The Impact of Transcendental Meditation: Reducing Burnout and Enhancing Well-Being in Frontline Healthcare Clinicians During the COVID-19 Pandemic

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Abstract

Healthcare clinicians experience high rates of professional burnout, and there is increasing concern about the negative impacts of the COVID-19 pandemic on emotional well-being. Given the intense stress related to caring for COVID-19 patients, there is a need for practical, evidence-informed interventions that can help support clinician well-being. This study aimed to evaluate the feasibility and effectiveness of the Transcendental Meditation (TM) intervention in a sample of 32 healthcare clinicians who provided care to COVID-19 patients. Participants received formal instruction in TM and were encouraged to practice TM twice daily during the three-month study period. After one month, statistically significant improvements were seen for the burnout factor of emotional exhaustion, depression, anxiety, and mental well-being. After three months, these improvements were maintained with additional improvement in the burnout factor of personal accomplishment. The largest effect sizes were found for depression, mental well-being, anxiety, and emotional exhaustion. Participants reported high rates of daily TM practice, thereby supporting the feasibility of the approach for busy clinicians. This study contributes to the growing body of knowledge supporting TM as an effective practice to reduce burnout and improve well-being.

Key Words: Transcendental Meditation, burnout, healthcare clinician well-being, nurse well-being, resilience, meditation, self-care
distress, burnout, and posttraumatic stress symptoms (Norman et al., 2021). In a survey of 1,651 intensive care clinicians (physicians, nurses, respiratory therapists, and advanced practice clinicians) assessing the impact of COVID-19 on clinicians’ perceptions of resource availability and factors associated with emotional distress and burnout, the clinicians’ concerns included worries about transmitting COVID-19 to family/community (66%), emotional distress/burnout (58%), and insufficient personal protective equipment (40%) (Sharma et al., 2022).

Given the current concerns about stress and burnout among healthcare clinicians and the ongoing stress related to the COVID-19 pandemic, there is an urgent need to identify both organizational and individual-level interventions to support emotional health and resilience. While organizational strategies are necessary to help alleviate systemic contributors to professional burnout and allow wide access to evidence-based strategies that support well-being, individually focused interventions can offer healthcare clinicians practical, in-the-moment skills to effectively manage stress and reduce emotional distress. Meditation-based interventions, in particular, may be valuable tools for healthcare clinicians. These interventions can be relatively simple to learn and practice, and are often brief, self-guided exercises that can be feasibly integrated into a busy daily routine.

Transcendental Meditation (TM) is a specific meditation-based mind-body program that allows the practitioner to experience progressively quieter, less excited states of mental activity, with the growing experience of restful alertness in mind and body (Roth, 2018). TM has been used with a variety of populations in which rates of stress and burnout are high (Elder et al., 2014; Bonam & Aquino-Russell, 2019; Azizoddin et al., 2021). In the healthcare field, Bonam and Aquino-Russell (2019) used a single-group design and found that the use of TM demonstrated improvements in compassion fatigue and resilience in a group of 27 registered nurses. Most recently, the use of TM with emergency medicine clinicians in a busy, urban emergency department during the COVID-19 pandemic demonstrated significant reductions in burnout and psychological symptoms (Azizoddin et al., 2021). In studies of other helping professions, TM has been found effective in reducing burnout, emotional exhaustion, depression, anxiety, insomnia, and trauma symptom severity, and in increasing resilience and other positive factors (Jayadevappa et al., 2007; Elder et al., 2016; Valosek et al., 2018; Nidich et al., 2018; Bonam & Aquino-Russell, 2019).

The emerging evidence on TM suggests that this approach has significant promise to address high stress and burnout among healthcare clinicians during the COVID-19 pandemic. To that end, the present study examined the impact of TM on the mental health and emotional well-being of frontline healthcare clinicians caring for COVID-19 patients. We hypothesized that TM practice would reduce self-reported burnout, anxiety, and depression, and improve general well-being among these frontline healthcare clinicians.

