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Mindfulness for Inpatient Psychiatric Clinical Staff: Designing and Evaluating a Pilot Intervention to Reduce Stress and Burnout

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**Mindfulness for Inpatient Psychiatric Clinical Staff:
Designing and Evaluating a Pilot Intervention to Reduce Stress and Burnout**

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A DNP project submitted in partial fulfillment of the requirements for the degree of
Doctor of Nursing Practice

Seattle University

2022

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Table of Contents

| | |
|----------------------------------|----|
| Abstract..... | 3 |
| Introduction and Background..... | 5 |
| Literature Review..... | 7 |
| Purpose and Aims..... | 10 |
| Theoretical Framework..... | 11 |
| Methods..... | 12 |
| Results..... | 16 |
| Discussion..... | 24 |
| Limitations..... | 27 |
| Future Implications..... | 29 |
| Appendices..... | 30 |
| References..... | 33 |

Abstract

Background: The COVID-19 pandemic has both highlighted and compounded a burnout crisis among the healthcare workforce. Healthcare professionals are experiencing workplace stress and professional burnout in substantial numbers, which has resulted in multiple negative consequences including decreased productivity, poor staff retention, and increased organizational costs. While effective multi-pronged approaches to address stress and burnout among healthcare professionals account for the problem at all levels from individual to organizational, a growing evidence base supports the implementation of mindfulness-based interventions as one strategy to reduce stress and burnout and build resiliency.

Objectives: The purpose of this DNP project was to design and pilot a quality improvement project of a mindfulness-based intervention to reduce stress and burnout among inpatient psychiatric clinical staff at a large, urban, academic medical center. This project had four objectives: 1) implement a brief mindfulness-based intervention that fits seamlessly within the current workflow structures in the medical center's inpatient psychiatric units; 2) evaluate the intervention's effectiveness in reducing symptoms of stress and burnout; 3) assess the viability of the intervention's design and acceptance by clinical staff; and 4) provide recommendations for its sustainability as an ongoing program for the medical center's clinical staff.

Methods: This project used a mixed methods design utilizing quantitative and qualitative data to reach its objectives. The mindfulness pilot program involved ten 12-minute audio sessions combining evidence-based didactic material and meditation practice. The sessions were administered free of charge to participants via a smartphone-based meditation app online and completed independently before or during work shifts at times chosen by participants. Pre- and post-intervention surveys utilized the Maslach Burnout Inventory (MBI) in addition to several

Likert-scale survey questions, open-ended questions, and optional semi-structured interviews with which to collect insights from participants about both the variable being measured (stress and burnout) and the intervention used (mindfulness for healthcare professionals).

Discussion: A small sample size limited the ability to determine effectiveness and feasibility.

Post-intervention evaluative feedback indicated that participants experienced a reduction in stress but also had difficulty completing all ten sessions. Results and participant feedback both suggested that addressing systemic causes of burnout can improve participation and buy-in for individual-based interventions like the one in this project.

Implications for Practice: Results from this project can help determine the extent to which a mindfulness program for clinical staff at a large urban hospital can provide a viable intervention to reduce stress and burnout, improve staff retention rates, and increase workplace satisfaction. Recommendations provided as a result of the project's quantitative and qualitative data analysis offer ways to improve and refine future applications of mindfulness-based programs for healthcare professionals.

Keywords: stress, burnout, mindfulness, quadruple aim, psychiatry

Introduction and Background

Burnout, which is included in the 11th revision of the International Classification of Diseases (ICD-11), is a syndrome resulting from chronic workplace stress that has not been successfully managed (World Health Organization, 2019). It is especially prevalent among service-oriented professions such as healthcare and is characterized by emotional exhaustion, depersonalization or cynicism such as negative attitudes about one's patients, and feelings of ineffectiveness and loss of meaning in work (Maslach, Jackson, & Leiter, 2016). Studies point to the sobering reality that the majority of healthcare professionals are likely to experience symptoms of burnout, which as a workplace phenomenon affects every level of the healthcare organization, including patients, clinical and non-clinical staff, healthcare organizations and their administrations, insurance companies, and the American taxpayer (Ellison, 2019; Han et al., 2019; Kelly et al., 2021). A 2020 study found that fifty-four percent of the nurses sampled reported moderate burnout, particularly emotional exhaustion and cynicism – two of the three classic components measured in the Maslach Burnout Inventory (MBI), with the third being reduced personal accomplishment (Kelly et al., 2021). A systematic review of 182 studies assessing prevalence of burnout among 109,628 physicians in 45 countries found that 67% of the sample populations experienced burnout and 54% of American physicians reported experiencing at least one symptom of burnout measured by the MBI (Rotenstein et al., 2018).

