptoms of stress, such as anxiety and somatic complaints (Carrington, 1978; Carrington et al., 1980).

Like biofeedback, but unlike progressive relaxation, meditation methods focus more on mental processes (mental quieting), than physical or somatic relaxation, although the latter usually accompanies the mental quieting achieved during meditation (Benson, 1976). Meditation would be considered emotion-focused coping, in that the technique does not aim to alter the sources of stress.

25.2.4 Cognitive-Behavioral Skills Training

Cognitive-behavioral skills (COG-BEH) refer to an assortment of techniques designed to help participants modify their appraisal processes which determine the stressfulness of situations, and to develop behavioral skills for managing stressors. Cognitive methods help people *restructure* their thinking patterns, and are often referred to as cognitive restructuring techniques. One such technique is called rational-emotive therapy (RET), and was developed by Albert Ellis (1977). RET focuses on identifying the specific stages of a person's thought processes, forces patients to realize the irrationality of some thought patterns, and teaches them to interrupt the thought process with more rational thoughts. Ellis (1977) defined the therapeutic procedure as involving an A-B-C-D-E paradigm: Activating experience (the original disturbing experience), Beliefs (which enter one's mind in response to A), Consequences (emotional and behavioral consequences of B), Disputing of irrational beliefs that occur during therapy, and the Effect of the therapy (a restructured belief system).

Another type of cognitive skills training was developed by Meichenbaum (1977) called *stress inoculation*. This training involved three stages: education (learning about how the person has responded to past stressful experiences), rehearsal (learning various coping skills techniques, such as problem-solving, relaxation, and cognitive coping), and application (the person practices the skills under simulated conditions guided by the therapist). Unlike RET, stress inoculation training is not restricted to cognitive elements, but additionally can include skills like muscle relaxation and desensitization (Meichenbaum, 1977).

Cognitive therapies have important elements in common: (i) examination of thinking patterns to modify irrational thoughts (for example, "everybody must like me all the time," "everything I do must be perfect," etc.); (ii) substitution of positive "self-talk" for the more common negative "self-talk"; and (iii) development of flexible problem-solving skills (Meichenbaum, 1977).

Finally, cognitive-behavioral strategies deal with a fundamental symptom of stress: disordered thinking. To understand the impact of stress on thinking patterns, one must appreciate that the wide array of physiological and biochemical changes which occur under stress prepare the body for "fight or flight." The "fight or flight" response is characterized by a syndrome of bodily changes, including increased respiration, discharge of adrenalin from the adrenal cortex, elevated blood pressure, and redirection of blood flow to the large muscle groups, and away from the brain and the gastrointestinal system (Cannon, 1929). Under stress, people are prepared for efficient action and inefficient thinking, and this increases the likelihood of well-worn, reflexive thoughts and behaviors, not new, innovative thoughts and behaviors. This state of affairs argues for increased attention to cognitive factors in stress management training.

Unlike all of the stress management methods described up to this point, COG-BEH is an example of problem-focused coping. The method analyzes thinking patterns that may cause stress, and teaches participants how to address the problem directly. Like biofeedback and meditation, COG-BEH is primarily a cognitive, rather than somatic, stress management method.

25.3 STRESS MANAGEMENT AS APPLIED IN WORK SETTINGS

In clinical settings, stress management techniques are taught to patients over an extended period of time (at least 12 weeks) during individualized, weekly sessions in a clinician's office. In work settings, significant modifications have been made to the usual approach. For example, stress management is usually offered as a prevention activity designed to educate workers about the nature and sources of stress, and to provide basic relaxation skills that are useful in everyday life. Programs typically contain a series of brief, daily training sessions (one hour or less), and range from one-day seminars to programs lasting many weeks. These modifications to the usual treatment protocol are warranted because the programs are not designed for treatment of severely troubled workers or those with manifest clinical problems.

The fact that most SMIs considered to be in work settings were offered to all workers, not just those under high levels of stress and/or who display a high frequency of stress symptoms, has implications for evaluations of the effectiveness of SMIs. In contrast to clinical treatment settings where individuals might have high blood pressure, high anxiety, or debilitating muscle tension problems, most participants in worksite stress management studies enter the training with subclinical levels of stress symptoms. To demonstrate a decrease in anxiety from "normal" levels is more difficult than finding a decrease from very high levels to the normal range. This logic is used in many SMI studies where the observed reductions in physiological or psychological measures did not reach statistical significance.

