

School Psychology Quarterly, Vol. 14, No. 1, 1999, pp. 3–25

The Effects of Meditation on Teacher Perceived Occupational Stress, State and Trait Anxiety, and Burnout¹

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Teacher stress has been the focus of educational concern and research for decades, and has resulted in the development of several teacher stress scales and various strategies to address the negative effects of stress and burnout. Few empirical studies have evaluated specific programs designed to reduce teacher stress. However, promising results have come from the practice of standardized meditation (SM). The current study employed a pretest–posttest control group design and used the Teacher’s Stress Inventory (TSI), State–Trait Anxiety Inventory (STAI), and the Maslach Burnout Inventory (MBI) to assess the effect of a 5-week standardized meditation class on the perceived occupational stress of 91 full-time teachers from seven suburban school districts in three states. Results were consistent with previous studies and offered support for the hypothesis that SM significantly reduces teachers’ perceived stress. Teachers perceived a reduction in stress using SM only 2–5 times per week. The use of standardized meditation by school psychologists to assist in reducing teacher stress is discussed.

Faced with many overwhelming difficulties, such as overcrowded classrooms, discipline problems, violence, drugs, student apathy, excessive paperwork, low salaries, unsupportive parents, the changing demands of the national curriculum, and a lack of administrative support (Patterson, 1994; Russell, Altmaier, & Van Velzen, 1987; Wilce, 1996), teachers are experiencing an ever burgeoning degree of frustration and burnout. The problem of teacher stress has received increased

1. This study was based upon a dissertation completed by the first author, under the supervision of the second author, in partial completion of the Ed.D degree in school psychology at Indiana University of Pennsylvania.

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attention among educational and psychological researchers over the years (Cooley & Yovanoff, 1996; Farber, 1991; Friedman, 1993; Holland & Michael, 1993; Lee & Ashforth, 1996), and has resulted in the development of several teacher stress scales (Fimian, 1988; Pelsma, Richard, Harrington, & Burry, 1989; Seidman & Zager, 1987). In 1980, Truch reported that teachers were named as one of the Top 3 stressed professions. Recently, some insurance companies have either withdrawn health insurance to teachers or shifted teachers to the high-risk Class 3 category because of the stress associated with the teaching profession (Fisher, 1996).

Educators across the country are alarmed by the large numbers of teachers who leave the profession due to the daily demands and pressures with which they are confronted. Despite their desire to leave the teaching profession, about one third of the teachers remain in their teaching positions (Jackson, Schwab, & Schuler, 1986). Berliner (1989) reported that in some districts, approximately 50% of beginning teachers leave the profession within 5 years. In a more recent study, teachers are considered at risk for leaving what they perceive as a frustrating profession during the first 7 years of employment (Thompson, 1994). Although some amount of turnover in any field is to be expected, annual turnover rates among special educators have reached excessive proportions—as high as 30% in certain urban settings (Federal Register, May 7, 1991, p. 21226–21234).

Teacher stress has been defined by Kyriacou and Sutcliffe (1978b) as “a response of negative affect, usually accompanied by potentially harmful physiological changes, resulting from aspects of the teacher’s job and mediated by the perception that job demands are a threat and by coping mechanisms activated to reduce the threat” (as cited in Sharp & Foreman, 1985, p. 370). In his review of teacher stress, Cunningham (1983) cited numerous symptoms of teacher stress, including fatigue, dissatisfaction, and depression. Anxiety can be experienced in various forms: teachers may become hypervigilant and fearful, others may experience a free-floating anxiety, and still others may be anxious about the future (Fimian, 1982).

Chronic stress causes debilitating effects on a personal and professional level, and if left unattended can lead to burnout (Farber, 1991). Burnout was first defined by Freudenberger (1974) as becoming exhausted from excessive demands on energy, strength, or resources. Maslach (1978), the first to gather empirical data on burnout, defined it as “emotional exhaustion resulting from the stress of interpersonal contact” (p. 56). Emotional exhaustion is the primary dimension of the Maslach Burnout Inventory—Second Edition (MBI; Maslach & Jackson, 1993) that is associated with the consequences of burnout, which include job absenteeism, turnover, performance deficits, and substance abuse (Jackson & Maslach, 1982).

CORRELATES OF TEACHER STRESS AND BURNOUT

Interestingly enough, demographic characteristics of teachers, such as age, number of years in teaching, gender, and type of class instructed do not appear to be correlated in any systematic way to stress and burnout (Friesen & Williams, 1985;

Holland & Michael, 1993; Kyriacou & Sutcliffe, 1978a). Russell, Altmaier, and VanVelzen (1987) conducted regression analyses on sociodemographic variables (gender, age, marital status, community size), and job variables (years of teaching experience, grade taught, size of school and class taught, level of education). Results indicated that teacher characteristics accounted for only 6% of the variance in stress scores. The only predictor that related significantly to job stressors was age: Younger teachers reported more stressors than did older teachers. It is not clear, however, if older teachers develop better coping strategies, teaching skills, and modify their expectations, or if teachers experiencing high stress levels have simply left the teaching profession (Zabel & Zabel, 1982).

Some studies have reported higher levels of job stress for male teachers (Burke & Greenglass, 1989b), while others report higher levels of stress for female teachers (Calabrese & Anderson, 1986). Men experience greater work stressors, more negative work setting characteristics, and more stress from student behavior. For men, the sources of stress relate to environmental demands, whereas women primarily report problems with time management (Burke & Greenglass, 1989c).

Contrary to popular opinion, the literature suggests that special education teachers do not burn out at a higher rate than regular education teachers (Barner, 1982; Farber, 1991). However, teachers of emotionally disturbed students had higher levels of burnout than did teachers of students with other disabilities because they were particularly fearful of verbal and physical attacks from their students (Johnson, Gold, & Vickers, 1982; Zabel & Zabel, 1982). When compared with other teachers, teachers of gifted students had higher levels of emotional exhaustion but a higher level of personal accomplishment (Zabel & Zabel, 1982).

