



A Review of Organizational Stress Management Research:

Lawrence R. Murphy PhD

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PART V: STRESS MANAGEMENT INTERVENTIONS

A Review of Organizational Stress Management Research: Methodological Considerations

Lawrence R. Murphy

SUMMARY. Evaluation studies of worksite stress management training (SMT) are reviewed and methodological considerations are offered regarding (1) program orientation, (2) experimental design, (3) worker participants, (4) outcome measures, and (5) duration of training effects and worker compliance. Suggestions for additional research include the need to (1) employ additional comparison groups in order to detect training-specific effects, (2) evaluate SMT in blue-collar settings, (3) expand the scope of outcome measures to include employee behaviors, and (4) assess long term effects of SMT and factors associated with worker maintenance of learned skills. It is concluded that SMT has value as a prevention activity in work settings but its use as a treatment strategy for troubled workers is not supported conceptually or empirically. Companies and practitioners

Lawrence R. Murphy, PhD, is affiliated with the Department of Health and Human Services, Centers for Disease Control, National Institute for Occupational Safety and Health, Applied Psychology and Ergonomics Branch, Division of Biomedical and Behavioral Science.

Address reprint requests to Lawrence R. Murphy, NIOSH, 4676 Columbia Parkway, Cincinnati, Ohio 45226 (USA).

are encouraged to view SMT not as an isolated activity but as one component of occupational health and safety activities. A holistic approach which incorporates stress management into company health and safety philosophies is viewed as the optimal strategy.

Since the early 1970s, occupational stress has increasingly been the focus of media attention and scientific research. The topic remains highly visible even today but with an added dimension: worker compensation claims for stress-related illness. The number of such claims and their associated costs has increased dramatically in the 1980s (National Council on Compensation Insurance, 1985) to the point where stress on the job “. . . has become a legal obligation” for companies (Ivancevich, Matteson & Richards, 1985, p. 60). Along with interest in identifying job stressors and their consequences has come attendant interest in strategies for preventing and reducing job stress. Approaches to the problem can be roughly classified into three main categories, (1) *organizational change* (eliminating the source(s) of stress by altering features of the organization or job tasks) (2) *job enrichment* (making the work activity more challenging and interesting), and (3) *individual-oriented techniques* (teaching workers how to prevent or reduce distress).

In a review of the literature in 1979, Newman and Beehr noted the paucity of well-designed job stress reduction studies. Since this review, a number of job stress prevention/reduction studies have appeared in the literature. The bulk of these more recent studies have evaluated the merits of individual-oriented techniques for preventing or reducing worker distress (Murphy, 1984a). Accordingly, these are the topics of the present paper.

Stress management training (SMT) is an umbrella term connoting a variety of techniques including biofeedback, muscle relaxation, meditation, imagery, and cognitive-behavior modification. Many techniques were borrowed from clinical practice where they have been used successfully for treating psychophysiological and psychosomatic disorders (Pomerleau & Brady, 1979; Meichenbaum, 1977). The popularity of individual-oriented relative to organizational change approaches is due to both logistic and conceptual factors. For example, individual-oriented programs (1) are inexpensive and can be established and evaluated quickly without major

disruptions of work routines, (2) focus on the worker not the workplace as targets for change, (3) address the issue of individual differences in the perception of and reaction to stress, and (4) can be readily incorporated into existing employee assistance and other company training programs.

The workplace represents an ideal site for implementing SMT programs because of access to large numbers of individuals with social support networks already in place. Participation in programs offered at the worksite is facilitated among individuals with significant familial or social commitments which would otherwise compete for available time. To illustrate the popularity of worksite SMT, Figure 1 charts the frequency of SMT studies published from 1974 to 1984. While published accounts underestimate SMT activity in organizational settings, it is clear that interest in SMT has grown over the last 10 years and dramatically so in more recent years.

The purpose of this paper is to review the existing literature and raise some methodological issues in this young research area. Five features of studies will be examined which reflect considerations of (1) program orientation, (2) experimental design, (3) worker participants, (4) outcome measures, and (5) duration of training effects.