In October 2007, the Institute for Healthcare Improvement (IHI) launched the Triple Aim initiative to help health care organizations improve the health of a population (including quality, access, and reliability) while simultaneously lowering the per capita cost of care (McCarthy, 2010). The IHI developed the healthcare Triple Aim in part to address the problematic reality that the United States healthcare system is the most costly in the world, accounting for more than

17% of the gross domestic product (Centers for Medicare and Medicaid Services, 2020).

Healthcare organizations across the U.S. have adopted the Triple Aim since then, implementing reforms to identify and fix problems such as poor coordination of care and overuse of medical services. With new benchmarks and expectations for healthcare professionals to achieve the goals outlined by the Triple Aim, however, the burden placed on healthcare professionals was overlooked and possibly contributed to increasing rates of professional burnout among physicians, nurses, and clinical staff (Bodenheimer & Sinsky, 2014).

By 2014, academic articles began to illustrate the growing problem of burnout as well as the reality that the well-being of healthcare teams is an essential priority to consider along with those of the Triple Aim. "If the well-being of health care providers is not made a priority, policy makers and leaders may be working at cross-purposes by increasing performance expectations while not considering the personal costs and consequences of initiatives designed with the Triple Aim in mind" (Rathert et al., 2018, p. 983). More recently, the Covid-19 pandemic has both highlighted and compounded the burnout crisis which had been brewing quietly among the healthcare workforce (Kelly et al., 2021). Nurses, care providers including physicians and nurse practitioners, as well as clinical and administrative staff, are experiencing workplace stress and professional burnout in substantial numbers (Rotenstein et al., 2018). The effects of stress and burnout impact the majority of healthcare professionals, but they also reverberate throughout the systems in which healthcare professionals operate. Healthcare organizations – their management and administrations – cannot afford to ignore the phenomena of stress and burnout without risking detrimental effects to quality of care, patient safety, and economic viability, which are the foundations of healthcare systems.

Literature Review

Pathogenesis of Burnout

The determinants of burnout are multifactorial and complex, and no one intervention is likely to solve the problem. However, a variety of preventable issues result from allowing burnout to go unchecked, creating an urgent need to address them all effectively and comprehensively. First is the immediate toll of stressors and burnout symptoms on individual healthcare professionals. The three components of burnout measured by the Maslach Burnout Inventory, for instance – emotional exhaustion (EE), depersonalization (DP); often demonstrated by an impersonal or cynical attitude toward work), and impaired sense of personal accomplishment (PA) – are undesirable experiences that can result in a variety of negative consequences that impact both the healthcare professionals as well as their patients (Maslach, et al., 2016).

Studies demonstrate the inverse relationship between burnout and mental health and wellbeing: over time, chronic stress related to burnout can develop into mental health disorders including anxiety, depression, insomnia, and loss of cognitive focus (Ellison, 2019). Burnout negatively impacts workplace performance and quality of care, which in turn impacts patient outcomes, safety, and satisfaction (Hall et al., 2016). Medical errors are more likely to occur when staff are experiencing stress and burnout, leading to unsafe conditions and worse outcomes. As a safety issue, burnout is sufficiently urgent that the World Health Organization (WHO) named *reducing work-related stress and burnout* as one of five goals for its World Patient Safety Day 2020 (World Health Organization, 2020). Healthcare staff experiencing burnout symptoms are less likely to demonstrate patient-centered, empathic care and as a result

they are less likely to build positive rapport with patients, who then experience lower levels of satisfaction with their healthcare providers and experience overall (Wilkinson et al., 2017).

Burnout is also associated with increased rates of organizational and position turnover (Kelly et al., 2021). A 2019 longitudinal cohort study on burnout collected data on 740 primary care clinicians in 2013 and 2014 and found that burnout accelerated clinician turnover (Willard-Grace et al., 2019). Poor staff retention creates enormous organizational and financial burdens for healthcare organizations, which must adjust for the turnover. One study estimated the cost of replacing one nurse in a range between \$11,000 to \$90,000 and up to \$8.5 million in aggregated costs such as unfilled vacancies, patient deferment, and training and orientations (Halter et al., 2017). An article in the *Annals of Internal Medicine* estimated that physician burnout costs the United States healthcare system approximately \$4.6 billion a year (Han et al., 2019).