25.4 EFFECTIVENESS OF STRESS INTERVENTIONS

The primary sources for information presented in this section are reviews of the stress intervention literature by Bunce (1997), Murphy (1996a), and Van der Klink et al. (2001). Table 25.1 provides a comparison of the findings of these major reviews. The three reviews

Table 25.1 Comparison of the findings from three recent reviews of the stress management intervention literature

Type of stress management training	Murphy (1996a) Traditional literature review of all published studies ($N = 64$ studies)	van der Klink *et al.* (2001) Meta-analysis of published studies having at least a quasi-experimental design ($N = 48$ studies)	Bunce (1997) Review of studies that directly compared two or more training techniques ($N = 10$)
Multi-component training (combination of two or more training techniques)	Rated the most effective type of training across the various outcome measures (psychological, somatic complaints, and physiological measures)	Rated the second most effective technique overall and most effective for improving physiological symptoms (e.g. muscle tension levels)	Rated better than either arousal reduction or miscellaneous training techniques (three studies)
Cognitive-behavioral skills training	Rated most effective for improving psychological symptoms (e.g. anxiety) and second most effective technique overall	Rated the most effective type of training across the various outcome measures (psychological, somatic complaints, etc.)	Did not produce significantly better outcomes than other training techniques (three studies)
Arousal reduction (includes muscle relaxation)	Rated very effective for improving physiological symptoms (e.g. muscle tension levels)	Rated very effective for improving physiological symptoms (e.g. muscle tension levels)	Did not produce significantly better outcomes than other training techniques (four studies)

provide different perspectives on this field of research based on their criteria for selection of studies in each review. For instance, Murphy (1996a) reviewed all published studies ($n = 64$), even though some of them did not utilize randomized controls or comparison groups. Van der Klink et al. (2001), on the other hand, included only those studies which utilized an experimental or quasi-experimental design ($n = 48$) and the authors conducted a meta-analyses of the studies and presented effect sizes for each type of intervention. Finally, Bunce (1997) included only those studies that directly compared two or more stress interventions ($n = 10$), so the results from this review provide strong evidence of relative effectiveness of various interventions. As one moves from left to right across the columns of Table 25.1, the summary findings deal with an increasingly small but in some ways more rigorous sample of studies.

The training techniques in Table 25.1 are listed in the first column and the reviews are shown in the first row, across the top of the table. Cells in the table describe the summary results. Thus, for multi-component training programs (listed in the second row), Murphy (1996a) concludes that they are the most effective stress intervention, Van der Klink et al. (2001) conclude that they are the second most effective intervention, and Bunce (1997) finds that such interventions fare better than others in studies which included direct comparisons.

Most studies in the literature used a combination of stress intervention techniques, and these multi-component studies produced consistent and significant results across the various health-outcome measures. As shown in Table 25.1, all three reviews rate multi-component techniques as highly effective for reducing psychological and physiological symptoms of stress. Conceptually, the combination of two particular techniques, cognitive-behavioral skills plus muscle relaxation, creates a dual focus on cognitive and somatic aspects of stress, and additionally involves the development of specific coping techniques. This particular blend of training techniques is not only the most common but also the most effective type of stress intervention.

Cognitive-behavioral skills training was the single intervention technique used most frequently in stress intervention studies, and produced consistent effects on psychological outcomes, especially anxiety. This is not surprising given that training focuses on understanding and altering the cognitive aspects of stress (i.e. thinking patterns) and on acquiring stress coping skills. All three reviews rated cognitive techniques as effective although Bunce (1997) did not find any special superiority of these techniques over arousal reduction approaches. Bunce (1997) did report that both cognitive and other interventions were better than control or comparison groups.

Finally, arousal reduction strategies (e.g. muscle relaxation) were rated by Murphy (1996a) and Van der Klink et al. (2001) as particularly effective in reducing physiological outcomes, perhaps because of their focus on somatic aspects of stress. However, when compared directly to other techniques, arousal reduction does not seem to be superior (Bunce, 1997).

On balance, it seems that stress interventions that involve a combination of training techniques produce more consistent results across the various health-outcome measures than any of the individual techniques. The reason for the superiority might be that the combination of muscle relaxation and cognitive-behavioral skills training provides workers with a balance of somatic and cognitive skills, and this combination may be more effective across more types of outcome measures than either technique alone. For example, muscle relaxation alone was effective for physiological outcomes and cognitive-behavioral skills training was effective for psychological, so the combination of the two should increase

the overall range of effective results. Another reason for the effectiveness of combination training is that because more than one skill is taught, there may be fewer participants who fail to learn the stress-management skills. In the empirical studies that reported the success rates of participants, it was common to find that about one-third of participants failed to learn a particular stress-management technique (see Murphy, 1984).

