

The Effect of Meditation on Self-Reported Measures of Stress, Anxiety, Depression, and Perfectionism in a College Population

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The effects of meditation, specifically Transcendental Meditation (TM), on college students' experience of stress, anxiety, depression, and perfectionistic thoughts was investigated using 43 undergraduate students. Self-report measures of the variables were completed prior to the start of the study. Student groups were trained in TM and practiced the technique consistently over a two-semester period. Post-TM measures were administered at the end of the two semesters. The groups showed a significant decline on all variables. Suggestions for the use of meditation as an adjunct to treatment in a college population are discussed.

KEYWORDS *anxiety, depression, meditation, perfectionism, stress, Transcendental Meditation*

Meditation in a variety of forms has had a noticeable presence in psychotherapy since at least the 1970s. Former Harvard professor of psychology Ram Dass published *Be Here Now* (1971) at the start of that decade, and Harvard cardiologist Herbert Benson's (1975) pioneering work on the relaxation response, although originally focused on heart disease, quickly drew practitioners' interest in treating a wide variety of stress-related conditions. Since

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then, meditation and mindfulness have become almost ubiquitous in the psychotherapeutic literature (Germer, Siegel, & Fulton, 2005; Hick & Bien, 2008; Siegel, 2010), and centers such as the Center for Mindfulness in Medicine, Health Care, and Society at the University of Massachusetts Worcester Campus have trained hundreds of professionals in techniques employing mindfulness meditation such as Mindfulness Based Stress Reduction (MBSR; Kabat-Zinn, 1990).

One of the oldest forms of meditation, Transcendental Meditation (TM) is a mantra-based meditative technique based on the ancient Vedic tradition of enlightenment in India, dating back 5,000 years. A mantra is a sound, typically without meaning, that is an integral part of the process and distinguishes TM from some other forms of meditation. Since the 1960s TM has gained international popularity, initially through the work of Maharishi Mahesh Yogi (1966). Often mistakenly viewed as a religion, a philosophy, or a belief system, TM is none of these, but rather is described as a simple, effortless technique practiced by sitting quietly in a chair for 15 to 20 minutes twice a day (Maharishi Vedic Education Development Corporation, 2010). For reasons discussed below, the method used in this study was TM.

Alexander, Robinson, Orme-Johnson, Schneider, and Walton (1994) examined four statistical meta-analyses, summarizing the results of several hundred studies and concluded that, compared with other forms of relaxation and meditation, TM produced significant reductions in physiological arousal, decreased trait anxiety, and increased positive mental health. These reductions were significantly greater than those achieved with other treatment and prevention programs. Another meta-analysis reported similar reductions in trait anxiety through the use of TM over other forms of meditation and relaxation, which the authors attributed to its "greater degree of effortlessness" (Eppley, Abrams, & Shear, 1989, p. 972). Since the 1970s, over 700 published studies in over 160 professional scientific journals have documented the effectiveness of TM in reducing depression (Brooks & Scarano, 1985; Ferguson & Gowan, 1976; Van den Berg & Mulder, 1976), anxiety (Dillbeck, 1977; Eppley et al., 1989; Sheppard, Staggers, & John, 1997), stress (Dillbeck & Orme-Johnson, 1987), and improving academic performance and school behavior (Barnes, Bauza, & Treiber, 2003; Kember, 1985). Therefore, if TM is effective in a college population, it offers considerable potential as an alternative psychotherapeutic and preventative tool for college and university counseling centers.

COLLEGE STUDENT MENTAL HEALTH AND TM

College counseling center directors have perceived an increase in the severity of mental health problems among students and reported an increase in

the demand for services over the past five years (Kitzrow, 2009). Several studies have highlighted that students experiencing anxiety and depression are at risk for academic difficulties and suicide (Deroma, Leach, & Leverett, 2009; Ratanasiripong, Sverduk, Hayashino, & Prince, 2010). Maladaptive perfectionism is a less frequently studied problem, but is highly correlated with these issues (Halgin & Leahy, 1989). Given the significant rise in mental health issues and demands for services in colleges and universities, it is important to offer additional methods to address these concerns aside from traditional counseling and psychotherapy. TM may be one option for college counseling centers to consider as an adjunct to traditional therapeutic methods.

Dillbeck (1977) compared a group of college students who were instructed to relax with a group of college students trained in TM for a period of two weeks and found that the TM group reported a significant reduction in their self-reported levels of anxiety. Ferguson and Gowan (1976) performed a comprehensive study of the effects of TM on the psychological health of college students over a six and one-half week period. They reported that consistent practice of TM for a short period of time (6 weeks) reduced anxiety, and long-term meditators showed significantly improved psychological health over the newly trained meditators.