Strategies to Address Burnout

A number of existing studies evaluate the efficacy of various interventions designed to address the health care team's health and wellbeing as the fourth goal of the Quadruple Aim (Bodenheimer & Sinsky, 2014). Generally, these interventions divide into categories based on their targets. Individual-focused interventions have included emotional regulation, self-care workshops, mindfulness, meditation, yoga, exercise, massage, stress-management skills, and others. Organizational or structural interventions have included changes to staffing, workload or schedule rotations, stress management training programs, teamwork and transitions, debriefing sessions, focus groups, and others. Some reviews also included a third category of *combined* interventions, which tended to revolve around interpersonal communication strategies and tools, stress management programs, and resiliency training (Zhang et al., 2020).

Almost every study and systematic review that evaluated interventions for reducing stress and burnout among healthcare professionals included the recommendation for a multipronged approach as the most effective means to do so (Aryankhesal et al., 2019; Busireddy et al., 2017; Dreison et al., 2018). That is, for healthcare organizations to adequately address the occupational phenomenon of workplace stress and burnout, they must implement reforms that target structural determinants as well as those which are interpersonal and individual.

An advantage of individual-focused interventions provides the added benefit of relative ease and cost-effectiveness for organizational implementation. But they are also effective tools to reduce stress and burnout while organizations work to address systemic issues. Individual-focused interventions evaluated by systematic reviews – those such as mindfulness, meditation, and yoga – were all associated with significant reductions in emotional exhaustion, stress, and burnout (Aryankhesal et al., 2019).

A number of studies and meta-analyses have assessed impacts of mindfulness-based interventions in healthcare settings around the world. One systematic review of brief mindfulness practices for healthcare providers concluded that nine of 14 studies included in its review reported positive changes in levels of stress, anxiety, mindfulness, resiliency, and burnout symptoms (Gilmartin et al., 2017). Other studies have reported mixed results on the efficacy of mindfulness for reduction in burnout symptoms. For instance, one study published in Singapore in 2017 found that although participants demonstrated significant improvement in mindfulness, compassion, and reductions in stress following the intervention, there was no significant change observed for burnout variables (Suyi et al., 2017). By contrast, a 2016 systematic review of mindfulness practice with occupational therapists found that six of the 8 studies it reviewed demonstrated statistically significant decreases in job burnout after mindfulness training; the

authors concluded that there is strong evidence for the use of mindfulness practice to reduce job burnout among health care professionals (Luken & Sammons, 2016). Although there are contrasting studies, the existing evidence base for mindfulness interventions appears to be promising. Moreover, the question regarding efficacy of mindfulness interventions to reduce stress and burnout will gain clarity with the addition of new, high-quality studies.

An array of promising and innovative interventions has been tested in healthcare settings around the country with the objective of reducing stress and preventing burnout among healthcare workers. And while the literature suggests that the most effective approach to reducing stress and burnout among healthcare professionals addresses the problem at all levels, from individual to organizational, a growing evidence base supports the implementation of mindfulness-based interventions as a tool to reduce symptoms of burnout and build resiliency.

Purpose and Aims

The purpose of this DNP project is a quality improvement project to design and pilot a mindfulness-based intervention to reduce stress and burnout among inpatient psychiatric clinical staff at a large, urban, academic medical center. The mindfulness pilot program is an evidence-based, accessible, and cost-effective intervention that can contribute to the healthcare team's well-being. Its implementation is supported through collaboration with primary stakeholders including the medical center's nurse executives and administrators, inpatient psychiatry nurse managers, and the hospital's Resilience and Well-being Committee. The project entails four aims: 1) implement a brief mindfulness-based intervention that fits seamlessly within the current workflow structures in the medical center's inpatient psychiatric units; 2) evaluate the intervention's effectiveness in reducing symptoms of stress and burnout; 3) assess the viability of

the intervention's design as perceived by clinical staff; and 4) provide recommendations for its sustainability as an ongoing program for the medical center's clinical healthcare workers.