SMT ORIENTATION

Rather than gearing worksite SMT toward treatment and targeting distressed or troubled workers as participants, 75% of the published studies (Figure 2) offered stress management to all workers as a prevention activity. The prevention vs. treatment issue is an important one since the orientation adopted presumes different degrees of clinical expertise among program providers. Workers with manifest clinical problems (e.g., chronic anxiety, recurring headaches, alcohol/drug abuse) require treatment by trained professionals in a therapeutic atmosphere. Targeting troubled workers and providing a brief worksite stress management program is inappropriate. Also, the effects of SMT as a treatment for stress are less well documented. Programs adopting a treatment orientation convey the belief that the worker, not the workplace, is the appropriate focus for occupational stress reduction efforts. This is particularly evident in cases where SMT is the only company activity dealing with stress. In situations where organizational stress is high and no concurrent stressor reduction efforts are underway or planned, the in-

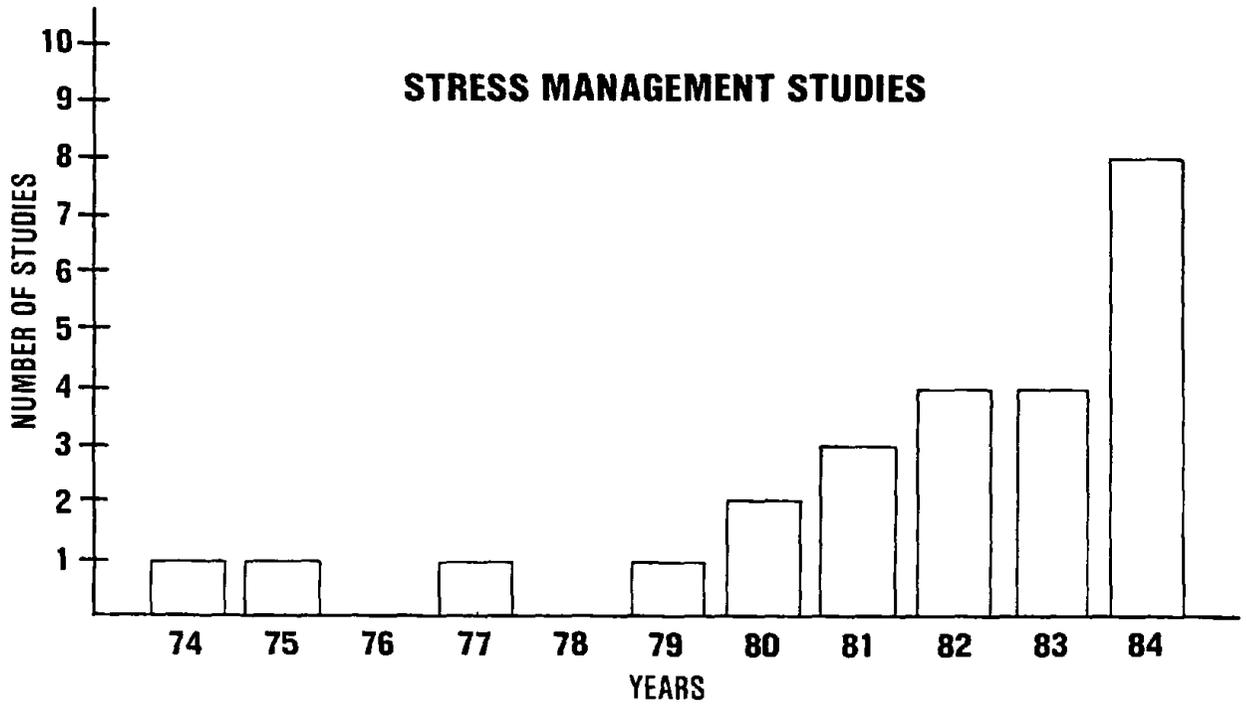


FIGURE 1. Frequency of worksite stress management training (SMT) studies from 1974-1984.