Several organizationally based sources of stress in the teaching profession have been identified: inadequate time for relaxation and preparation, feeling that one's personal life is being short-changed for work, insufficient salary, and teaching unmotivated students (Vance, Nutter, & Humphreys, 1989). Additionally, organizational stress factors such as work overload, lack of support, and isolation from other adults have been identified as significant predictors of teacher burnout (Goodlad, 1984; Mazur & Lynch, 1989; Sarason, 1982)

NEGATIVE EFFECTS OF STRESS AND BURNOUT

The destructive effects of stress on the physical functioning of the body and its psychological effects have been well established by medical research (Fine, 1996; Ornish, 1990). It is estimated that companies lose about \$60 billion every year from lost productivity and spend up to 10% of their profits on stress-related disability claims. Health care professionals claim that as many as 90% of patients they encounter suffer from stress-related symptoms and disorders (Gibson, 1993). To date, statistics regarding the financial cost stress has had on the teaching profession are unavailable.

Landsmann (1977, 1978, 1979) reported that 75% of the 9,000 teachers responding to a survey indicated that most of their absences during the preceding school year were due to stress or tension related to classroom teaching. Many noted that their chronic health problems were anxiety related. Golaszewski, Milstein, Duquette, and London (1984) found significant correlations between organizational stress variables and health symptoms such as gastric arousal, physical fatigue, and high blood pressure. Somatic complaints (Belcastro, 1982; Belcastro, Gold, & Hays, 1983) and health problems (Cunningham, 1983) are highly correlated with stress and teacher burnout. Teacher absenteeism is often the result of exhaustion, illness, and withdrawal from work (Spanoil & Caputo, 1979). Such symptoms of, and responses to, stress are clearly costly to education.

Studies that have examined the effect of teacher stress and anxiety on student outcomes suggest a disturbing and negative trend. Stressed and anxious teachers become less tolerant, less caring, less patient, and less involved with students (Blase, 1986; Galbo, 1983). When a teacher is under excessive stress, there is less two-way interaction between teacher and students, reduced creative involvement, decreased use of innovative teaching techniques and materials, and less use of humor (Blase, 1986). Sinclair and Ryan (1987) found a significant correlation between student-state anxiety (while being taught) and teacher-state anxiety (during teaching), and inferred that teacher anxiety may be associated with increased anxiety in students. They suggested that teacher anxiety reactions may arouse anxiety in students and that student anxiety may then further increase teacher anxiety.

EFFORTS TO ADDRESS TEACHER STRESS

Professional organizations such as the National Educational Association (NEA) and National Association of Secondary School Principals have addressed the issue of employee stress through several articles in their professional publications. In fact, the 1986 representative assembly of the NEA adopted the following resolution regarding personnel stress: "The Association urges its local affiliates, in cooperation with local school authorities, to develop stress management programs that will facilitate the recognition, prevention, and treatment of stress-related problems."

To date, however, programs to address the problem of teacher stress are far from commonplace. According to a study done for the U.S. Department of Health and Human Services, two-thirds of all work sites in the United States have some kind of health promotion activity and more than one-half of these include stress management programs (Snyder, 1990). Farber (1991) noted that corporations view such programs as a cost effective means to increase employee productivity and decrease stress and illness. In contrast, it would appear that systems professing to nurture individuals, such as schools, do not provide comparable services for their needy employees.

Although teacher stress is a sizable problem, it unfortunately has not been adequately addressed in terms of effective interventions. Few empirical studies have evaluated the effectiveness of specific programs to reduce teacher stress and anxiety (Bertoch, Nielsen, Curley, & Borg, 1989; Sharp & Foreman, 1985). Much of the literature includes recommendations regarding the use of stress reduction techniques, but without any rationale or empirical support for such recommendations. The most frequently mentioned approaches involve relaxation techniques. According to Tunnecliffe, Leach, and Tunnecliffe (1986), "few controlled, outcome-research paradigms have been used in investigating the efficacy of approaches to teacher stress management" (p. 124).

However, in a well-designed study, Sharp and Foreman (1985) found cognitive behavior training programs to be effective in significantly decreasing teachers' self-reported stress and anxiety. These techniques centered on training teachers in coping skills that provided techniques for altering psychological (cognitive and emotional) and physiological responses to potential stressors. Bertoch et al. (1989) designed a program for teachers involving several stress management components: meditation, relaxation and breathing, nutrition, stretching, discussions on holistic living, and assertiveness. Although participants demonstrated significantly lower stress levels than controls on 23 of the 39 variables measured, researchers were unable to determine which components contributed most to stress reduction.

In contrast, Truch (1976) evaluated a single variable: the effect of Transcendental Meditation (TM) on personality characteristics associated with effective teaching. Analyzing pre- and posttest scores, he reported a healthier self-concept, decreased state and trait anxiety, increased self-actualization, and improved teacher attitude in teachers practicing the TM technique. Compared to a control group, meditating teachers were more self-actualized and the remaining variables demonstrated trends in the predicted direction.

MEDITATION AS A STRESS AND ANXIETY REDUCTION STRATEGY

Meditation, used to manage stress for thousands of years by various cultures, generally trains "attention in order to heighten awareness and bring mental processes under greater voluntary control" (Walsh, 1983, p. 19). Through detached observation, individuals are able to become desensitized to thoughts, fears, and worries. By focusing on breathing or a mantra, thoughts are dispelled (Shapiro & Zifferblatt, 1976) and a metacognition is learned whereby the individual learns to watch, accept, and let go of thoughts (Shapiro, 1980).