Theoretical Framework

The project to implement and evaluate a mindfulness program for healthcare professionals stands to benefit from the Neuman Systems Model (2009) as the theoretical framework to help shape and interpret it. Named after Dr. Betty Neuman, the Neuman Systems Model provides a grand nursing theory which conceptualizes the relationship between an individual agent and environment in ways that are especially appropriate as a paradigm for understanding and evaluating professional burnout. In particular, the Neuman Systems Model focuses on stress factors that can harm the health and wellbeing of a person, as well as the innate capacity for resilience that individual nurses and other healthcare professionals have to cope with their environmental stressors (Hannooddee, 2020).

The Neuman Systems Model maintains a holistic perspective in which the goal of nursing is to reduce or prevent stressors by way of primary, secondary, or tertiary prevention interventions that restore or optimize resilience and wellness for the client (Turner, 2015). Importantly, the model recognizes that an individual's equilibrium is the result of the health and balance of a number of variables: physiological, psychological, sociocultural, developmental, and spiritual. Therefore, interventions which do not or cannot address all variables underlying disruptions to equilibrium cannot be expected to restore equilibrium by themselves. This point of view is important to keep in mind while considering the complex and multifactorial issue of professional burnout.

As applied to the intervention of mindfulness for healthcare professionals, the "client" of the Neuman Systems Model is actually the nurse, provider, or other healthcare professional

rather than the patient – even though patients benefit from interventions that target their healthcare providers. Stress factors are identified as those which disrupt the well-being of healthcare professionals and strain the resilience with which they protect themselves from adverse circumstances, interpersonal or structural, in their work environments. Implementing a mindfulness program provides a tool which operates at all levels of prevention – primary, secondary, and tertiary – and which can help restore or optimize resilience and contribute to healthcare professionals’ overall wellbeing.

Methods

Project Type and Design

This was a quality improvement project to design and implement a pilot intervention and assess its feasibility as an ongoing program to address symptoms of stress and burnout among psychiatric clinical staff. The project used a mixed methods design to collect quantitative data from surveys with Likert-style questions to assess pre- and post-intervention symptoms of stress and professional burnout as well as participants' post-intervention perceptions of the mindfulness program. Qualitative data were collected primarily from the post-intervention survey, which included a mix of Likert-style and open-ended questions, and from semi-structured interviews with psychiatric clinical staff.

Intervention Setting

The setting for this project was a large, urban, academic medical center and designated level I trauma center. The inpatient psychiatry units provide evidence-based mental health interventions for some of the most vulnerable populations. The environment and milieu are designed to be therapeutic. The demands on clinical staff to create such an environment and

deliver quality care, particularly within the context of a pandemic, generates enormous stress and contributes to such phenomena as professional burnout and compassion fatigue.

Participant Recruitment

Participants were recruited beginning in January 2022 and were selected based on two inclusion criteria. The first criterion required that participants were providing direct care to inpatient psychiatric patients at the time of their participation. The second criterion required that they have access to headphones and a smartphone device capable of downloading the Insight Timer app with which to access pre-recorded mindfulness sessions (Insight Timer, n.d.). Those who did not provide direct care to inpatient psychiatric patients were not included in the analysis. Potential participants included physicians, psychiatric nurses, mental health specialists, social workers, occupational and physical therapists, and respiratory therapists, all of whom provide direct care to patients in the inpatient psychiatry units at the project site.

Participants were recruited via fliers, email, announcements at shift breaks, and by word-of-mouth. Recruiting flyers included a QR code for convenient access to the program website, and email announcements provided a URL hyperlink as an additional means to access the website. Nursing management and the project site's Resilience and Well-being team supported the recruitment effort by sending email announcements to psychiatric clinical staff to raise awareness about the project and encourage participation. Contact information was distributed to participants by email, recruitment flyers, and the program's website, where participants could also access instructions, pre- and post-assessment surveys, and the smartphone app required for the intervention. Participants were encouraged to write or call with any questions about the program.

Institutional Review Board

Seattle University Institutional Review Board (IRB) identified this project as "Not Human Participant Research (NHPR)."

