IMPLEMENTING THE TRANSCENDENTAL MEDITATION TECHNIQUE IN A SCHOOL SETTING HELPS SECONDARY SCHOOL STUDENTS IMPROVE MENTAL HEALTH AND WELL-BEING

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Received: June 14, 2022; **Revised:** October 5, 2022; **Accepted:** December 31, 2022

Abstract

Mental health in adolescents is currently a worldwide concern. In fact, it has become a crisis that requires urgent attention. The literature clearly explains that one of the main causes of mental health issues in adolescents is stress from educational demands. In Thailand, adolescent mental health problems have been accelerating since 2011 where educational pressure is now the leading cause of suicide. This crisis has been further acerbated by the ongoing pandemic.

Numerous published studies report on the effectiveness of the regular practice of the Transcendental Meditation (TM) technique in reducing stress. Because the TM technique is easy to learn and implement in a school setting, a growing number of studies now show that the TM technique can be very effective in improving mental health and well-being in adolescents.

This pre-post study was designed to observe the effectiveness of the TM technique in improving mental health in students attending an all-girls boarding school in Thailand between the ages of 12 - 16 years. Students' self-reported questionnaires were used for the study.

The results showed that the TM technique generated significant improvements in emotional symptoms, anxiety, hyperactivity and quality of sleep. Based on these results together with the other published research of this technique, this study suggests that the TM technique can address the current crisis—it can be easily implemented in any school setting to promote good

mental health and well-being in students, especially during the continuing effects of the recent pandemic.

Keywords: mental health, meditation, students, adolescents, stress, anxiety

Introduction

The pressure from demands for high academic achievement is creating high levels of stress in secondary school students. This educational stress develops mental health problems, such as anxiety, depression, and insomnia (Pascoe et al., 2019). In fact, the World Health Organization (WHO) claims that one in seven adolescents worldwide experiences mental health problems, making up 14% of the global load of health problems in this age group. Further, the WHO says that these mental health problems of adolescents are largely neglected and untreated and often carry over into adult life (World Health Organization, 2021).

UNICEF (n.d.) reports that stress is the main factor in the risk of committing suicide in Thailand, and that educational stress is the primary cause of suicide among Thai adolescents. Thai adolescents' mental health problems have become increasingly severe. The data from Child and Adolescent Mental Health Rajanagarindra Institute shows that the number of Thai adolescents seeking mental health services has increased since 2011. According to the 2018 annual report of the Department of Mental Health in Thailand, from 2013 to 2018, the number of adolescents seeking mental health services increased by seven times from 18,628 to 131,260 (Thai Health Project, 2020). Further investigation indicated that Thai students with higher perceived stress experienced, a) sleep disturbances, b) higher risk of depression, and c) an increased likelihood of consuming alcohol and tobacco (Calderon et al., 2019). Additionally, other experts on educational stress say that stress has a negative impact on self-esteem, cognitive function, and behaviour. All of these factors contribute to significant problems in learning (Center for Wellness & Achievement in Education, 2015).

Consequently, intervention into and prevention of the issue of stress and stress-related problems in the educational system are of utmost importance. Successful educational outcomes rely heavily on eradicating the fundamental problem of stress because stress impedes the development of the social,

emotional, and cognitive capacity of students (Center for Wellness & Achievement in Education, 2015). Therefore, as schools are in search of an effective way to solve the issues of stress and emotional problems, meditation is regarded as an innovative and promising practice (Brown, 2007).

Research Objectives

1. This study seeks to investigate the effectiveness of the Transcendental Meditation (TM) technique as a strategy for reducing stress and thereby promoting mental well-being in students.

2. Specifically, this study will explore changes in mental health factors in secondary school students who were practitioners of this technique in a girls' boarding school in Thailand.

Literature Review

The TM technique has been implemented school-wide in schools in several countries around the world, such as England, USA, Bali, Uganda, India, and New Zealand for stress management (David Lynch Foundation, n.d.). Over 380 peer-reviewed published research studies conducted over the past 50 years at numerous independent universities and research institutions have demonstrated its effectiveness in creating balance on physiological, neurophysiological, and psychological levels (Maharishi Foundation USA, n.d.; Collected Papers, 2021).

The TM Technique on Mind-Body Health

The TM technique, as taught by Maharishi Mahesh Yogi, is practiced sitting comfortably with eyes closed. During the practice, the mind settles down, expands, and transcends—goes beyond—the active thinking mind and opens up to the silent field of pure consciousness within, where consciousness is fully awake (Travis & Pearson 2000). The practice is not a religion. Learning the practice does not require adopting a belief system or lifestyle (Roth, 1994).