Several studies have focused on the physiological mechanism of meditation's effectiveness with regard to relaxation and health benefits. In fact, research has shown that meditation can produce a generalized reduction in multiple physiological systems, creating a deep state of relaxation (Shapiro, 1980). For example, a unique physiological state of functioning during the practice of TM was posited by Wallace (1970), which documented reduced oxygen consumption, increased basal

skin resistance, decreased heart rate, and higher density and amplitude of alpha brain waves as evidence of physiological changes during the meditative state.

A biochemical marker of relaxation is the blood lactate level. Elevated blood lactate levels have been associated with high blood pressure, anxiety, and anxiety neurosis. Several studies have demonstrated that during meditation there are significant declines in blood lactate levels (Bagga, Gandi, & Bagga, 1982; Benson, 1975; Benson, Malvea, & Graham, 1973; Jevning & Wilson, 1977; Orme-Johnson, 1973). In fact, meditation has been effective in reducing blood pressure (Benson & Wallace, 1972a; Patel, 1973; Stone & DeLeo, 1976) and in reducing the need for hypertensive medication (Patel, 1973). Furthermore, numerous studies have reported on the simultaneous experience of relaxation and alertness during meditation (Banquet, 1973; Dillbeck & Orme-Johnson, 1987; Jevning, Wilson, Smith, & Morton, 1978).

Meditation has been used to decrease the negative effects of stress on the nervous system, thereby increasing the individual's capacity to resist stress and respond adaptively to the work environment (Shapiro & Walsh, 1984; Swanson & Oates, 1989). Organizations that have implemented meditation programs for employees include: Coors Brewing, Xerox, Connecticut General Life Insurance Company, Arthur D. Little, First National Bank of Chicago, Monsanto Chemicals, Sunnyside Milk Farms, and the U.S. Army (Matteson & Ivancevich, 1987). Uelmonte (1984) reviewed six research studies and concluded that meditators reported more job satisfaction, less desire to change jobs, increased performance levels, and better interpersonal relationships.

Research has demonstrated that meditation has also been effective in lowering arousal levels, thereby reducing the psychological symptoms of stress (Beauchamp-Turner & Levinson, 1992; Murphy, 1984) and decreasing both state anxiety (DeBerry, Davis, & Reinhard, 1989) and trait anxiety (Goleman & Schwartz, 1976). Results of the Goleman and Schwartz study suggested that meditators had a faster autonomic recovery from stress. The authors theorized that meditation state effects may carry over and become traits, thereby transforming the meditator.

Numerous studies have evaluated the effectiveness of a specific form of meditation—Transcendental Meditation (TM)—in reducing stress and its symptoms (Brody, 1996). A meta-analysis completed by Eppley, Abrams, and Shear (1989) demonstrated a significantly greater effect size on trait anxiety for TM than other meditation techniques and other relaxation programs. The authors suggest that the effortless quality of TM practice is the distinguishing factor between TM and the other meditation practices.

The overall level of health for meditators was assessed in a large scale field study, that observed health insurance utilization over a 5-year period by 2,000 TM meditators and comparison groups with the same insurance company (Orme-Johnson, 1987). Results indicated that meditators had 63% fewer inpatient medical admissions, 71.5% fewer inpatient surgical admissions, 58.8% fewer outpatient medical admissions, and 56% fewer outpatient surgical admissions. The study also documented lower illness rates for 17 chronic diseases. Results

supported the contention that meditation is useful in preventing disease and reducing health care costs.

PURPOSE OF STUDY

Every day, teachers make important decisions about children that affect their experiences, attitudes, and learning experiences. If occupational stress affects teacher's performance, absenteeism, professional composure, and personal feelings toward children, then it is important that teacher stress be controlled to maximize the educational experience of children. A growing consensus is emerging that envisions the schools of the twenty first century as the hub for the integration of community-based education, health, and social services for children, families, and teachers (Carlson, Paavola, & Talley, 1995; DeMers, 1995) The specialty of school psychology appears prepared to provide leadership and service within this area and to provide the mental health services needed in order to enhance educational outcomes for children (Tharinger, 1995). With this initiative in mind, the purpose of the current study was to assess the efficacy of a 5-week Standardized Meditation program as a means of daily stress management for teachers. Specifically, the study addressed the following research questions:

1. Does use of meditation modify teachers' perception of occupational stress?
2. Does use of meditation reduce trait anxiety levels in teachers?
3. Does use of meditation change the level of burnout experienced by teachers?
4. Are teachers willing to follow through on a program of regular meditation?

It was predicted that meditation would substantially reduce teachers' perception of stress and their trait anxiety levels, resulting in a lower degree of experienced burnout. It was also predicted that teachers would be able to follow through on a program of regular meditation.

METHOD

Participants

A power analysis was conducted to determine the appropriate number of participants needed for the current study (Cohen, 1988). With an established alpha level of .05, .80 power, and a previous research based effect size of .40, a sample size of 37 for each group was determined sufficient to test the hypothesis of significant differences between groups. The sample sizes used, 45 (39 = female; 6 = male) for the experimental and 46 (38 = female; 8 = male) for the control group, were considered adequate. Participants were teachers from seven suburban school districts located in Pennsylvania, Illinois, and Missouri, and the final data sample consisted of 91 full-time teachers.

Teachers in the sample ranged in age between 22 and 60 years of age and taught at either the elementary, middle school, or high school levels. The experimental and control groups were roughly equivalent along the lines of age, grade taught, number of years taught, and whether they taught regular or special education. The total sample included 68 teachers of regular education classes and 23 teachers of special education classes. Fifty-five percent had a bachelors degree, 26% had a master's degree, and 19% had an education that extended beyond a master's degree. Ninety-three percent were Caucasian, 4% were Hispanic, 1% were Asian, and 1% were African American. Sixty-three percent of the teachers were married, 22% were single, and 15% were either divorced or widowed.