Intervention Design

The program's intervention asked participants to complete a series of ten pre-recorded mindfulness sessions of around 12 minutes duration each (about one to two sessions per week) over the course of four to eight weeks. Participants were provided with instructions to download a free smartphone app called "Insight Timer" to access a pre-recorded ten-session course that included didactic content about the role of mindful awareness in regulating physiological responses to stress, followed by several minutes of guided meditation to elicit a parasympathetic-mediated state of relaxed awareness. Participants were encouraged to complete the recorded sessions at their desired pace, either immediately before a work shift or during the shift (e.g., during a 15-minute break). Participants were also encouraged to utilize the medical center's meditation room as an ideal location but were free to use any space that was convenient, quiet, and relatively free from distraction. Incentives were offered in the form of a raffle for three \$20 Amazon gift cards for which participants were randomly selected after completing the post-intervention survey.

The program communicated to participants that although the goal was to complete all ten sessions, their participation would count even if they completed fewer than ten. Participants were guided to complete pre- and post-intervention surveys using the links in the program's website and were encouraged to complete the post-assessment survey even if they did not complete all ten sessions. Two months after launching the pilot program (i.e., announcing the program and opening access to the program's website), a nursing supervisor for the project site's inpatient

psychiatric units circulated an email to all clinical staff to encourage participants to complete the post-intervention survey if they had not already, and to prospective participants to begin the program by navigating to the program's website.

Data Collection and Analysis

Pre- and post-intervention data was collected via the Qualtrics online survey platform (Qualtrics XM, n.d.). Qualtrics is a cloud-based software program that administers custom-tailored surveys and securely stores resulting data. Participants accessed the pre- and post-intervention surveys through the program's website, which served as a hub for participants to see instructions and access the surveys in Qualtrics.

The pre- and post-intervention surveys obtained demographic data and utilized the Maslach Burnout Inventory Human Service Survey for Medical Personnel [MBI-HSS (MP)] to evaluate symptoms of professional burnout prior to and after the intervention (Maslach et al., 2016). The MBI-HSS (MP) is a widely used, validated 22-item survey that covers three dimensions of burnout: Emotional Exhaustion (EE) as the emotional toll or burden experienced at work, Depersonalization (DP) as the experience of apathy and/or cynicism about patient care, and low sense of Personal Accomplishment (PA). The Perceived Stress Scale (PSS) was considered as well but withheld due to concerns for survey fatigue (Cohen, et al., 1994). The post-intervention survey included Likert Scale questions to assess perceptions of intervention-mediated changes in stress in addition to questions that evaluated perceptions about the intervention's utility and convenience. Open-ended questions solicited feedback about participants' experiences with the pilot program as well as insights and recommendations for potential improvements. In addition to a post-intervention survey, participants were invited to participate in post-intervention interviews to provide more robust qualitative feedback.

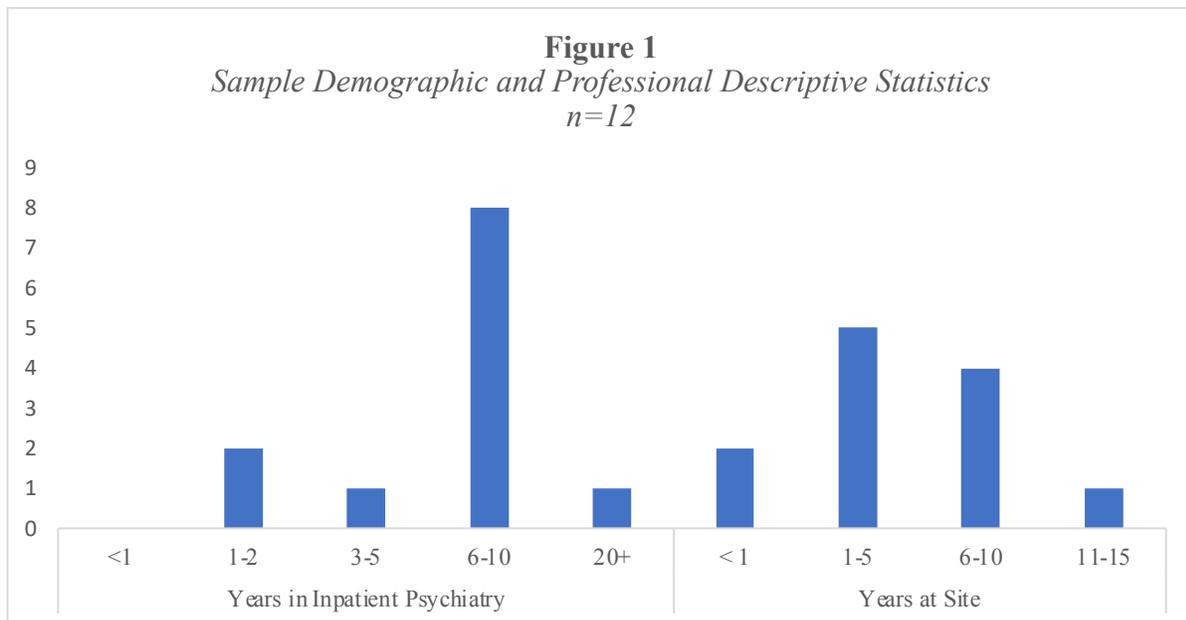
Quantitative data from pre- and post-intervention surveys were analyzed with descriptive statistics in Microsoft Excel to evaluate changes in pre- and post-intervention symptoms of stress and burnout as measured by the Maslach Burnout Inventory Human Service Survey for Medical Personnel [MBI-HSS (MP)]. Similarly, descriptive statistics were used to analyze Likert Scale questions in the pre- and post-intervention surveys to identify patterns in responses to the variable being measured (stress and burnout) and the intervention used (mindfulness for psychiatric clinical staff). Lastly, content analysis was applied to post-intervention qualitative data, which was collected from post-intervention surveys and voluntary semi-structured interviews, to identify individual insights and common themes about the program.

