Symposium on Transcendental Meditation as a Clinical Health Intervention

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SESSION 1

HEALTHCARE WORKERS
Burnout, Depression, and Resilience

Symposium Abstracts

ABSTRACT 1

Transcendental Meditation in Emergency Medicine: A Weill Cornell Emergency Medicine Wellness Partnership with the David Lynch Foundation

Dr. Peter A D Steel, MA, MBBS
Vice Chair, Department of Emergency Medicine
New York-Presbyterian/Weill Cornell Medicine

The clinical environment of emergency medicine (EM) is uniquely challenging. EM providers are required to make high-risk, frequently life-saving patient care decisions and interventions in short time frames, often with incomplete information. In their daily roles, EM providers witness death, deliver life-changing news, and encounter humans in their most vulnerable states: pain, fear, anger. They perform these roles multitasking through multiple interruptions and disrupted sleep-wake cycles. It is perhaps no surprise that as many as 44% of US emergency medicine physicians screen positive for burnout.

Performance in this environment requires near divergent sets of cognitive and emotional skills. On the one hand, EM providers must demonstrate exacting precision, single-minded decisiveness, emotional resilience to the surrounding traumas. But they must also access emotional presence, open-minded sensitivity, and empathy to each individual patient. These contrasting skills require a refined capacity for self-awareness and a *neural connectivity* far beyond good intentions.

Weill Cornell Medicine's Department of Emergency Medicine (WCM EM) is in the heart of New York City, serving a diverse group of communities. In 2019, as part of provider wellness (internal) evaluation study, thirteen physicians in the Weill Cornell Emergency Medicine Department were instructed in the Transcendental Meditation technique and evaluated over a three-month period. Preliminary findings showed generally moderate to large effects on emotional exhaustion (Cohen's d=.52) and personal accomplishment (d=1.03) burnout scales, trauma symptom severity (d=.48), and insomnia (d=.46). TM compliance was high.

The qualitative component of the project suggested further benefits for blood pressure reduction, emotional wellbeing, and family relationships. Following the immense challenges faced by EM providers through the Covid-19 pandemic, many of the participants have reflected positively on the sustained impact TM has had in their lives.

ABSTRACT 2

Heal the Healers: A Pilot Study Evaluating the Feasibility, Acceptability, and Exploratory Efficacy of a Transcendental Meditation Intervention for Emergency Medicine Clinicians During the COVID-19 Pandemic

Authors: Desiree R. Azizoddin, PsyD,[1-3] Noelia Kvaternik, MS, PA-C,[1] Meghan Beck,[1] Guohai Zhou, PhD,[4] Mohammad Adrian Hasdianda, MD, MSc, MMSc,[1] Natasha Jones, EdM, Lily Johnsky, BSc,[1] Dana Im, MD, MPP, MPhil,[1,3] Peter R Chai, MD MMS,[1-3, 5, 6] Edward W. Boyer, MD, PhD[1,6,7]

[1] Department of Emergency Medicine, Brigham and Women's Hospital, Boston, MA
[2] Department of Psychosocial Oncology and Palliative Care, Dana-Farber Cancer Institute, Boston, MA
[3] Department of Medicine, Harvard Medical School, Boston, MA
[4] Center for Clinical Investigation, Brigham and Women's Hospital, Boston, MA
[5] The Koch Institute for Integrated Cancer Research, Massachusetts Institute of Technology, Cambridge MA
[6] The Fenway Institute, Boston MA
[7] Department of Emergency Medicine, The Ohio State University, Columbus, OH

Objective: Emergency medicine (EM) clinicians face elevated rates of burnout which results in poor outcomes for providers, patients, and the health system. The objective of this single-arm pilot study was to evaluate the feasibility and acceptability of a Transcendental Meditation (TM) intervention for EM clinicians during the COVID-19 pandemic and to explore potential effectiveness in improving burnout, depression, anxiety, stress, and sleep.

Methods: EM clinicians from two urban hospitals were recruited to participate in TM instruction (8 sessions, a combination of individual and group, in-person and remote telehealth delivery) over 3 months. Recruitment occurred during the second wave of the COVID-19 pandemic in Massachusetts at 2 urban, academic hospitals. Session attendance was the primary feasibility outcome, pre-specified as attending 6 out of 8 sessions. Participant-reported measures of feasibility and acceptability, and validated measures of burnout, using the Maslach Burnout Inventory, depression (Patient Health Questionnaire, anxiety (Generalized Anxiety Disorder), sleep disturbance (NIH PROMIS-sleep scale) and psychological stress, (Perceived Stress Scale), were collected at baseline, 1-month, and 3-month follow-up. Descriptive statistics and linear mixed effects models were used.