When the mind settles down, the body immediately gains a very deep state of rest; the mind experiences alertness while the body gains a deep rest. Thus, this state gained during TM practice is a unique mind-body state called *restful alertness* (Roth, 1994). The state of deep rest is indicated by the

significant decrease in metabolism, including respiration rate and heart rate (Wallace et al., 1971). The stress hormone, plasma cortisol, also decreases. (Jevning, 1978).

Thus, practicing the TM technique has been shown to naturally enhance the normalization of mind and body and thereby decreases stress-related problems such as sleep disturbance, anxiety, and emotional distress. Specifically, research shows that TM practice positively regulates the autonomic nervous system improving the quality of sleep (Nagendra et al., 2012). One study conducted on Vietnam veterans with an initial high level of anxiety showed a 40% decrease in insomnia (Brooks & Scarano, 1985). A meta-analysis indicated a substantial reduction in trait anxiety (D. W. Orme-Johnson & Barnes, 2014). A randomized controlled study on university students practicing the TM technique showed a substantial decrease in psychological distress and an increase in emotional health and behavioral coping ability (Nidich et al., 2009).

The TM Technique and Brain Functioning

High levels of stress cause certain areas of the brain—hippocampus, prefrontal cortex and amygdala---to suffer structural changes resulting in impaired memory, impaired attention, increased anxiety, and aggression. Stress interferes with the executive functioning of the pre-frontal cortex (McEwen, 2006). Stress is related to the dysfunction of the right prefrontal regions of the brain in attention-deficit hyperactivity disorder (ADHD) children (Vance et al., 2007). Published studies document improvements in ADHD symptoms and executive function in children practicing the TM technique. One of the findings, published in the International Journal of Psychophysiology, investigated the effects of the TM technique on college students before final examination week. By that time, students had practiced the TM technique for 10 weeks. The results showed a significant increase in “Brain Integration Scale” scores (broadband frontal coherence, power ratios, and preparatory brain responses), less dozing, and faster habituation to a stressful stimulus. Higher values measured on the Brain Integration Scale correspond with higher integration of the brain, emotional stability, moral reasoning, and cognitive functioning. These findings suggest that the TM practice supports greater efficiency and success in life (Travis et al., 2009). Another study indicates that low-performing, at-risk middle

school students practicing the TM technique improved in academic performance (S. Nidich et al., 2011).

Research Methodology

This study was carried out at Dhammajarinee, Witthiya School, a girl's boarding school for at-risk girls in Ratchaburi, Thailand. In June 2021, 113 newly enrolled students participated in this study, ages 12 - 16, grades 7 - 10. All students participating in this study were taught the TM technique by certified teachers of the TM technique and participated in the standard seven-step course of instruction during school time. This seven-step course of instruction was over five days. The certified teachers had been trained on a standardized in-residence Teacher Training Course for five months.

This study used the Strengths and Difficulties Questionnaire (SDQ) that is a brief self-reporting questionnaire and is used to diagnose mental health problems from childhood through adolescence (Goodman et al., 2003). In this study students' psychological distress and mental health were measured using the SDQ. The SDQ 11 items were divided into three scales: emotional symptoms, conduct problem (anger), and hyperactivity. In addition, stress-related problems—anxiety, anger, fatigue, and sleep quality—were detected using the Patient-Reported Outcomes Measurement Information System (PROMIS) inventory having 24 items. PROMIS is item banks to evaluate and monitor physical, mental, and social health in adults, children and also patients with chronic diseases (Northwestern University, n.d.).

A pretest was administered to 113 students in June 2021 before they learned the TM technique. After learning the technique they practiced the technique together in a group twice daily for 10 minutes, once in the morning and once in the afternoon at school, including weekends.

The post-test was administered four months later in October 2021 to the 113 students, who completed the same questionnaires (the SDQ and PROMIS) again. However, due to mistakes made by some students, (i.e. double answers or missing answers), only 85 questionnaires were used in this study.

The dependent sample t-test was used to analyze changes from baseline to post-test. Two-tailed p-value at the 0.05 level was used for all analyses.