Results

A total of 13 psychiatric clinical staff completed the pre-intervention survey. Twelve of the 13 who completed the pre-intervention survey met inclusion criteria to participate in the pilot program. One participant self-identified as a nursing student and did not complete the MBI-HSS (MP) portion of the pre-intervention survey. They were excluded from the final data set and data analysis for these reasons. The pre-intervention sample size was therefore $n=12$. The pilot program concluded approximately three months after it launched. At the time of conclusion, three participants had completed the post-intervention survey. The post-intervention sample size was $n=3$. Demographic data obtained from the pre-intervention and post-intervention surveys are provided in Table 1 and Figure 1.

Table 1
Sample Demographic and Professional Descriptive Statistics

| Categorical Variables | Pre-Intervention (n=12) Frequency (%) | Post-Intervention (n=3) Frequency (%) |
|---------------------------------------|--|--|
| Role | | |
| MHS | 5 (42) | 3 (100) |
| RN | 7 (58) | 0 (0) |
| Other (e.g., MD, SW, OT, PT) | 0 (0) | 0 (0) |
| Gender | | |
| Female | 8 (62) | 2 (67) |
| Male | 5 (38) | 1 (33) |
| Other | 0 (0) | 0 (0) |
| Age | | |
| 20-29 | 1 (8) | 0 (0) |
| 30-39 | 4 (33) | 2 (67) |
| 40-49 | 5 (42) | 1 (33) |
| 50-59 | 2 (17) | 0 (0) |
| 60+ | 0 (0) | 0 (0) |
| Type of Staff | | |
| Permanent | 12 (100) | 3 (100) |
| Temporary (e.g., traveler) | 0 (0) | 0 (0) |
| Previous Meditation Experience | | |
| Yes | 9 (75) | 2 (67) |
| No | 3 (25) | 1 (33) |