GROUP LEADERS

Group leaders included the lead author and seven experienced instructors from the American Meditation Society who volunteered to teach the meditation classes in the school district in which they resided. All instructors had at least 8 years of experience teaching meditation classes. All instructors agreed to teach the 5-week class that was designed and taught by the lead author—after receiving personal training by the lead author.

INSTRUMENTATION

To assess stress level and burnout, the following three instruments were administered in counterbalanced order: The Teacher Stress Inventory (TSI; Fimian, 1988), The State-Trait Anxiety Inventory for Adults (STAIA; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), and the Maslach Burnout Inventory (MBI, Second Edition—Educators Survey Version (Maslach & Jackson, 1993).

The Teacher Stress Inventory (TSI). The Teacher Stress Inventory (TSI; Fimian, 1988) was used to assess occupational stress. The TSI measures 10 factors that comprise the construct of teacher stress, and is composed of 49 items. Five factors represent sources of stress and five represent manifestations of stress. Stress strength is rated on a 5-point Likert-type scale. The total stress score is used to determine where teachers fall on a continuum of more to less stress.

Research to establish content validity was assessed using expert opinion over a 5-year period. All items were demonstrated to be relevant; however, the most relevant items were: feeling unable to cope and experiencing physical exhaustion (Fimian, 1987b). Construct validity was assessed using factor analysis, which supported and identified the 10 subscales: time mangement, work-related stressors, professional distress, discipline and motivation, professional investment, emotional manifestations, fatigue manifestations, cardiovascular manifestations, gastronomical manifestations, and behavioral manifestations (Fimian & Fastenau, 1990). Research based on a sample using 3,401 teachers from seven Eastern states attests to the TSI's reliability and validity, with reported internal consistency reliability estimates ranging from .75 to .88 (Vance, Nutter, & Humphreys, 1989).

The TSI is believed to be a useful measure in assisting school psychologists in identifying teacher stress and stress-related problems in their school district (Vance, Nutter, & Humphreys, 1989).

The State-Trait Anxiety Inventory for Adults. The State-Trait Anxiety Inventory for Adults (STAIA; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) includes two 20-item scales measuring state or trait anxiety. It is a self-report measure entitled "Self-Evaluation Questionnaire." Both scales were used in this study. Trait anxiety consists of relatively stable individual differences in anxiety proneness. State anxiety is a transitory, emotional condition characterized by feelings of tension and apprehension. The State scale asks participants to rate items on how they feel "right now" and the Trait scale asks participants to rate questions regarding how they "generally" feel. All questions are rated from 1 to 4 ("not at all" to "very much so").

Internal consistency-reliability coefficients for the Trait Anxiety Scale, Form Y (for working adults) range from .89 to .96. For the State Anxiety Scale, alpha reliabilities range from .90 to .94, indicating good internal consistency. Overall median alpha coefficients for the STAI scales were .92 and .90, respectively. Stability reflected by test-retest coefficients is relatively high for the Trait Anxiety Scale (median reliability coefficient was .77 for college students) and low for the State Anxiety Scale (median reliability coefficient was .33). This is expected, as the State Anxiety Scale assesses changes in anxiety due to situational stress. Previous studies attest to the reliability, validity, and technical adequacy of the STAI (Martuza & Kallstrom, 1974; Metzger, 1976).

The Maslach Burnout Inventory (Second Edition). The Maslach Burnout Inventory (Second Edition)—Educators Survey Version (Maslach & Jackson, 1993) is a 22-item, self-administered scale designed to assess different aspects of perceived burnout. Form ED, The Educators Survey version, was used in this study. The only difference in Form ED of the MBI is that the word "recipient" was changed to "student." There are three subscales: Emotional Exhaustion (EE), Personal Accomplishment (PA), and Depersonalization (DP). The subscale scores may be interpreted as indicating one of three levels of burnout. Each subscale is considered individually; scores are not combined into a total score. Subscale scores may be compared to normative data.

Statements are rated on frequency of occurrence of feelings or attitude from 0 (never) to 6 (every day). The scales assess frequency of feelings or attitudes in relation to various aspects of a person's work. Higher subscale scores indicate higher levels of emotional exhaustion, depersonalization, and personal accomplishment.

The MBI has been demonstrated to be reliable and valid when used with individuals in the helping professions (Maslach & Jackson, 1981). Subscale reliability coefficients for the MBI reported by Iwanicki and Schwab (1981) were .90 for EE, .76 for DP, and .76 for PA. Gold (1984) reported alpha coefficients of .88 for EE, .74 for DP, and .72 for PA. When used with teachers, construct validity has been confirmed through extraction of the same factors using a principal compo-

nents factor, analysis with varimax rotation (Belcastro, Gold, & Hays, 1983; Gold, 1984; Pierce & Molloy, 1990). The three-factor model has been supported by confirmatory factor analysis (Lee & Ashforth, 1990). The three dimensions of burnout on the MBI have also been demonstrated as invariant across nations (Green, Walker, & Taylor, 1991; Schaufeli & Janczur, 1994).

Data to support discriminant and convergent validity are reported in the manual, and relate the subscales to various dimensions of job performance and personal outcomes. Data have also been correlated with observations by coworkers and spouses (Jackson & Maslach, 1982). Concurrent validity has been supported by a high correlation between the MBI (Maslach & Jackson, 1993) and the Occupational Tedium Scale (Cocoran, 1986).