Results: 32 participants were enrolled in the study between October 2020 and February 2021, with 31 participants completing training and follow-up assessments (14 physicians (46%), 7 nurses (22%), and 10 physician assistants (32%). Of these, 19 were female (61%). At baseline 94% reported medium to high levels of emotional exhaustion, in addition to elevated symptoms of other psychological symptoms. There was a high level of compliance with both TM session attendance and home practice. 90.6% of TM participants

attended at least 6 out of 8 training sessions (above the feasibility benchmark); 80.6% were compliant with home practice, meditating at least once a day on average.

At 3-month posttest, participants demonstrated significant reductions (from baseline) in the primary outcome, burnout ($p < .05$; effect sizes, Cohen's $d = 0.43$ to 0.45). Significant reductions were found for symptoms of depression, anxiety, and perceived stress, with significantly improved quality of sleep (p values $< .001$; Cohen's d=0.70 to 0.87). 80% or greater reported on the end-of-study survey that TM was acceptable, helpful, and improved overall wellbeing; 93% indicated they would recommend TM to a colleague/friend.

Conclusion: TM training was found to be feasible and acceptable to EM clinicians during the COVID-19 pandemic. TM practice led to significant reductions in burnout and psychological distress factors. The effect sizes for anxiety, depression symptoms, perceived stress, and sleep quality were all medium to large. These findings are consistent with previous TM research in healthcare workers and in other populations.

This study indicates that TM is a safe and effective meditation tool to improve clinicians' wellbeing. Administrators and other decision-makers are encouraged to consider TM as a viable option for improving the health of healthcare workers and for adoption as a preventative wellness program.

ABSTRACT 3

Targeting Healthcare Provider Burnout During the COVID-19 Pandemic

Authors: Sangeeta Joshi[1], Sandeep Vaishnavi[2], Amanda Brucker[3],Taylor Ardito[1] ,Jessica Shier[1], Shein-Chung Chow[3], Patty J Lee[4]

[1] Department of Medicine, Division of Pulmonary, Allergy, and Critical Care Medicine, Duke University School of Medicine, Durham, North Carolina

[2] MindPath Care Centers Research Institute, Raleigh, North Carolina

[3] Department of Biostatistics and Bioinformatics, Duke University School of Medicine, Durham, North Carolina

[4] Department of Medicine, Division of Pulmonary, Allergy, and Critical Care Medicine, Duke University School of Medicine and VA Medical Center, Durham, North Carolina

Background: Heath care providers (HCPs) are battling dual pandemics, COVID-19 and burnout syndrome from chronic unattended workplace stress. the major obstacle to effectively addressing HCP stress and burnout is the sparsity of evidence-based treatment strategies. We hypothesized that HCPs who practice Transcendental Meditation (TM), compared to controls, would demonstrate improved symptoms of burnout and psychological distress assessed by psychological, physiological, and functional neuroimaging measures over 3 months.

Methods: This randomized controlled trial (RCT) included 80 HCPs randomized to either TM or Treatment as Usual (TAU) control, following screening with a single-item stress scale (SUDS), the Columbia Suicide Severity Rating Scale (CSSRS), and digital autonomic reactivity assessment. Participants were measured with the Brief Symptom Inventory (BSI)-18, the Maslach Burnout Inventory (MBI), Patient Health Questionnaire (PHQ)-9 depression, Generalized Anxiety Disorder (GAD)-7, Insomnia Severity Index (ISI), and the Connor Davidson Resilience Scale-25 (CD-RISC) and on heart rate variability (HRV) and galvanic skin response (GSR) to stressors at baseline and 3 months. Resting-state functional MRIs (rsfMRI) were evaluated on a GE

MR750 3T MRI scanner at baseline and 3 months in prescribed sub-groups. TM instructional sessions 1-4 were provided on four consecutive days, followed by 4 follow-up sessions over the 3-month intervention period. Participants were encouraged to practice TM at home for 20 minutes twice daily. Both groups had access to wellness information offered by employers during the study period.