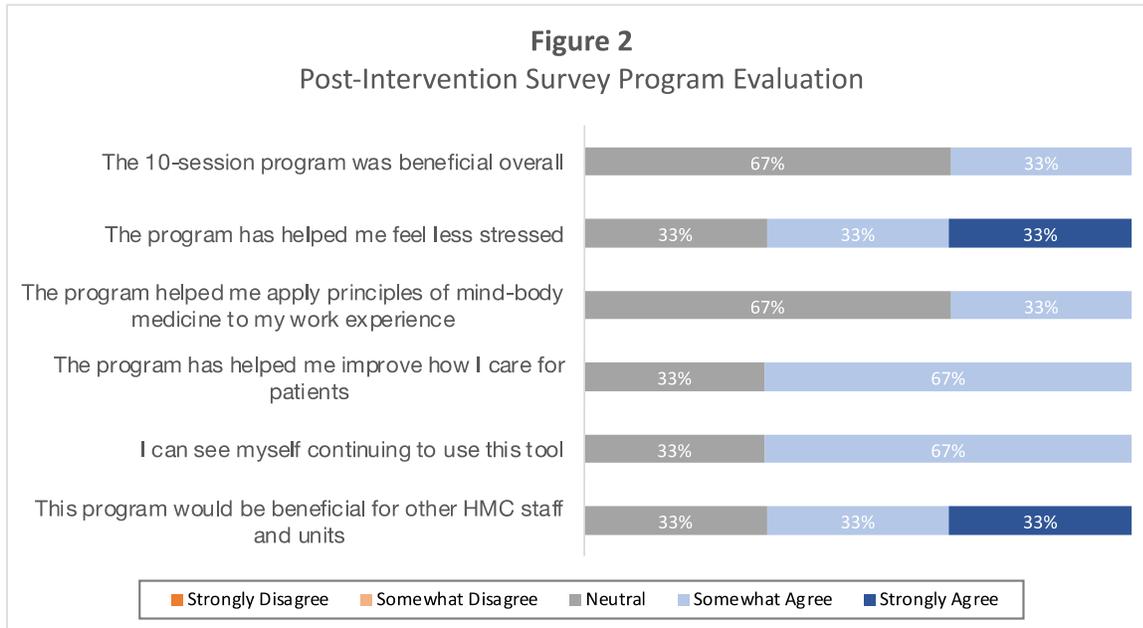
Although the program recruited all clinical staff that met inclusion/ criteria, it is noteworthy that only Registered Nurses (RN)s and Mental Health Specialists (MHSs) participated at the start, and only the MHS participants completed the program. More female-gendered staff participated than male-gendered, and there were no participants who identified as non-binary/third-gender or other. Participation was relatively even with respect to age, with 9 of 12 participants aged between 30 and 49, including the three participants who completed the program. Only permanent staff participated (i.e., no travelers or other temporary staff), and three quarters of participants had some prior experience with meditation. Two of the three participants who completed the program had prior meditation experience.

The post-intervention survey asked participants to evaluate the felt impact of the 10-session mindfulness program in terms of overall benefit, stress reduction, workplace experience, patient care, as well as whether they feel they would repeat this type of program and if it would be beneficial for the hospital's clinical staff more broadly. These quantitative questions were posed in Likert-style ranging in response from 1 to 5. Questions assessing agreement ranged from 1= strongly disagree to 5 =strongly agree. Results are summarized in Table 2 and Figure 2.

Table 2

Post-Intervention Survey: Program Evaluation

| Survey Item | Post-Intervention (n=3) Mean (SD) |
|--|--------------------------------------|
| The 10-session program was beneficial overall | 3.33 (0.58) |
| The program has helped me feel less stressed | 4 (1) |
| The program helped me apply principles of mind-body medicine to my work experience | 3.33 (0.58) |
| The program has helped me improve how I care for patients | 3.67 (0.58) |
| I can see myself continuing to use this tool | 3.67 (0.58) |
| This program would be beneficial for other HMC staff and units | 4 (1) |



A sample size of 12 participants completed the pre-intervention survey and accessed the pilot program to begin the ten sessions. Three participants out of the 12 (25%) completed the post-intervention survey. Two of the three participants (67%) who completed the post-intervention survey indicated that they completed all ten sessions, and the third participant reported completing seven out of the ten sessions. In the post-intervention survey (Appendix C), participants were asked about appropriateness of session duration and number of sessions. All three participants (100%) answered that the session duration was "about right" as opposed to "too short" or "too long." Two participants (67%) indicated that the number of sessions was too many, one participant (33%) answered the number of sessions was "the right number," and none (0%) answered "too few." All three participants (100%) reported that the app was easy to use. Two participants (67%) indicated they used a mix of spaces in which to complete the sessions, one participant (33%) utilized their break room exclusively, and none (0%) indicated that they used the meditation room that was located outside of the psychiatric units. Lastly, two participants

(67%) answered that they listened to the sessions both before and during their work shifts and one participant (33%) listened to all sessions during the work shift, during breaks or downtime.

Table 3 summarizes results from the pre-intervention Maslach Burnout Inventory-Human Service Survey for Medical Personnel (MBI-HSS (MP)) that were matched and analyzed according to demographic variables collected in the pre-intervention survey. The scores for each question ranged from 0-6 based on participant reports of frequency: 0=never, 1=a few times a year, 2=once a month or less, 3=a few times a month, 4=once a week, 5=a few times a week, and 6=every day. For the two negative categories in the survey, Emotional Exhaustion and Depersonalization, higher scores correlate with higher levels of burnout, whereas for the positive category, Personal Accomplishment, higher scores correlate with lower levels of burnout.