In more recent times, Yunesina, Aslani, Vash, and Yazdi (2008) studied a young adult population by having them complete a 12-week course in TM to explore the effects on mental health. They found that anxiety and somatization improved significantly regardless of age, sex, and marital status.

TM has been successful in significantly altering personality characteristics (Penner, Zingle, Dyck, & Truch, 1974; Turnbull & Norris, 1982). In two studies of meditating versus nonmeditating students, Van den Berg and Mulder (1976) found short-term meditators had significantly lower scores in physical inadequacy and neuroticism, and responses from the long-term meditators indicated significantly lower scores on neuroticism, depression, and sensitivity to criticism, as well as significantly higher scores in self-esteem.

More recently, Tanner et al. (2009) conducted a 3-month study on the effects of TM on mindfulness. College students with no previous experience with meditation were randomized into the TM training group or the waitlist. Meditators were found to have a significant increase in mindfulness skills, indicating openness to experience, increased emotional intelligence, heightened self-compassion, and a decrease in levels of neuroticism.

To our knowledge, there have not been any comprehensive studies looking at the effects of practicing TM on college students' self-reported levels of four conditions: stress, anxiety, depression, and perfectionistic thought patterns. The present study hypothesized that college students trained in and practicing TM would demonstrate significant decreases in all four problem areas.

METHOD

Participants

Participants were 43 students from a small liberal arts college in the northeast. Two groups of students were trained in TM: a group of students enrolled in a 1st-year seminar class, and a group of students recruited by a mass e-mail sent to the campus community that offered a scholarship for TM training as a stress reduction technique. The topic of each 1st-year seminar involved mindfulness and contemplative practice, and students identified their class preferences prior to being assigned to a seminar (see Table 1 for demographics).

Measures

PERCEIVED STRESS SCALE-14

The Perceived Stress Scale-14 (PSS-14; Cohen, Kamarck, & Mermelstein, 1983) is a widely used global stress measure designed to measure the perception of stress over the preceding month using 14 items scored with a five-point Likert scale. A slightly briefer 10-item version has shown reliability coefficients (Cronbach's alpha) ranging from .75 to .91 (Cohen et al., 1983; Cole, 1999; Glaser et al., 1999). Cohen et al. (1983) and Cohen, Tyrrell, & Smith (1993) report validity evidence using health behaviors, perceived health, and stressful life events.

BECK ANXIETY INVENTORY-TRAIT

The Beck Anxiety Inventory-Trait (BAIT; Kohn, Kantor, DeCicco, & Beck, 2008) is a 21-item self-report questionnaire. The BAIT uses the same items

TABLE 1 Demographics

	First year seminar	Recruited group
Mean age (<i>SD</i>)	18.29 (.71)	20.80 (1.37)
Sex		
Male <i>n</i>	12	6
Female <i>n</i>	15	10
Ethnicity		
African origin (%)	7.4	
Asian origin (%)	7.4	
European origin (%)	59.3	53.3
Indigenous (%)	3.7	6.7
Hispanic/Latino/a (%)	7.4	13.3
Biracial/Multiracial (%)	14.8	26.7

as the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988). However the instructions and response format is specific to trait anxiety (“In general, how much are you bothered by each of the following problems on a DAY-TO-DAY basis?”). The BAIT was used because it has been found to be a measure of anxiety that is not contaminated by dispositional depression (Kohn et al., 2008). The BAIT has been shown to demonstrate acceptable internal consistency and stability, as well as concurrent and discriminant validity in nonclinical populations (Kohn et al., 2008). Permission to use this scale was provided by Paul Kohn with the understanding that the BAI must be purchased ahead of time.

THE CENTER FOR EPIDEMIOLOGIC STUDIES DEPRESSION SCALE

The Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) is a widely used measure of depression. The CES-D is a 20-item measure that includes a range of statements such as, “I felt that everything I did was an effort,” “My sleep was restless,” and “I enjoyed life.” The CES-D has been validated among a number of groups, including a college population (Shean & Baldwin, 2008). In this study, it was found that the CES-D evidenced intrascale reliability ($\alpha = .89$) and positive predictive value for current (.56), past year (.51), and lifetime (.62) depressive disorder.