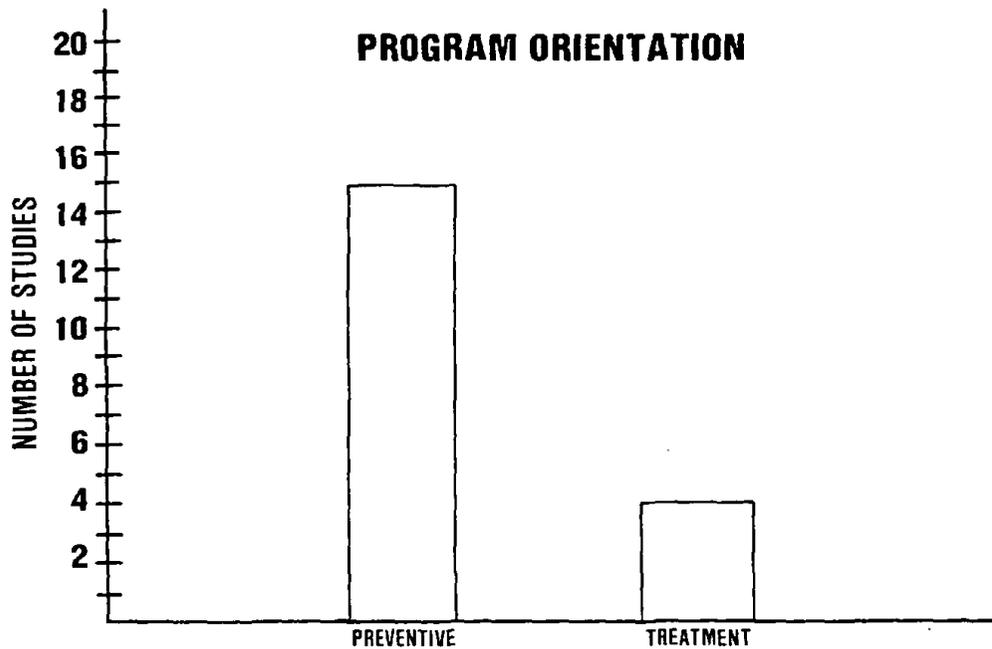


FIGURE 2. Frequency of worksite SMT studies by program orientation.

roduction of a brief stress management program may generate more anxiety, frustration, and anger than it relieves. Unlike community-based programs, practitioners in work settings need to be sensitive to social and political aspects of work and prevailing worker and company attitudes toward occupational stress and its prevention/reduction (Neale, Singer, Schwartz & Schwartz, 1982).

EXPERIMENTAL DESIGN

In a recent review, McLeroy, Green, Mullen, and Foshee (1985) noted two important features of worksite SMT studies. First, 50% of the studies used an experimental level design (see Figure 3) with random assignment of workers to groups and the inclusion of a control or comparison group. Second, differential results have been obtained as a function of the level of experimental design employed (i.e., pre-experimental, quasi-experimental, and experimental). *All* studies which used pre-experimental (no control group) designs (Cook & Campbell, 1976) reported positive results in the form of lower psychophysiological arousal levels, reduced stress symptoms (psychological and somatic), and enhanced relaxation after training. By contrast, studies using true experimental designs have produced more ambiguous results. Thus, it is common to find reports of beneficial effects in control or comparison groups as well as experimental groups. In some studies, the magnitude of post-training effects were equally large among trained and comparison groups.

This state of affairs suggests the operation of nonspecific program factors (Kazdin & Wilcoxin, 1976). Such factors may involve discrete aspects of the training program (e.g., sitting in a comfortable chair) or may reflect a Hawthorne-type effect. The presence of these factors suggests the need for additional control groups in future studies in order to isolate training-specific effects. Another approach to the problem would involve component analyses of stress management strategies (West, Horan & Games, 1984) for the same purpose.