Results: 80 eligible participants were randomized to the TM (N=41) or the TAU group (N=39). 22% (9/41) of the TM group and 15% (6/39) of the TAU group volunteered to take part in fMRI assessment. Effect sizes for psychometric endpoints were calculated using Cohen's *d*. The TM group in comparison to TAU group showed greater reductions in the MBI burnout scales for Emotional Exhaustion (effect size: *d*=-0.57) and Depersonalization (*d*=-0.32), ISI sleep problems (*d*=-0.38), PHQ-9 depression symptoms (*d*=-0.31), and GAD-7 anxiety (*d*=-0.44). The TM group showed a greater increase than the TAU group in CD-RISC resilience scores (*d*=+0.29). with little difference in the MBI scale for Personal Accomplishment (*d*=+0.10). Data is being analyzed for the BSI-18, HRV and GSR. TM group showed robust 93% compliance. Compared to the TM group the TAU group showed larger changes between visits (Visit 2-Visit 1) in bi-lateral inferior frontal regions, while the TM group showed larger changes in bi-lateral prefrontal and paracingulate regions- part of default mode network, important for internal thought, depression and rumination.

Conclusion: The robust recruitment and high compliance rates with TM practice (>90%) reflect HCPs eagerness to address their burnout. Our results support the initial hypothesis that TM improves burnout, depression and anxiety symptoms, and sleep disturbances, as well as suggest improvement in resilience. TM showed fMRI trends of decreased resting state connectivity with the posterior cingulate node of the default mode network, which is a network in the brain important for internal thought, and that when excessively active, can be associated with anxiety and depression. In contrast, TAU had increased resting state connectivity with the same node. This may suggest that the practice of TM can be associated with decreased rumination, which may be a mechanism by which TM reduces stress. Based on these results, we recommend prioritized attention to addressing burnout in the healthcare workforce including larger clinical trials with TM to reduce stress and build resilience in the healthcare provider community.

ABSTRACT 4

Improving the Mental Health and Well Being of Healthcare Providers during the COVID 19 Pandemic: A Parallel Population Study Investigating the Reduction of Burnout & Enhancement of Well Being through the Transcendental Meditation Technique

Mark S. Nestor, MD, PhD
Center for Clinical and Cosmetic Research, Aventura, Florida
University of Miami Miller School of Medicine, Miami, Florida

Objective: Healthcare providers (HCP) have a high incidence of stress-related disorders, including burnout, insomnia, anxiety and depression that has been dramatically amplified due to the Covid 19 pandemic. This study evaluated the benefit of the introduction the Transcendental Meditation program at three Miami Florida at the height of the COVID pandemic.

Methods: Using a parallel population study design, 65 HCPs affiliated with three participating Miami hospitals were instructed in Transcendental Meditation beginning in June 2020 and a control group, Lifestyle-as-Usual (LAU) of 65 HCPs were also recruited. Using validated scales for anxiety, depression, burnout, insomnia and well-being; Brief Symptom Inventory (BSI), Insomnia Severity Index (ISI), Maslach Burnout Inventory (MBI), and Warwick Edinburgh Mental Well Being Scale (WE), either in person or through a phone based remote system, study outcomes were assessed at baseline, 2 weeks, 1 month, and 3 months.

Results: One hundred and twenty-three subjects completed the trial through one month and 116 completed the 3-month endpoint (60 and 59 of the TM group and 63 and 57 of the LAU group). The phone-based survey indicated a high degree of compliance to the meditation schedule. There was a highly statistically significant improvement from baseline for virtually all of the scales at every time point for the TM group including a dramatic reduction of negative symptoms at 2 weeks and 3 months for depression (48% and 52%, $p<0.002$), Anxiety (49% and 63%, $p<0.001$), Insomnia (34% and 48%, $p<0.001$), Emotional Exhaustion (16% and 40%, $p<0.001$), and dramatic improvement of positive value showing Well Being (12% and 17%, $p<0.001$) vs. no significant change from baseline for the control group. There were also statistically significant differences at various time points for negative symptoms and positive values between the two groups.

Conclusion: The results of this study indicate that the Transcendental Meditation program appears to rapidly and dramatically reduce healthcare provider burnout including symptoms of anxiety depression, insomnia and appears to improve healthcare provider well-being vs no significant benefit for the control lifestyle as usual.

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