PERFECTIONISTIC COGNITIONS INVENTORY

The Perfectionistic Cognitions Inventory (PCI; Flett, Hewitt, Blankstein, & Gray, 1998) is a unique scale that measures the frequency of perfectionistic thoughts. The authors have demonstrated that an increase of perfectionistic thoughts is associated with an increase in psychological distress. The PCI is a 25-item measure with a five-point Likert scale that includes a range of statements such as “My work should be flawless,” “Things are seldom ideal,” and “People expect me to be perfect.” The alpha coefficient for the scale was found at .96 and 3-month test–retest reliability at .67 ($p > .01$).

Procedure

One of the authors of this study (JB) became aware of a program called Quiet Time that was being conducted in a nearby inner-city high school. The program involved teaching TM to all students, staff, and administrators, and then twice a day all trained individuals would meditate together. The Quiet Time program was funded by a grant from the David Lynch Foundation for Consciousness Based Education and World Peace (DLF). Research on the Quiet Time program demonstrated increases in graduation rates, increases

in academic performance, reduced stress levels, a decrease in school violence, and increased self-concept (Alexander, Rainforth, & Genderloos, 1991; Barnes et al., 2003; Nidich & Nidich, 1989; Sanford et al., 2009). Given the increase in demand for services and level of need of students on our campus, we thought this innovative technique might help provide our students with another tool to navigate the struggles in their daily life, including anxiety, stress, and depression. We contacted the DLF to discuss instituting a program like Quiet Time on our campus. Two instructors who were conducting Quiet Time at the nearby high school expressed an interest in working with a college population and suggested that we apply for a grant so that they could help us create a meditation program on our campus. We applied for a grant through the DLF that enabled us to have two TM trainers who would teach the TM technique to 43 students, 10 staff/faculty, and our college president.

The structure of the TM train-in, as developed by Maharishi Mahesh Yogi involves one informational lecture/presentation (45 min), one individual training session with a TM instructor (1 hr), and four group lecture/presentations (45 min each) on consecutive days (6 days total). The TM instructors were each trained and qualified to teach TM, with over 35 years of experience. According to the non-profit Mahareshi Vedic Education Development organization, which owns the trademark for TM, training of TM must be undertaken by certified TM teachers. TM has been characterized as a method of meditation that uses a particular sound and thought, known as a mantra. It is a spontaneous meditative technique that does not require concentration or relaxation in practice, which distinguishes it from other types of meditation and concentration (Eppley et al., 1989).

Our two TM trainers were funded by the grant that we received from DLF. Students who were included in the study were scheduled for small group informational and testing sessions of about 1 hour. During the session, a member of our staff gave an overview of the study details and a member of the TM instructional staff offered a brief description of the TM program and answered all questions. Students were given detailed information about the procedure, risks, and benefits and were administered informed consent forms and pretest measures, including demographic information. Students met on a group and individual basis with the TM instructional staff and were taught TM based on standardized teaching methods. Students were then instructed to meet once daily to meditate within a group format and to meditate once a day individually for 15 minutes. The study required students to meditate for a minimum of four months. At the end of the study, the research staff administered students the same battery of measures in addition to a debriefing form. Students were also given a follow-up questionnaire about their practices and experience with TM.

RESULTS

The present study investigated the effects of TM on a college student population. T-tests were conducted to assess the difference between the prescores and postscores on each of the measures. For all of the participants, there was an effect for the practice of TM, with post scores being lower, often significantly lower, on all measures.

Attrition Rate

There were 10 students in the 1st-year group and three students in the recruited group who did not complete the post-TM measures and therefore had to be excluded from the analysis.

Effect of TM on Stress, Trait Anxiety, Depression, and Perfectionistic Thoughts in 1st-Year Students

There was a significant effect for the practice of TM on self-reported levels of stress, $t(16) = 2.64$, $p < .018$; trait anxiety, $t(16) = 2.47$, $p < .025$; and perfectionistic thinking, $t(16) = 2.88$, $p < .11$, with post-TM scores being lower. There was a nonsignificant effect for the practice of TM on self-reported levels of depression, $t(16) = 1.38$, $p < .187$, with post-TM scores lower (see Figures 1–4).