WORKER PARTICIPANTS

It has been noted elsewhere (Murphy, 1984a) that while most studies reported significant post-training effects in normative

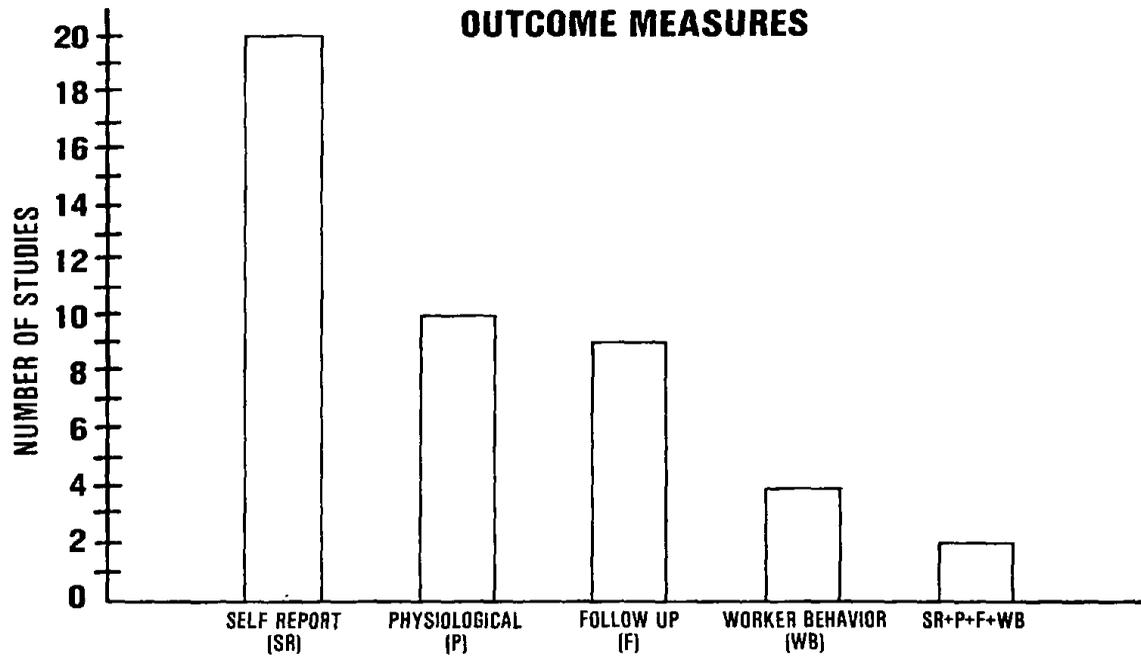


FIGURE 3. Frequency of worksite SMT studies by type of experimental design.

(group) analyses, not all participants may have learned the training skills. My experience has been that about 30% of workers who were taught biofeedback or progressive muscle relaxation were unsuccessful at lowering forehead muscle tension levels by 25% of baseline (an arbitrary criterion). While most studies have not mentioned the percentage of participants who acquired the training skills by some criterion, a similar percentage of unsuccessful participants would probably be found. In this regard, it would be helpful to identify and compare characteristics of successful vs. unsuccessful participants along sociodemographic, personality, job/life stress levels, and health belief variables. Necessarily, comparisons of this type will require larger group sizes than has been typical in stress management studies.

In addition to examining successful vs. unsuccessful participants, some efforts are needed to characterize workers who do not volunteer for these programs and those who volunteer but either do not attend training sessions or drop-out of training. Since all of the SMT studies have employed some form of muscle relaxation exercise and *relaxation-induced* anxiety has been reported in about 10% of the population (Heide & Borkovec, 1984), practitioners also need to acknowledge potential counterproductive effects of SMT for some participants.