Methods

Design
This single-arm study determined the feasibility and effectiveness of TM in reducing burnout and enhancing emotional well-being in a sample of healthcare clinicians who have cared for COVID-19 patients. Participants received meditation training from certified TM instructors over a three-month period and completed self-report measures of professional burnout, depression, anxiety, and well-being. The university Institutional Review Board reviewed and approved the study protocol (Study # HUM00190103).

Sample and Setting
An email announcement was sent to over 6,000 healthcare clinicians (physicians, registered nurses, respiratory therapists, and advanced practice providers) describing the opportunity to learn TM via the study and inviting healthcare clinicians who have directly cared for COVID-19 patients to attend an introductory session on the TM approach. Two introductory sessions using a virtual format, 45-50 minutes in length, were led by a Certified TM instructor.

The session provided an introduction to the evidence-based TM technique and an overview of the structure and content of the instruction process, along with a question-and-answer period. One hundred and four individuals registered to attend one of the introductory sessions, with 33 individuals attending and an additional 28 individuals requesting to view a recorded session. A follow-up email was sent to everyone who registered at the end of the introductory sessions. The email included a recording of the introductory session, a study fact sheet describing the study, the inclusion criteria, the TM training requirements, and the schedule for data collection.

A total of 39 individuals volunteered to participate. Of those, 35 met inclusion criteria and consented to the study. Three individuals withdrew before completion. To be included, participants needed to be 18 years of age or older, work full-time in direct patient care, have provided direct care to COVID-19 patients at any time between March 2020 and August 2021, agree to complete the entire TM training program of eight sessions and practice the TM technique for 20 minutes twice daily.
during the three-month study period, with completion of a daily log for self-monitoring, agree to complete self-report surveys prior to the TM training, at one-month after beginning training and again at three-months after the start of training, and, if being treated with psychoactive medications, have maintained a stable regimen for at least two months prior to enrollment. The completed study sample (see Table 1) consisted of a total of 32 individuals (23 registered nurses, five respiratory therapists, and four advanced practice providers) who directly cared for COVID-19 patients, met all inclusion criteria, and consented to the study protocol.

Table 1: Descriptive Statistics of Participants (N=32)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>437 years (0.0)</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2 (6.3)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>30 (33.8)</td>
<td></td>
</tr>
<tr>
<td>Professional Role</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td>23 (71.9)</td>
<td></td>
</tr>
<tr>
<td>Respiratory Therapist</td>
<td>5 (15.6)</td>
<td></td>
</tr>
<tr>
<td>Advanced Practice Provider</td>
<td>4 (12.5)</td>
<td></td>
</tr>
<tr>
<td>Time employed in current role</td>
<td>840 months (022)</td>
<td></td>
</tr>
</tbody>
</table>

**Intervention**

TM is a simple-to-practice stress reduction technique that produces a state of restful alertness associated with a more integrated style of brain functioning. TM is practiced twice a day for twenty minutes. Standardized instruction in TM was delivered to participants by certified instructors of the program (Schneider et al., 2012; Roth, 2018; Niklich et al., 2018). The TM technique is not based on religious or other philosophical beliefs and does not involve major changes to one's lifestyle. Important advantages of employing TM in research include a standardized and reproducible instruction format, a thorough certification program for instructors, and widespread availability of instructors in the US and in other countries throughout the world.

Two experienced, certified TM instructors from local Centers for Transcendental Meditation conducted the instruction. Both certified TM teachers were extensively trained in the teaching of the TM program and guided participants by verifying their continued correctness of practice of the technique and conducting additional follow-up sessions. The standardized TM course sequence was used for all participants.