DESIGN AND PROCEDURE

A pretest-posttest control group design was used to assess the effectiveness of meditation by comparing pretest, posttest, and follow-up scores of experimental and waitlist control groups using the TSI, STAIA, and MBI at each of three time intervals. The research was designed to accommodate for specific methodological problems in using volunteer participants, as well as to address specific questions listed previously. To control for volunteer bias effects and to increase generalizability of results, all volunteers learned to meditate by being randomly assigned to the experimental group or to a waitlist control group. In this way the control group also consisted of people interested in learning to meditate, rather than individuals with no such interest. Participants who were assigned to the waitlist control group learned to meditate after completion of the study.

Permission to ask for volunteers for this study was first secured from the Superintendent of each school district. To recruit volunteers, notices were given to teachers in the targeted districts. Participants were then randomly assigned to the experimental group or a waitlist control group. The waitlist control group was taught to meditate after completion of the study.

Pretesting on the TSI, STAIA, and MBI was completed on Day 1 with the experimental group and with the waitlist group. Both groups were posttested at the conclusion of the 5-week class and again after 9 weeks. Participants were also asked to complete a form reporting the average number of times they meditated weekly.

The statistical techniques used to assess group variance between test scores was the multivariate analysis of covariance (MANCOVA) and analysis of covariance (ANCOVA). These analyses allow for a comparison of the differences between mean scores of each dependent variable and are used to correct or adjust posttest scores for initial pretest differences. Several assumptions were met in order to use these techniques: (a) the use of interval or ratio data, (b) equally and normally distributed deviations in scores, (c) existence of a linear relationship between the dependent variable and the covariate (pretest scores), and (d) random assignment to groups.

To analyze data more efficiently, it was desirable to combine all experimental group data and control group data across the eight meditation instructors. To insure that there were no significant group leader effects, a MANOVA was calculated from all six evaluation instruments by meditation instructor on pretest, posttest, and follow-up data. No significant differences between instructor groups were demonstrated in these calculations.

THE STANDARDIZED MEDITATION PROGRAM

A 5-week program in meditation was designed by the lead author based on programs taught by the American Meditation Society; an introduction to the benefits of meditating, its application in the life of a teacher, instruction in a basic mantra meditation practice, instruction in a basic pranayama (breathing) practice, group practice of the techniques, discussion of experiences, and encouragement to establish a routine of regular practice. The form of meditation taught was a simple mantra meditation—described as a Standardized Meditation. The specific procedure was instructed with the individual lying down and involved in a progressive muscle relaxation, introduction of a mantra as a focusing device for the mind and observation of the breath. The program is not the Transcendental Meditation (TM) program; however, both methods are similar in that they teach how to use a simple mantra to give the mind a focus and instruct the student on how to handle competing thoughts. Both procedures can be characterized as relaxing, and effortless. The procedures are different in that the programs use different mantras and the TM program does not teach the steps of progressive relaxation or watching the breath.

Regular checking of participants' practices were done to ensure that correct procedures were used. Participants were instructed to use meditation twice daily for 20-minute periods, both at school and at home. Classes met once weekly for 1½ hours after school. An additional follow-up session was held 1 month after the end of the 5-week class. Group leaders met with the experimental group for 1 hour to check meditation procedures, discuss experiences, and to support teachers in their regular practice of meditation.

Group leaders were experienced instructors from the American Meditation Society who were personally trained in the Standardized Meditation Program by the lead author. A manual was written detailing exact procedures to be followed during each class to ensure standardized weekly class instruction and test administration.

RESULTS

Frequency distributions and bivariate plots were computed for all test scales in a preanalysis procedure to insure that all assumptions for use of the statistical procedures were satisfied. Data from the pretest, posttest, and follow-up tests were analyzed to determine if there was a difference among group leaders. In that no

TABLE 1. Summary of Statistical Procedures for Comparison of the Experimental and Control Groups

Test Instrument (variable)	Statistical Procedure	Results	
		Post	Follow-up
1. The State-Trait Anxiety Inventory, The Maslach Burnout Inventory, & The Teacher Stress Inventory	MANCOVA	$F(6,78) = 8.3, p < .001^*$	$F(6,77) = 11.4, p < .001^*$
2. State-Anxiety Scale	ANCOVA	$F(1,88) = 37.5, p < .001^*$	$F(1,88) = 41.6, p < .001^*$
3. Trait-Anxiety Scale	ANCOVA	$F(1,88) = 13.6, p < .001^*$	$F(1,88) = 28.2, p < .001^*$
4. Emotional Exhaustion	ANCOVA	$F(1,88) = 22.7, p < .001^*$	$F(1,88) = 31.4, p < .001^*$
5. Depersonalization	ANCOVA	$F(1,88) = 1.7, p = .195$	$F(1,88) = 7.9, p < .006^*$
6. Personal Accomplishment	ANCOVA	$F(1,88) = .5, p = .471$	$F(1,88) = .2, p = .624$
7. Teacher Stress Inventory	ANCOVA	$F(1,88) = 7.8, p = .006^*$	$F(1,88) = 39.3, p < .001^*$

Note. * $p < .008$.

significant differences were found, the data from all instructors were combined to form one experimental and one control group for subsequent analysis.

Table 1 provides a summary of the statistical procedures used and their results. The probability level for this study was adjusted using the Bonferroni Procedure. The original alpha of .05 was divided by the number of analyses conducted (Rosenthal & Rosnow, 1991). Since six analyses of covariance (ANCOVAs) were performed on the same data, .05 was divided by 6 to obtain an adjusted significance level of .008.

For the combined set of dependent variables, there was a significant difference across all subscales based on the MANCOVA in the experimental and control groups at posttesting ($p < .001$) and at follow-up testing ($p < .001$), suggesting that meditation had a significant impact on teacher's overall perception of stress. Significant differences between groups at posttest ($p < .001$) and at follow-up ($p < .001$) were found for both the State Anxiety (SA) and Trait Anxiety (TA) measures of the STAI, as well as the Emotional Exhaustion (EE) subscale of the MBI ($p < .001$). On the Depersonalization Scale, a significant difference emerged at follow-up after 9 weeks of meditation use ($p < .006$). No significant differences were observed on the Personal Accomplishment scale between the experimental and control groups. However, there was a significant difference between groups on the total test score of the TSI at posttesting ($p < .006$) and follow-up ($p < .001$).