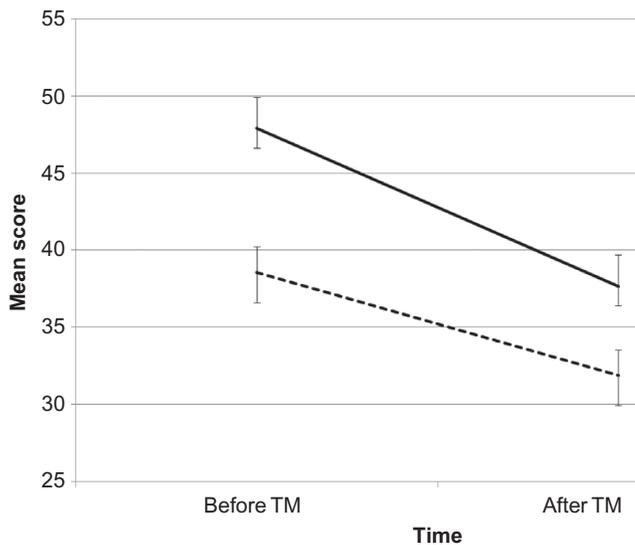


FIGURE 1 Effect of TM on measure of stress over time: - - -, first year students; —, recruited students.

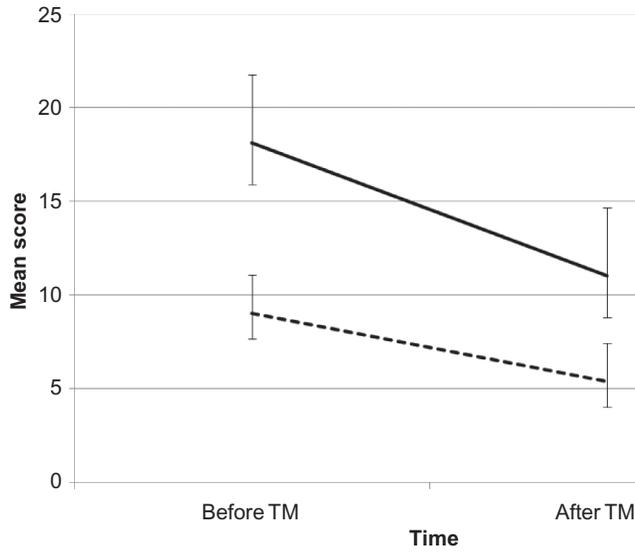


FIGURE 2 Effect of TM on measure of trait anxiety over time: - - -, first year students; —, recruited students.

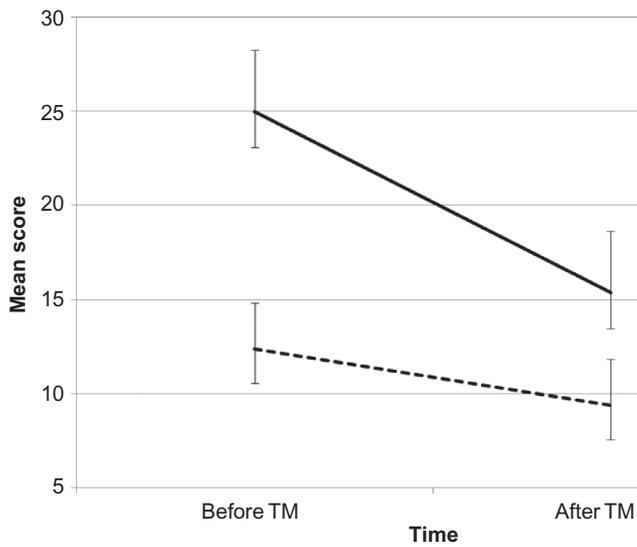


FIGURE 3 Effect of TM on measure of depression over time: - - -, first year students; —, recruited students.

Effect of TM on Stress, Trait Anxiety, Depression, and Perfectionistic Thoughts in Recruited Students

There was a significant effect for the practice of TM on self-reported levels of stress, $t(12) = 5.55, p < .000$; trait anxiety, $t(12) = 3.36, p < .007$; and

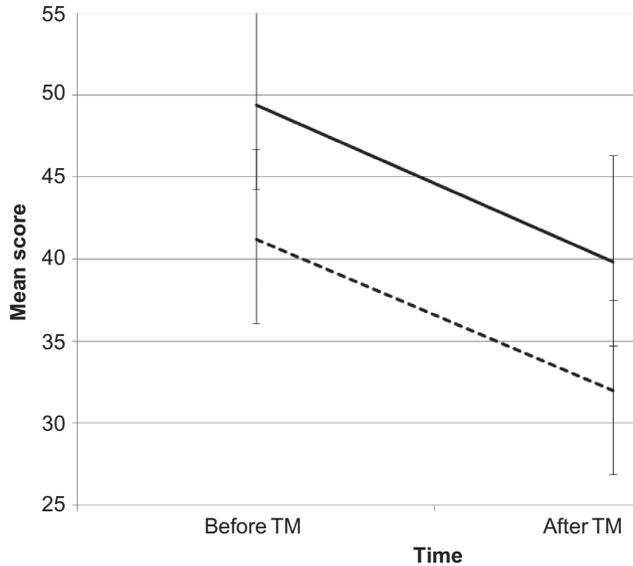


FIGURE 4 Effect of TM on measure of perfectionism: - - -, first year students; —, recruited students.

depression, $t(12) = 4.74$, $p < .000$, with post-TM scores being lower. The effect for the practice of TM on self-reported levels of perfectionistic thinking was not statistically significant, $t(12) = 2.05$, $p < .063$, although post-TM scores were lower (see Figures 1–4).