The TM instructional program included a total of 8 sessions (four instructional sessions over four consecutive days and four follow-up seminars over a total program length of 12 weeks). The first phase of instruction required four sessions held over four consecutive days. Session one required face-to-face individual instruction in the TM technique with the certified TM instructor. Participants chose to complete the first session in a designated room within the medical center or at the local Center for Transcendental Meditation. Instructional materials for the second, third, and fourth sessions of the course were delivered remotely to each individual participant through a digital program called the “TM at Home” learning option, accessed via an app downloaded to the participant’s smartphone.
During the initial face-to-face session, the instructor helped the participant access the at-home instructional materials via the app on their smartphone. Participants were then able to complete sessions two, three, and four using the at-home learning program (a series of pre-recorded lectures). In addition to viewing the material via the app, participants were required to attend a live videoconferencing session, lasting approximately 30 minutes, with one of the TM teachers during days two, three, and four of the initial instructional period. Each of these three sessions included a verification of the correct practice of the TM technique. Session two focused on ensuring that participants were meditating correctly and gaining the expected benefits; session three focused on understanding the mechanics of how TM restores balance and reduces stress in the nervous system; and session four focused on exploring the long-term benefits of regular TM practice for optimizing mental and physical health.

The initial course of instruction was followed by four follow-up seminars (sessions 5-8) offered remotely by videoconference to help stabilize correct practice of the TM technique and deepen participants’ understanding of its mechanics and effects. Session five occurred 10 to 14 days after the initial training was completed, session six was two weeks later, and sessions seven and eight were four weeks and eight weeks, respectively, after session six. Each follow-up seminar was 45 minutes in length and included additional information on a range of topics (e.g., effects of TM on neuroplasticity, enhancing resilience). Participants were advised to engage in home practice of TM consisting of two daily 20-minute TM sessions, morning and evening, and to complete a brief log at the end of each day.

**Measures**

Study outcomes were assessed at baseline and at one-month and three-months following the first TM instruction session. The outcome measures data were collected and managed using REDCap (Research Electronic Data Capture) electronic data capture tools (Harris et al., 2009). REDCap is a secure, web-based software platform designed to support data capture for research studies. In addition, participants were asked to complete an online daily log of the time and number of minutes they meditated each day using the Qualtrics survey platform (Qualtrics, 2021). Participants received a daily reminder email to complete their meditation log.

The Maslach Burnout Inventory - Human Services Survey for Medical Personnel (MBI-HHSMP) was used to measure participant burnout (Maslach et al., 2018). The MBI is a 22-item self-report inventory with a seven-point response scale, from 0 (“Never”) to 6 (“Every day”). Responses are summed into three domains: emotional exhaustion (nine items), depersonalization (five items), and personal accomplishment (eight items). Cronbach’s alphas range from .76 to .90 (Iwanicki & Schwab, 1993). The MBI-HHSMP is an updated version of the MBI for Human Services designed for use with all medical professionals.

Depression was measured using the Patient Health Questionnaire (PHQ)-9, a widely used measure of depression with high internal consistency (Cronbach’s α = .93) (Cameron et al., 2008; Kroenke et al., 2003). The PHQ-9 is a nine-item self-report symptom checklist with scores ranging from 0 (“Not at all”) to 3 (“Nearly every day”).

The Generalized Anxiety Disorder Scale (GAD)-7 is a seven-item self-report scale used to measure anxiety symptoms. Each symptom question uses a four-point scale from 0 (“Not at all”) to 3 (“Nearly every day”). A total score is calculated by summing the responses. The internal consistency is very good (Cronbach α = .92) (Spitzer et al., 2006).

Well-being was measured using the Warwick Edinburgh Mental Well Being Scale (WEMWBS), a 14-item self-report measure using a five-point scale from 1 (“None of the time”) to 5 (“All of the time”), summed to provide a single score. The items, all worded positively, cover both feeling and functioning aspects of mental wellbeing, thereby making the concept more accessible (University of Warwick and University of Edinburgh, 2006; Tennant et al., 2007).

A brief TM home practice questionnaire was included with the one-month and three-month assessments. Four questions were developed by the research team to assess the frequency of home meditation practice (e.g., “In any one session, how many minutes do you usually spend practicing the TM program?”).

**Data Analysis Plan**

Frequencies and mean scores were calculated for demographics and home practice data. To determine the impact of the TM intervention on the outcome measures of burnout, depression, anxiety, and well-being, data were analyzed using repeated-measures analysis of variance (ANOVA). This analysis determined within-group differences across the baseline, one-month, and three-months testing periods. Hedges’ g effect size analyses with correction for small sample size were provided at the three-months assessment period to show the impact of the TM intervention.