Stress management programs are usually offered in "carpeted floor" as opposed to shop floor settings. Although only one study has been conducted with blue collar workers, stress management may be particularly beneficial for these workers given the interactive effects of stress (and lifestyle factors) and exposure to physical and chemical agents (Cohen, 1984; House, Wells, Landerman, McMichael & Kaplan, 1979). At the same time, application of these programs in blue collar settings would benefit from a careful examination of performance as well as health effects as the former can impact safe work behavior. For example, does a relaxation break taken at work result in restored vigor and lowered fatigue so that worker performance improves, *or* does such a break create feelings of drowsiness and inattention leading to reduced performance, or worse, a predisposition toward unsafe behaviors? Does relaxation increase or decrease worker vigilance? One might suspect the former in each case, but there is a need to consider competing (though unappealing) hypotheses and determine relative merit.

OUTCOME MEASURES

Outcome measures in stress management studies most commonly included self-reports of psychological and somatic complaints, and about half additionally used a psychophysiological indicator like muscle tension or blood pressure (Figure 4). Two types of outcomes have not been assessed, one from the stress coping literature and the other from the employee behavior literature. Regarding the former, stress management may improve participants' psychological resources such as self-esteem and mastery. Since people draw upon these resources to formulate coping behaviors during stressful encounters (Pearlin & Schooler, 1978), they represent important factors to assess after training.

Regarding employee behaviors, no controlled evaluations of absenteeism, productivity, or work accidents after SMT have appeared in the literature. This in contrast to the popular press and marketplace brochures which explicitly state or strongly imply direct effects of SMT on such measures. Conceptually, one might predict positive behavior change following SMT as function of increased stress awareness (decreased ambiguity) and enhanced physiological and subjective relaxation. Two as yet unpublished studies have tested these predictions. One recorded absenteeism, productivity, and job satisfaction in clerical workers for a year before and after SMT. Absenteeism decreased and productivity increased during the post-training period but the effects were evident for *both* trained and control groups. On the other hand, job satisfaction *decreased* in the trained group after training relative to controls (Riley, Fredericksen & Winett, 1984).

A second study compared organizational records of absenteeism, performance ratings, work accidents and injuries for 2-1/2 years before and 2 years after biofeedback or muscle relaxation training in highway maintenance workers (Murphy, 1984b). Regression analyses indicated significant improvements in attendance ratings and reductions in total hours absent and Monday-Friday absences in the muscle relaxation group relative to biofeedback or comparison groups. The effects were small and accounted for 4-6% of the variance after controlling for prior absenteeism. No differences among groups were found for absence frequency, hour absent, performance ratings, equipment accidents, or work injuries (Murphy & Soren-