Results

Table 1 below shows a summary of the pre and post-test results. Results showed a significant decrease in the emotional symptoms scale over the four months. In other words, before practicing the TM technique, the results were (M=4.32, SD=2.62) and after practicing the TM technique the results were (M=3.33, SD=2.38). Therefore, there was a mean change of -0.99 (t (84) = 3.46, p =0.001).

Additionally, improvements were observed in both hyperactivity and anxiety. For hyperactivity at baseline students showed a mean score of 3.92 (SD=2.2) which decreased to 3.17 (SD=2.09) at four months; a mean change of -0.75 (t (84)=3.32; p=0.001). For anxiety at baseline students exhibited a mean score of 13.74 (SD=6.02) which decreased to 12.46 (SD=5.36); a mean change of -1.28 (t (84)=2.06; p=0.042).

Results in sleep quality also showed statistical significance. That is, the pretest showed (M=2.33, SD=0.89), and post-test (M=3.02, SD=0.85); a mean change of 0.7 (t (84) =-5.92, p =<0.001). There was a statistically insignificant result in fatigue and anger.

Table 1
Mean comparison of pretest and post-test data for the group before and after beginning the TM technique by using the dependent sample t-test (N=85)

	Before TM		After TM				
Variables	**Mean**	**SD**	**Mean**	**SD**	**Change**	**t**	**p-value**
SDQ							
Emotional Symptoms	4.318	2.620	3.329	2.382	-0.989	3.458	0.001*
Hyperactivity	3.918	2.200	3.165	2.092	-0.753	3.317	0.001*
Conduct Problem (Anger)	0.918	1.433	1.000	1.389	0.082	-0.926	0.357
PROMIS							
Anxiety	13.741	6.020	12.459	5.359	-1.282	2.061	0.042*
Anger	8.718	5.746	9.294	5.734	0.576	-1.008	0.316
Fatigue	14.188	7.727	12.918	7.055	-1.270	1.826	0.071
Sleep Quality	2.329	0.892	3.024	0.845	0.695	-5.923	<.001*

*Statistical significance < 0.05

Discussion

This before-after study showed the effectiveness of the TM technique in the reduction of stress-related problems for improving the mental health of students. The results suggest that this technique improves emotional symptoms, anxiety, hyperactivity, and quality of sleep in students. However, results showed no significant improvements in fatigue and a slight increase in anger.

This study was conducted during the Covid pandemic. During the study, Thailand experienced an acute Covid outbreak as new cases were escalating rapidly according to the World Health Organization (n.d.) disease situation dashboard and the news of the Bangkok Post (2021). To reduce this escalation, Thailand implemented lockdown measures. The United Nations pointed out that the lockdowns increased psychological distress in adolescents globally. As such, adolescents had to confront various challenges, such as social distancing and quarantine measures, worry about the safety of family and friends, and loneliness. A high prevalence of fear, anxiety, anger, and sadness was noted among adolescents worldwide (2020). In Thailand, a survey performed from January - September 2021 found that 28% of adolescents experienced high stress, 32% were at risk of depression and 22% were at risk of committing suicide (UNICEF, 2021). The pandemic has dramatically exacerbated adolescent mental health problems; however, there was already a crisis long before the Covid pandemic.

Even though this study took place under the unique situation of the pandemic, the practice of the TM technique for a four-month period displayed a beneficial influence on students' mental health as measured by the SDQ and PROMIS. The statistically significant decrease in emotional symptoms, hyperactivity, anxiety and the improvement in the quality of sleep suggests that the students experienced the benefit of *restful alertness*, as described in the literature on the TM technique (see above). The literature explains that this *restful alertness* helps the student manage stress successfully as well as promotes a more normal physiological functioning. Further, these results suggest an increase in brain integration that is also discussed in the literature (see above). Therefore, the results from this study match the results of previously published studies.

Conclusion

Because this study happened to take place during the Covid pandemic in Thailand, it suggests a general as well as a very unique application. Impressive improvements in well-being in students were observed even under the circumstances of unusually high stress and isolation. These results underscore the effectiveness of the TM technique in reducing stress-related problems. Further, these results bring forward the value of early intervention—introducing the TM technique in a school setting as a preventative strategy to ensure the students enjoy learning in school without the burden of stress and pressure and do not carry that burden into their future lives after they graduate.

The limitation of this pre-post study is a lack of a control group. Due to this lack, it is difficult to definitely establish a cause-and-effect relationship. Therefore, more rigorous designs should be used in a school setting to arrive at greater certainty of the effectiveness of the TM technique.

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