Visual inspection of the means for all tests at the 5-week period and 9-week period indicated that stress levels decreased. Means, standard deviations, and range of test scores for all variables for both groups across time can be seen in Table 2. Figures 1-4 show the adjusted mean scores for the experimental group and the

TABLE 2. Adjusted Means, Standard Deviation, and Range for All Variables at Pretest, Posttest and Follow-Up for Experimental and Control Group

Variable	Group	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
State Anxiety	E	39.6	10.8	20-70	30.3	8.1	20-51	30.8	10.0	20-62
	C	43.9	10.9	26-72	43.5	11.2	21-68	44.5	9.4	24-67
Trait Anxiety	E	42.4	10.1	23-62	37.6	9.3	23-57	37.1	8.7	23-58
	C	44.9	9.6	28-69	43.9	9.4	25-64	44.4	8.1	29-62
Emotional Exhaustion	E	27.2	11.5	5-50	22.0	10.4	8-49	20.6	10.6	6-47
	C	26.7	10.2	1-50	27.8	10.4	5-48	28.3	9.6	11-46
Depersonalization	E	8.0	6.4	0-22	7.9	5.2	0-20	6.9	5.1	0-17
	C	7.6	5.0	0-18	8.6	6.4	0-24	8.7	5.5	1-24
Personal Accomplishment	E	36.6	6.9	15-48	37.2	7.1	20-48	36.8	1.0	22-46
	C	35.3	6.5	25-48	35.5	7.0	19-46	35.5	5.8	20-46
Teacher Stress	E	2.8	.5	1.9-3.8	2.5	.6	1.5-4.0	2.3	.5	1.5-3.6
	C	2.8	.6	1.4-4.0	2.7	.6	1.7-3.8	2.8	.6	1.7-4.0

Note: E = Experimental Group; C = Control Group

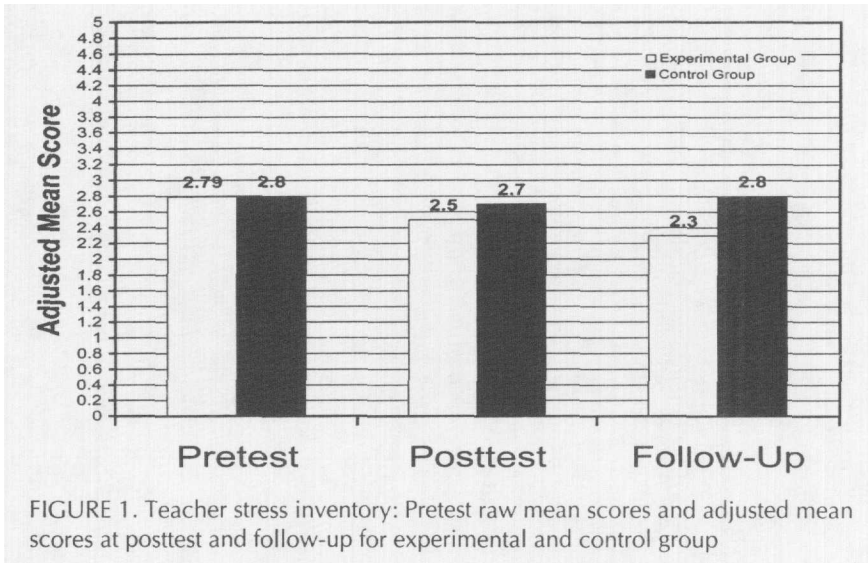


FIGURE 1. Teacher stress inventory: Pretest raw mean scores and adjusted mean scores at posttest and follow-up for experimental and control group

control group at posttest and follow-up on the TSI, SA and TA (STAI), and EE (MBI), respectively.

To assess whether teachers were willing to use meditation on a daily basis, teachers completed a questionnaire in each of the five classes and in the follow-up session. This questionnaire asked them to estimate how many times they had meditated during the week. In general, it can be concluded that this particular sample of teachers did not meditate regularly twice daily; however, 60% meditated at least six times per week.

DISCUSSION

The results of the current study offer support for the hypotheses that Standardized Meditation (SM) would significantly reduce teachers' perception of stress, lower their state and trait anxiety levels, and decrease their experience of burnout, and are consistent with findings of other studies that have investigated meditation's effect on stress (Epply, Abrams, & Shear, 1989; Orme-Johnson, 1987). Murphy (1984) suggested that "meditation methods appear to be effective strategies for helping workers lower arousal level and reduce psychological and somatic symptoms of stress" (p. 7). Furthermore, reducing teacher anxiety has been demonstrated to have effects on the affective climate of the classroom and the cognitive framework for student learning (Sinclair & Ryan, 1987). Through meditation, the capacity to resist stress and respond adaptively to the environment is increased (Swanson & Oates, 1989). The ability to respond adaptively is important not only in the classroom environment, but also in the teacher's ability to respond effectively