Among the individual techniques, cognitive-behavioral skills training was judged as most effective by Van der Klink et al. (2001) and second only to multi-component training by Murphy (1996). Cognitive techniques seemed especially effective for reducing psychological outcomes like anxiety and depression.

25.5 STRESS REDUCTION VERSUS STRESS MANAGEMENT

In most articles and books on stress interventions at work (including the present one), stress reduction (primary prevention) and stress management (secondary prevention) are addressed separately. This has occurred in part because of the wide philosophical differences underlying primary and secondary prevention of stress, but also because there has been so little integration of findings from these two classes of intervention techniques in review articles. This state of affairs has prevented, or at least retarded, reasonable discussions of how stress interventions might incorporate elements of both primary and secondary techniques. Consequently, research that evaluates comprehensive stress interventions, ones that combine primary and secondary stress prevention, is virtually non-existent.

In this section, the theoretical underpinnings of primary and secondary stress interventions are examined, studies of primary and secondary stress interventions are compared, and ideas for the advancement of this field are offered.

Primary prevention of stress at work, through job redesign or organizational change interventions, was the subject of two recent literature reviews (Parkes & Sparkes, 1998; Van der Klink et al., 2001). A similar conclusion was reached in both reviews: organizational interventions do not lead to significant reductions in worker symptoms of stress. This is an important though disturbing conclusion because of the "broadly shared vision that there is a hierarchy of interventions in which primary prevention should prevail over interventions that focus on individuals" (Van der Klink et al., 2001).

The belief that the preferred way to reduce stress at work is to change those aspects of the job or the organization that create stress for workers is fundamental to job stress research because it follows from our most salient theories. For instance, the demand–control theory of Karasek (1979) suggests that the main cause of worker stress or strain is having an excess of job demands over worker decision latitude. To reduce worker stress, one needs to either reduce job demands or improve the amount of decision latitude in the job. In a similar fashion, the person–environment fit theory (Caplan, et al., 1975) proposes that job stress stems from a lack of fit between job and worker, so efforts to reduce stress at work should focus on improving this fit, usually by altering aspects of the job such as quantitative workload, autonomy, and so on.

In no case do the prominent job stress theories explicitly recommend adding a worker-focused element to primary stress prevention interventions. As Van der Klink et al. (2001) point out, organizational change interventions by their very nature often require workers to cope with intervention-induced changes which might create stress. Workers may need training and assistance to help them adapt and adjust to new work routines and interpersonal

relationships, beyond the need to cope with change *per se*. Since a fundamental tenet of stress is that change of any type is stressful, then interventions that focus on job redesign might increase worker stress in the short term. This would argue for longer evaluation periods to accurately assess benefits. Second, the change may decrease stress for some workers (the ones who see the change as positive) but increase stress for other workers (those who see the change as negative). This suggests the need for evaluation protocols that include subgroup analyses or which attempt to identify workers who were positively and negatively affected by the interventions. In the same way, organizational change may decrease stress for one group of workers but increase stress for other worker groups. Along these lines, Payne et al. (1999) demonstrated that psychological strain moderated the relationship between work characteristics and work attitudes (i.e. job satisfaction). That is, the relationship was lower for high-stress than low-stress workers. The authors suggested that stress interventions first should help workers deal with their high strain (through individual-oriented strategies) before attempting to change the stresses in the work environment.

This is not to say that companies should not attempt organizational change interventions. The mixed findings from the research literature may simply reflect the fact that organizational interventions are far more complex to design and evaluate than stress management programs. For example, it is almost impossible to perform a true experiment in a work setting, with random assignment of workers to conditions and control of extraneous factors. Organizations are dynamic entities and concurrent (and uncontrollable) changes often occur alongside the planned interventions. During post-intervention evaluation, it is difficult to untangle the respective role of the planned intervention and other changes that may have taken place.

Not all of the news is bad with respect to organizational stress interventions. Kompier et al. (1998) reviewed 10 Dutch studies of primary stress prevention that involved attention to either work redesign, sickness absence management, or training to improve coping capacity. Many of the studies demonstrated improvements in sickness absence and benefits of the intervention outweighed its costs. The authors concluded that successful interventions have five key ingredients: (i) clear identification of the aims, tasks, planning, and responsibilities; (ii) a diagnosis or risk analysis to identify the major problem areas; (iii) combination of worker and work-directed measures; (iv) a participative approach with worker and middle management involvement and commitment; and (v) top management support.