All analyses used intention-to-treat and included all subjects who were instructed in TM, regardless of how many sessions they attended or whether they completed all testing sessions. Missing data were addressed using multiple imputation of data approach.
Results

Descriptive statistics of the sample were presented in Table 1. Thirty-one (96.9%) of the participants completed at least 6 of 8 TM training sessions with their instructor. Of those, 93.3% (n = 28) attended all 8 sessions. Participants completed additional instructional modules for sessions two, three, and four via a smartphone app, and 93.8% (n = 30) completed all required modules.

Adherence to the TM home practice intervention is identified as practicing at least once daily on average [Nidich et al. 2018]. At the one-month assessment, 81.3% (n = 26) reported meditating at least once a day in the past week, at three months, 78.2% (n = 25) practiced meditation at least once a day in the past week. For the daily meditation diary survey, participants completed an average of 62 out of 90 possible daily diaries during the three-month study period.

Results from the repeated measures analysis of variance are presented in Table 2. There were significant within-group improvements in all outcome variables across the three assessment points (baseline, one-month, three-months).

Table 2: Results for Repeated Measures Analysis of Variance Change from Baseline to 1-Month and 3-Months

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean Change</th>
<th>Standard Error</th>
<th>95% CI upper limit</th>
<th>95% CI lower limit</th>
<th>t-test</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBI Emotional Exhaustion</td>
<td>-6.38</td>
<td>1.15</td>
<td>-8.68</td>
<td>-4.08</td>
<td>-3.36</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>MBI Depersonalization</td>
<td>-2.03</td>
<td>0.76</td>
<td>-3.34</td>
<td>-0.51</td>
<td>-2.68</td>
<td>0.0096</td>
</tr>
<tr>
<td>MBI Personal Accomplishment</td>
<td>2.74</td>
<td>0.81</td>
<td>4.37</td>
<td>1.1</td>
<td>3.37</td>
<td>0.0014</td>
</tr>
<tr>
<td>PHQ-9 Depression</td>
<td>-4.46</td>
<td>0.51</td>
<td>-5.49</td>
<td>-3.43</td>
<td>-8.67</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>GAD-7 anxiety</td>
<td>-4.23</td>
<td>0.60</td>
<td>-5.43</td>
<td>-3.03</td>
<td>-7.07</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>WEMWBS Well-Being Scale</td>
<td>570</td>
<td>1.08</td>
<td>787</td>
<td>353</td>
<td>5.26</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Notes: MBI = Maslach Burnout Inventory, PHQ-9 = Patient Health Questionnaire, 9-item, GAD-7 = Generalized Anxiety Disorder Scale, 7-item, WEMWBS = Warwick Edinburgh Mental Well Being Scale

To better understand the patterns of change over time, paired t-tests were used to identify changes from baseline to one-month (Table 3), and from baseline to the three-month assessment (Table 4). At one-month, statistically significant improvements were seen for the burnout factor of emotional exhaustion, depression, anxiety, and mental well-being. At three-months, these improvements were maintained with an additional improvement in the burnout factor of personal accomplishment. Effect sizes ranged in magnitude from -0.31 to -1.07, suggesting moderate to large effects for the main study outcomes of depression (g = -1.07, P < .0001), mental well-being (g = 1.05, P = .0006), anxiety (g = 0.94, P < .0001), and the burnout factors of emotional exhaustion (g = -0.74, P = .0004), depersonalization (g = -0.31, P = .0468), and personal accomplishment (g = 0.60, P = .0047). The TM intervention had a strong impact on mood concerns and contributed to improvements in overall mental well-being.