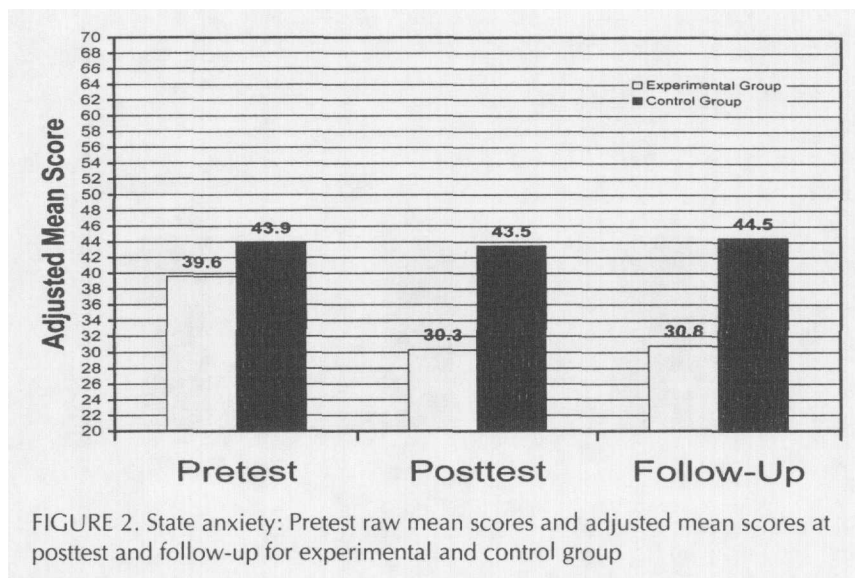


FIGURE 2. State anxiety: Pretest raw mean scores and adjusted mean scores at posttest and follow-up for experimental and control group

to administrative and parental demands (Blase, 1986; Galbo, 1983; Sinclair & Ryan, 1987).

The dramatic reduction of state anxiety scores, which reflect the immediate experience of feelings of anxiousness, are consistent with numerous other studies, which have demonstrated that use of meditation decreases the experience of state anxiety (DeBerry, Davis, & Reinhard, 1989; Nidich, Seeman, & Seibert, 1977). Likewise, trait anxiety score reductions are consistent with research using other populations, which have demonstrated a reduction in trait anxiety with the use of meditation practices (Davies, 1977; Eppley, Abrams, & Shear, 1989; Stern, 1977). The data support the contention that through the regular use of meditation, the state effects begin to stabilize over time. Some researchers even go so far as to suggest that a more relaxed and calm state during meditation develops into a permanent condition and eventually becomes a trait (Goleman & Schwartz, 1976).

Burnout is defined by three subscales on the MBI: Emotional Exhaustion (EE), Depersonalization (DP), and Personal Accomplishment (PA). In previous studies with teachers using the MBI, emotional exhaustion (EE) has emerged as the predominant burnout component and predictor of job turnover (Jackson, Schwab, & Schuler, 1986). In the current study, the significant difference between groups on the EE Scale would be expected because the process of meditation provides a deep sense of rest and relaxation. The significant difference observed at posttesting suggests that after only 5 weeks of meditation practice, teachers began to feel less exhausted and worn out. Effects were maintained at the 9-week follow-up. The immediate drop on the EE factor supports the usefulness of meditation practices in alleviating teacher exhaustion. Shirom (1989) has suggested that the core of

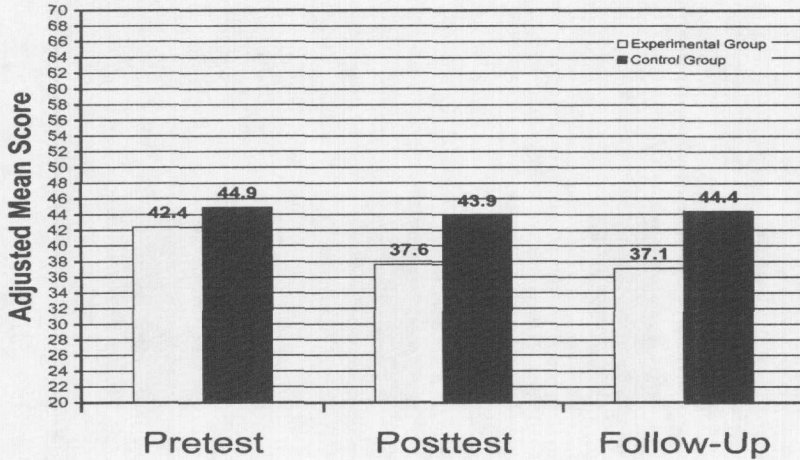


FIGURE 3. Trait anxiety: Pretest raw mean scores and adjusted mean scores at posttest and follow-up for experimental and control group

burnout is the depletion of an individual's energetic resources, which includes emotional and cognitive fatigue as well as physical fatigue. One might speculate that one reason meditation is an effective intervention for professionals is because it specifically combats fatigue by allowing one to experience a deep state of rest in a short period of time on a regular basis.

Although there was not a significant difference on the DP scale between groups at posttesting, a significant difference emerged after 9 weeks. While teachers seemed to almost immediately feel less exhausted, their attitude and experience of depersonalization of students took longer to shift. However, the data do suggest that after 9 weeks of using meditation practices and experiencing lower levels of anxiety, teachers did begin to respond in a less unfeeling and impersonal manner toward their students.

The PA scale, which reflects teachers' feelings of successful achievement with students, was unaffected by meditation in this group of teachers. Although stressed, many teachers may still feel they are positively influencing students. While a moderate correlation between the EE and DP subscales exists, the correlations between these two scales and PA are low (Maslach & Jackson, 1993). Thus, it is not surprising that a change in PA was not found in this study. In addition, the construct validation of the PA subscale is weaker than that of the other two (Maslach & Jackson, 1981). Moreover, the PA scale's lack of sensitivity to change in this research is consistent with the suggestion that perceived lack of personal accomplishment is not a critical feature of the burnout phenomena (Brookings, Bolton, Brown, & McEvoy, 1985; Jayartre & Chess, 1983).