Murphy (1999) reviewed studies of organizational interventions in health care settings and identified a handful that reported positive effects. Although not all of these were scientifically rigorous, the results were sufficiently positive to warrant attention from researchers and practitioners. For instance, participatory job redesign in a 50-bed surgical unit (Abts et al., 1994) led to improvements in both employee and patient satisfaction. Likewise, a thorough redesign of the patient care delivery system, whose impetus was to resolve role conflicts, led to reduced stress, better cooperation among nurses from different shifts, and higher job satisfaction. Finally, comprehensive restructuring of work at a large US medical center led to increased feedback, task significance, meaningfulness of work, internal motivation and job satisfaction (Parsons & Murdaugh, 1994).

It is noteworthy that Murphy (1999) concluded that three elements are necessary for organizational interventions to be successful—worker involvement, management commitment, and a supportive organizational culture—which are similar to the ingredients listed by Kompier et al. (1998). If these elements are missing, even the best designed intervention

can fail. Future studies should incorporate these elements into the design of organizational stress interventions, and evaluate them as moderators of program effectiveness.

25.6 STRESS PREVENTION: AN AGENDA FOR FUTURE RESEARCH

Action to reduce stress at work is usually prompted by an organizational crisis, such as high sickness absence or employee turnover. Consequently, actions tend to be driven by a desire to reduce costs (i.e. problem-driven, negative motives) rather than the desire to maximize potential and improve competitive edge (i.e. gains-driven, positive motives). The danger of this type of approach is that once sickness absence or labor turnover rates stabilize at an acceptable level, interventions may lose their impetus and be considered no longer necessary. Organizations need to consider stress prevention not only as a means of cost reduction or containment, but also as a means of maintaining and improving organizational health and increasing productivity.

Future research in stress management would benefit from better grounding in theory and should begin with an explicit conceptual model. There are a number of such models in the literature, and many of them have similar features. One of the oldest, though least utilized, models was offered by Stoner & Fry (1983). Other stress intervention models have been proposed by Heaney & van Ryn (1990), Israel et al. (1996), Ivancevich et al. (1990), Newman & Beehr (1979) and Cox et al. (2000). National groups also have offered conceptual frameworks and guidance for stress interventions (COMCARE Australia, 1997a, b; Health and Safety Executive, 1998 a, b; Healthcare Canada, 2001; Health Education Board for Scotland, 2000; National Institute for Occupational Safety and Health, 1999). Clearly there is no lack of conceptual models and specific advice to guide stress interventions; they just are not being used very often (or at least authors are not explicit about their use).

A proactive approach would involve efforts to improve the overall health of both the worker and the organization, and has recently been described as a "healthy work organization approach" (Murphy, 2000; Sauter et al., 1996). The basic premise is that it is possible to improve worker well-being and organizational effectiveness. Research on healthy work organizations takes place at the intersection of worker well-being and organizational effectiveness, and seeks to identify those job and organizational factors which predict both health and performance outcomes.

The notion that worker well-being and organizational effectiveness can be improved simultaneously is not novel; it has been discussed in one form or another in the organizational behavior, health promotion, and job stress literatures for many years. For example, Pfeiffer (1987) suggested expanding traditional health promotion programs to include attention to work group and organizational-level factors. The model offered by Pfeiffer (1987) was well articulated and specific, and listed three key components: individual health, team health, and organizational health. Individual health is affected by heredity, the environment, lifestyle, and the medical care system. Team health focuses on the execution of assigned work, quality of services provided, nature of the work environment, and health and satisfaction of team members. Poor team health occurs when a team is forced to work short-handed, or when the team discourages individual participation in decision making. Organizational health is a function of the interrelationship of the psychosocial work environment (i.e. the accepted or prescribed culture and norms), the quality of its products and services, the

administrative systems that regulate day-to-day performance (e.g. policies, procedures, and program), and the employees themselves. Organizational health requires coordination of occupational health and safety, human resources, health promotion, medical services, and training/development functions.

Another example comes from the organizational behavior literature. In his book *The Healthy Company*, Rosen (1991) developed a values-based organizing system for managing and developing human assets. This system consists of thirteen dimensions, closely intertwined and mutually reinforcing, which would maximize individual and organizational health and performance.