Table 3: Results for Paired T-Tests on Change from Baseline to 1-Month Posttest

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean Change</th>
<th>Standard Error</th>
<th>95% CI upper limit</th>
<th>95% CI lower limit</th>
<th>t-test</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBI Emotional Exhaustion</td>
<td>-4.94</td>
<td>1.23</td>
<td>-7.07</td>
<td>-2.02</td>
<td>-3.70</td>
<td>0.001</td>
</tr>
<tr>
<td>MBI Depersonalization</td>
<td>-1.70</td>
<td>1.04</td>
<td>-3.84</td>
<td>0.44</td>
<td>-1.66</td>
<td>0.1138</td>
</tr>
<tr>
<td>Variable</td>
<td>Mean Change</td>
<td>Standard Error</td>
<td>95% CI upper limit</td>
<td>95% CI lower limit</td>
<td>t-test</td>
<td>P-value</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------</td>
<td>----------------</td>
<td>--------------------</td>
<td>--------------------</td>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td>MBI: Emotional Exhaustion</td>
<td>-8.02</td>
<td>1.95</td>
<td>-12.03</td>
<td>-4.01</td>
<td>-4.11</td>
<td>0.0004</td>
</tr>
<tr>
<td>MBI: Depersonalization</td>
<td>-2.30</td>
<td>1.10</td>
<td>-4.57</td>
<td>-0.03</td>
<td>-2.08</td>
<td>0.0468</td>
</tr>
<tr>
<td>MBI: Personal Accomplishment</td>
<td>3.98</td>
<td>1.13</td>
<td>1.77</td>
<td>6.20</td>
<td>3.09</td>
<td>0.0047</td>
</tr>
<tr>
<td>PHQ-9 Depression</td>
<td>-4.64</td>
<td>0.76</td>
<td>-6.19</td>
<td>-3.08</td>
<td>-6.12</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>GAD-7 anxiety</td>
<td>-4.55</td>
<td>0.88</td>
<td>-6.12</td>
<td>-2.19</td>
<td>-5.15</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>WEMWBS</td>
<td>6.61</td>
<td>1.69</td>
<td>10.01</td>
<td>3.21</td>
<td>3.91</td>
<td>0.0026</td>
</tr>
</tbody>
</table>

Notes: MBI = Maslach Burnout Inventory, PHQ-9 = Patient Health Questionnaire, 9-item; GAD-7 = Generalized Anxiety Disorder Scale, 7-item; WEMWBS = Warwick Edinburgh Mental Well Being Scale

Table 4: Results for Paired T-Tests on Change from Baseline to 3-Month Posttest

Notes: Notes: MBI = Maslach Burnout Inventory, PHQ-9 = Patient Health Questionnaire, 9-item; GAD-7 = Generalized Anxiety Disorder Scale, 7-item; WEMWBS = Warwick Edinburgh Mental Well Being Scale

* Effect Size, using Hedges g with correction

Discussion

The results of this single-arm study demonstrate that healthcare clinicians who learned and practiced TM showed decreased symptoms of burnout, depression, and anxiety, and improved mental well-being. These improvements in burnout and well-being were seen at one-month after the initial TM instruction and were maintained through the three-month follow-up period. These findings support similar studies which have demonstrated the positive impact of TM on burnout and perceived stress in teachers (Elder et al., 2016), the reduction of compassion fatigue and increase in resilience in nurses (Bonamie & Aguino-Russell, 2019), and reductions in burnout, sleep disturbances, depression, anxiety, and stress in emergency department clinicians (Azizoddin et al., 2023).

The healthcare clinicians in the study showed a specific reduction in the burnout factor of emotional exhaustion. This finding is noteworthy when considering the potential negative consequences of emotional exhaustion on the individual clinician and on patient care and healthcare systems. Emotional exhaustion is defined as "being emotionally overextended and exhausted by one's work" (Maslach et al., 2018, p. 40), and has been associated with stronger intentions to leave one's job or profession (Jourdan & Cheney, 2010). In a 2020 survey of 1119 healthcare clinicians, emotional exhaustion was the most

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There is a critical need for evidence-informed interventions that are practical and have meaningful impacts on emotional health and well-being. This study contributes to the growing body of evidence supporting the use of TM as an effective self-help practice to reduce burnout and provide support for the ever-increasing demands of providing clinical care. Instruction in TM early in one’s professional career should be considered. The TM technique is easy to learn and sustain and should be considered in a clinician’s toolbox of self-help practices.

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References


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