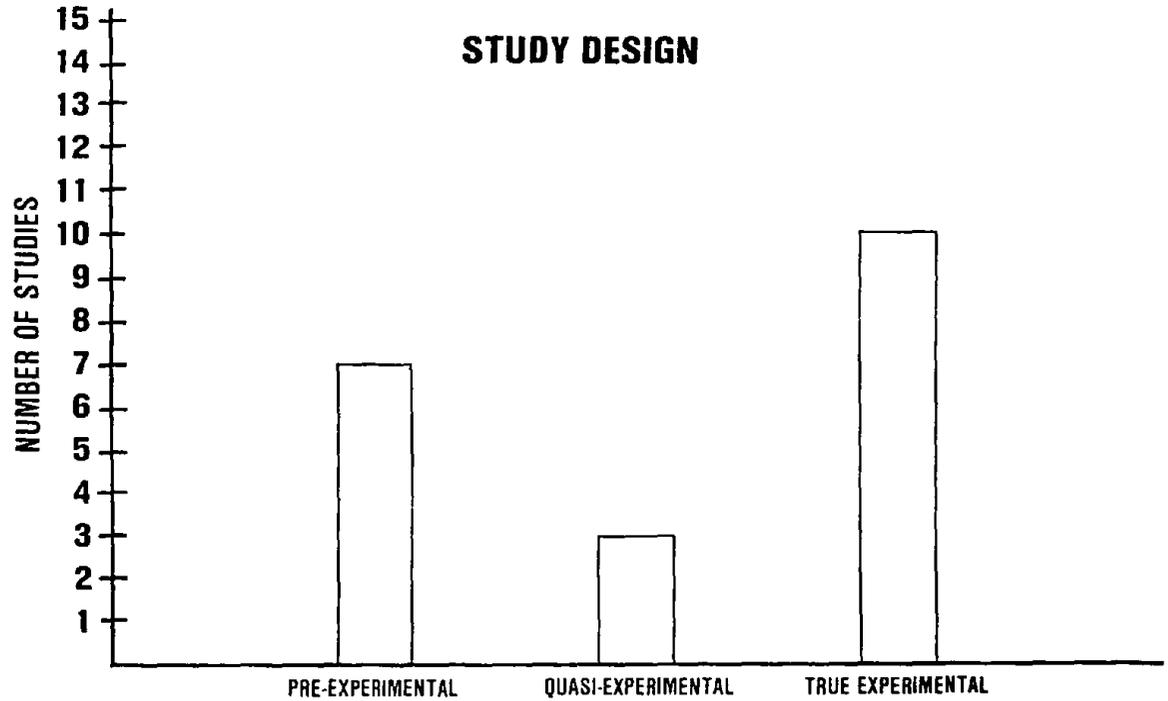


FIGURE 4. Frequency of SMT studies by type of outcome measure.

son, 1986). Clearly additional studies are needed to explore effects on these and other employee behaviors before more definitive statements are possible.

DURATION OF TRAINING EFFECTS

Looking again at Figure 4, follow-up evaluations have been conducted in nearly half of the published studies but none of these extended to a full year. The evidence indicates that post-training effects will decay over time in the absence of programmed training sessions. Lack of worker practice may underlie such decay. The few studies which did assess practice rate reported moderate to low compliance and little or no relationship between practice rate and stress reduction.

Factors which influence practice rate and the maintenance of training skills have not been examined in great detail. An exception is the work of Peters (1981) who found that practice rate during a 6 month follow-up were higher among participants who reported more noticeable benefits during meditation/relaxation training. However, even those who stopped practicing after training maintained some benefits over time. The best predictor of perceived benefit of training was whether participants taught the technique they learned to someone else (e.g., a spouse or close friend). Finally, Peters (1981) noted that practice rate in the first month after training was a good predictor of practice rate 6 months later. The implication of a "critical period" immediately after training warrants more in-depth study.

SUMMARY

This paper reviewed organizational stress management studies and offered methodological considerations for future research. Most studies adopted a preventive orientation and evaluated programs in terms of individual level outcomes (e.g., blood pressure, subjective psychological states, etc.). Studies have demonstrated the efficacy of SMT but additional research is necessary to (1) isolate training-specific effects, (2) evaluate the relative merits of training techniques, (3) elaborate factors associated with worker compliance, and (4) evaluate potential effects of SMT on employee behaviors.

Conceptually, stress management represents a "band-aid" approach if used as the sole stress reduction strategy when job/organization-focused approaches should be attempted (Ganster, Mayes, Sime & Tharp, 1982). Efforts to deal with occupational stress solely through individual-oriented methods invoke a psychological fallacy of assuming that ". . . since the organization is made up of individuals, we can change the organization by changing its members" (Katz & Kahn, 1978). On the other hand, the overwhelmingly positive response of employees and the significant post-program changes found in all studies (specific and nonspecific effects) suggest that stress management programs have value within organizational stress prevention/reduction programs.

Organizations need to maintain a realistic attitude about the kind of outcomes which can be expected after stress management programs. Though marketplace brochures promise everything from fewer headaches to reductions in absenteeism, turnover, and medical care costs, the available evidence supports expectations of small to moderate changes on subjective well-being and psychophysiological arousal. Too few studies have evaluated effects of stress management on direct outcome measures like absenteeism and health care costs to draw any conclusions.

Ideally, stress management represents one component of an organization's employee health activities. Its incorporation into company health and safety philosophies reflects the kind of holistic approach which should facilitate program success and benefit employees and employers alike.

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