Finally, the National Institute for Occupational Safety and Health (NIOSH) is developing a model of healthy work organizations based on analyses of employee survey data from a large manufacturing company (Sauter et al., 1996). Questionnaire data on management practices, organizational culture/climate, core values, job satisfaction, work stress, and organizational effectiveness from over 15 000 workers from 1993 to 1997 were analyzed to identify those factors which were related to both worker well-being and organizational effectiveness. Key characteristics associated with organizational health were: workers rewarded for performance, open, two-way communication, worker growth and development (training), trust and mutual respect, strong commitment to core values among top management, and strategic planning to keep the organization competitive and adaptive.

The examples offered above suggest that organizational culture is an important ingredient of successful change programs. This has been noted by well-known writers in the business literature, including Peters & Waterman (1982), Blanchard & O'Connor (1997), and Collins & Porras (1994). Each of these authors emphasized the pivotal role of culture and commitment to core values as key to an organization's success in the marketplace. Similar recommendations for improving the effectiveness of stress interventions can be found in the writings of job stress researchers from the UK (Cooper & Williams, 1994), Finland (Lindstrom, 1994), Sweden (Aronsson, 1996), The Netherlands (Kompier & Cooper, 1999), and Australia (Hart & Wearing, 2000).

Far less research has been published on how organizations can change their culture to foster desired change. However, a few thoughts can be offered. First, the organization's culture cannot be changed directly through edicts or policies but these are necessary to begin the process. The culture changes as the organization aligns its actions and decisions to comply with its stated policies and goals. For example, if an organization decides that it would like to create a culture for innovation, it should set goals, establish policies and procedures, and initiate actions that reflect its commitment to innovation. This might mean defining innovation, explaining why the organization thinks it is important, and disseminating this information to workers at all levels, providing training for all workers and supervisors on innovation, with examples of innovative ideas used in other companies (i.e. benchmarking), and adding innovation to employee job descriptions as a basic element of all jobs. The same logic applies to commitment to core values. Commitment to core values is judged by the actions and decisions of upper and middle management, so care needs to be taken to insure that the organization's actions are in line with the values. Such decisions could include everything from placement and selection, to job training, to decisions about the processes to be used for restructuring and reorganizing. For example, if dignity is a core value, and involves treating all workers with dignity and respect, then it should permeate management actions and decisions. It should be evident in things like employee performance appraisal, hiring, firing and placement, how management handles restructuring and reorganization,

performance reward systems, and supervisor support for workers. A recent article (Taft et al., 1999) offered a concise description of the specific steps involved in embedding the core values into everyday work life in a hospital setting.

Another example comes from the retail sales industry. In a remarkable turnaround led by CEO Arthur Martinez, Sears undertook a complete revamping of the way it did business. Sears involved 80 000 employees in a process that involved first identifying six core values, and then formulating a statistical model that linked core values to employee satisfaction, which in turn, was related to increased customer satisfaction and greater profit (Rucci et al., 1998). The statistical model revealed that a five-point improvement in employee attitudes led to a 1.3 point improvement in customer satisfaction, which led to a 0.5% improvement in revenue growth. Clearly, companies that integrate the values at work so that they permeate every aspect of work could see tangible benefits on a variety of performance and financial indicators. Additional examples of how companies try to "live out" their core values can be found in Harmon (1996) and in Anderson (1997).

The web is fast becoming an excellent source for information on what companies are doing to foster healthy organizational cultures. Many companies have web pages showing a mission statement, core values and strategic objectives, as well as information on current health and safety programs. Industry-specific web sites also offer good information on successful companies. Builder Online (*www.builder.hw.net/monthly/1999/mar/covstry/index.htx*) published a list of eight great home building companies to work for which contained interviews with management and employees at each company and examples of why each company is so successful.

Finally, *Fortune* magazine annually publishes its list of the 100 Best Companies to Work For (*www.pathfinder.com/fortune/bestcompanies/index2.html*) with links to each company's home page. The 100 best companies are selected based on several types of information, one of which is a 32-page survey that measures company philosophies, policies, programs, and practices influencing the management of people in organizations. Ten primary subject categories are measured, including Recruiting/Hiring/Orientation, Development and Learning, Rewards and Recognition, Health and Well-Being, Financial Security, Organizational Culture, and Unique People Practices. Visiting the web sites of these 100 companies and examining their policies, programs, and practices should provide sufficient ideas for organizations that are interested in creating successful organizational cultures.

The overlap of the subject categories used to select the 100 Best Companies To Work For with the list of healthy work organization characteristics presented earlier should not be lost on the reader.

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