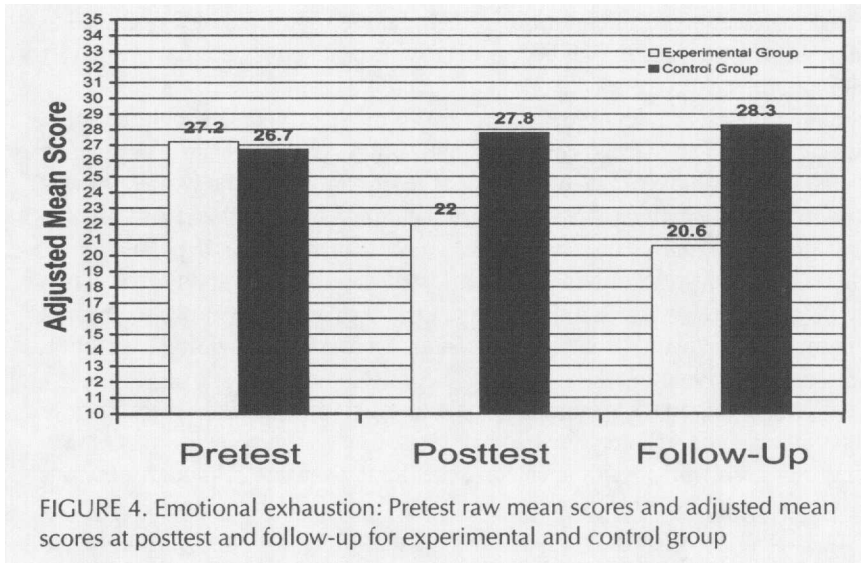


FIGURE 4. Emotional exhaustion: Pretest raw mean scores and adjusted mean scores at posttest and follow-up for experimental and control group

As predicted, teachers were able to follow through on a program of regular meditation. Although many participants (40%) were only occasional practitioners (practiced 2–5 times per week), benefits were clearly observed in that there were no significant differences observed between occasional practitioners and more regular practitioners (meditating 6–14 times per week). These results suggest that if teachers used meditation even a few times per week, they would still experience a reduction in stress. This finding is consistent with the results of Carrington et al. (1980) who studied the effects of meditation in a working population and found that frequent and occasional meditators did not differ in levels of improvement. It is also consistent with other studies on anxiety reduction (Lazar, Farwell, & Farrow, 1977). Peters, Benson, and Porter (1977) found that little change was produced by less than three practice sessions. However, two sessions a day was more than necessary for positive changes to be observed. Several studies have reported even stronger effects of frequent practice of meditation on anxiety than found in this study (Beauchamp-Turner & Levinson, 1992; Davies, 1977). Carrington (1987) suggested that when stress levels are high, even a moderate amount of meditation changes stress levels. Additionally, in this study and in the Carrington (1980) study, participants were taught how to use short meditation or minimeditations in addition to full meditations.

Throughout the meditation classes, teachers spontaneously offered observations regarding their experiences and provided written comments at posttesting and follow-up. In addition to feeling more relaxed and less tense, teachers indicated they felt more tolerant of children's behaviors and better able to handle them, less worried, more organized, more able to view situations objectively, and more energized and refreshed. They also reported experiencing improved sleep. Many

reported a greater sense of control over their emotions and responses, as well as greater self-confidence, the ability to deal with problems more calmly, and a generally more positive outlook.

Although the current study offers promising findings, results should be interpreted cautiously. No placebo control group was utilized, and hence experimenter expectations may have affected participant reactions. Additionally, people who choose to meditate may have a stronger orientation toward personal and psychological growth or may experience more stress than the general population of teachers. Thus, self-selection may have affected the external validity—or generalizability—of this study. It is important to note that volunteering to make a commitment to meditate is a personal decision; if a person is unwilling to practice, this program would not work.

Finally, it is important to note that the current study examined the effects of meditation on perceived stress, not actual stress. Changes in perceived stress may or may not result in physiological or behavioral changes. Although previous research has examined the negative two-way interaction between teacher and student (Blase, 1986) and the correlation between teacher anxiety on student performance (Sinclair & Ryan, 1987), this study did not address actual behavioral changes, nor did it measure physiological changes.

Implications for School Psychologists

School psychologists need to recognize the problem of teacher stress, advocating and initiating programs to reduce the negative effects of stress. Through offering or supporting a proactive program that promotes teacher effectiveness through stress management techniques, the school psychologist's role expands to that of a supporter and a provider of preventive mental health services to the staff. As Tharinger (1995) has noted, "In this era of linking health and educational reform initiatives in the schools, the specialty of school psychology is uniquely well positioned and experienced to address this integrative need" (p. 206). Through in-service workshops, school psychologists can sensitize and educate supervisors, administrators, and teachers about the potential benefits of meditation for the personal health and individual effectiveness of each teacher.

The advantages of meditation as a stress-reduction strategy include a minimum of required time for instruction, ease in application, and quick results. No equipment or materials are needed to teach a meditation class. The only requirements include a certified teacher of meditation and a suitable room in which to meditate. The potential cost savings that results from health and performance benefits supports the value of this approach to stress management.

The results of the current study strongly suggest the need for additional research in this area. Replication of the current study with other teacher populations and in other settings is needed. Additional studies could examine the effects meditation

has on teacher–student interaction and absenteeism rate and could be designed to assess cost savings.

In order to maintain bright, creative professionals within the school system, teachers need to be able to cope with the stress they experience in the school setting. Insofar as school psychologists have had a substantial role delivering psychological and health/mental health services to children and adolescents in the schools for over 75 years, as well as influencing organizational features of schools (Tharinger, 1995), school psychologists and administrators should encourage teachers' health by using effective stress management strategies that have empirical research to support their effectiveness. Meditation has been demonstrated to be a proactive, effective strategy that can help the individual teacher better cope with the work environment, while mediating the stress perceived in the experience of teaching. School psychologists need to support teachers in coping with their occupational stress: Doing so will ultimately improve the quality of education for children.

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Action Editor: Terry B. Gutkin

Acceptance Date: June 28, 1998