DISCUSSION

The current study investigated the effects of TM over a two-semester period with a small group of college students. Consistent with previous research, it was found that practicing TM yields a reduction, although in some cases not a statistically significant reduction, in self-reported measures of stress, trait anxiety, depression, and perfectionistic thoughts (Alexander et al., 1994; Ferguson & Gowan, 1976; Yunesina et al., 2008).

Practical Applications for College Counseling Centers

Our aim in this study was to explore TM as a potentially useful tool for counseling centers. The results suggest that TM may be an effective technique to supplement counseling and psychotherapy for a college population. TM may help students manage the mental health difficulties that are increasingly seen in counseling centers. As noted, studies that have compared TM to other meditative and relaxation techniques have found that TM is a more effective

method and suggest that its effectiveness is related to TM's effortlessness and simplicity (Alexander et al., 1994; Eppley et al., 1989).

In collaboration with qualified trainers, counseling centers might consider offering TM training and a setting for group practice, both for existing clients and others who express an interest in stress-reduction work. TM has historically been taught only by teachers certified by the Maharishi Vedic Education Development Corporation, which holds the trademark. This is because they require that the teaching be identical to the form originally brought to the United States by Maharishi Mahesh Yogi (1966) and be individualized for each learner. Other meditation techniques can of course be utilized by counseling center staff without the same formal training, but there is evidence that TM may be easier to practice and is more effective in a number of ways (Alexander et al., 1994). Although not a necessary component, our college offered a consistent, quiet room that was easily accessible to all students and staff for daily group meditation. At the completion of the study, students in the study formed a college-recognized TM club to facilitate ongoing practice. These students will seek out spaces on campus that are comfortable for their continued group practice. Although practice in a group format is beneficial, TM can also be practiced individually, be it in a dorm room or common space on campus.

All of us in college counseling centers need to be open to new ways to meet the increasing demand for our services, while being cognizant of budgetary constraints. Although TM requires that trainers be certified, its simplicity makes it an easily learned method as compared to other techniques that require students to have sustained concentration, a lower level of distress, or an ability to sit with distraction. Additionally, TM is easily incorporated into the lifestyle of college-age students, because there are few limitations on where and when it can be practiced. In an age where more individuals are seeking counseling services, techniques like TM can open up more avenues for working with students, especially because not all are interested in psychotherapy.

Nevertheless, because TM does require paying for certified trainers, in the absence of a funding source, it may be impractical for many centers. Although this study found TM to be effective, it would be important to replicate this study with other meditation techniques such as mindfulness meditation or the relaxation response to assess the differential effectiveness of various approaches, some of which may be learned and mastered without hiring certified trainers. Such research would support an even broader array of meditative approaches that could be integrated with traditional psychotherapeutic tools in college counseling centers.

Limitations and Recommendations for Future Research

This study had several limitations. The availability of grant training funds kept our sample size smaller than would have been desirable. It should be

noted that the grant monies were used to fund the training of TM but were not used to fund any other aspect of the research. It also would have been desirable to compare students receiving TM with a control group. Although we did informally carry out this comparison, the comparison group turned out to be so different from the students receiving TM that we concluded it did not constitute a true control group. The findings also need to be interpreted with caution in that other factors besides the TM training, such as diminished levels of stressors over time, might have influenced the post-test scores. Of course, participants in the study knew they were receiving treatment; this was not a blind study. For all these reasons, the findings should be considered suggestive, not definitive.

Follow-up research ideally would address these concerns by having a larger sample size and a true control group design, in which students are randomly placed in the TM or control group, and the control group engages in other relaxation or meditation activities. Future research could also focus on the differential effects of individual vs. group meditation and the effect of participants' overall attitudes towards meditation. Although students in the present study meditated over two semesters, it would be interesting to determine whether there is a critical time frame for experiencing the benefits of meditation.

Clearly the increase in popularity of meditation techniques bodes well for the future of psychotherapy. Perhaps it is ironic that in TM we find a 5,000-year-old method that may be one of the more promising approaches to some of our twenty-first century challenges.

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