Appendix A displays the 22 questions in the MBI-HSS (MP) survey.

Table 3

Pre-Intervention MBI-HSS (MP) Results by Demographic Variable

| Demographic Variables | Emotional Exhaustion Mean (SD) | Depersonalization Mean (SD) | Personal Accomplishment Mean (SD) |
|--------------------------------|-----------------------------------|--------------------------------|--------------------------------------|
| N=12 | | | |
| Role | | | |
| MHS (n=5) | 25 (5.83) | 7.6 (3.21) | 32.4 (6.5) |
| RN (n=7) | 34.29 (15.81) | 11.14 (8.41) | 40.86 (3.29) |
| Gender | | | |
| Female (n=7) | 27.29 (12.79) | 10.14 (7.76) | 39.43 (4.43) |
| Male (n=5) | 34.8 (13.61) | 9 (5.87) | 34.4 (7.92) |
| Age | | | |
| 20-29 (n=1) | 21 | 8 | 38 |
| 30-39 (n=4) | 26.25 (6.4) | 7.25 (3.95) | 36.5 (6.86) |
| 40-49 (n=5) | 34.8 (13.61) | 10.4 (6.66) | 37.2 (8.44) |
| 50-59 (n=2) | 32.50 (27.58) | 13.5 (14.85) | 39 (2.83) |
| Previous Meditation Experience | | | |
| Yes (n=9) | 26.22 (10.91) | 7.78 (4.87) | 38.33 (2.83) |
| No (n=3) | 43 (12.29) | 15.33 (9.61) | 34.33 (10.26) |
| Years in Psychiatry | | | |
| 1-2 (n=2) | 26 (7.07) | 5 (4.24) | 38.5 (0.71) |

| | | | |
|-------------------------|-------------------------|-------------------|----------------------------|
| 3-5 (n=1) | 31 | 12 | 39 |
| 6-10 (n=8) | 33.63 (14.2) | 11.38 (7.25) | 36.38 (7.71) |
| 10-20 (n=0) | | | |
| 20+ (n=1) | 13 | 3 | 41 |
| Years at Site | | | |
| < 1 (n=2) | 26 (7.07) | 5 (4.24) | 38.5 (0.71) |
| 1-5 (n=5) | 31.4 (12.78) | 10.6 (8.23) | 36.6 (5.94) |
| 6-10 (n=4) | 35.75 (15.52) | 12.5 (5.45) | 36.75 (9.67) |
| 11-15 (n=1) | 13 | 3 | 41 |
| Total (n=12) | 30.42 (13.09) | 9.67 (6.76) | 37.33 (6.34) |
| MBI-HSS (MP) Scoring | Emotional Exhaustion | Depersonalization | Personal Accomplishment |
| High | 27+ | 13+ | 39+ |
| Moderate | 17-26 | 7-12 | 32-38 |
| Low | 0-16 | 0-6 | 0-31 |

The pre-intervention MBI-HSS (MP) results by demographic variable suggest high levels of emotional exhaustion, moderate levels of depersonalization, and moderate levels of personal accomplishment. One exception to this pattern is a participant who was both the most experienced clinical staff person (20+ years in inpatient psychiatry) and recorded the lowest levels of burnout in all three categories. RNs displayed higher emotional exhaustion and depersonalization than Mental Health Specialists (MHS) but recorded higher personal accomplishment scores than the MHS participants. Participants with previous meditation experience recorded lower burnout scores, including higher personal accomplishment scores, than those of their counterparts who had no previous meditation experience. With respect to gender, all recorded moderate to high levels of burnout. Male-gendered participants recorded higher levels of burnout in two of the three categories than female-gendered participants but recorded lower levels of depersonalization.

Table 4*Results of Pre-Intervention and Post-Intervention MBI-HSS (MP)*

| Demographic Variables | Emotional Exhaustion Mean (SD) | Depersonalization Mean (SD) | Personal Accomplishment Mean (SD) |
|-------------------------|-----------------------------------|--------------------------------|--------------------------------------|
| Pre-Intervention (n=12) | 30.42 (13.09) | 9.67 (6.76) | 37.33 (6.34) |
| Post-Intervention (n=3) | 21.67 (10.21) | 5.67 (2.89) | 31.33 (9.24) |
| Change from baseline | -0.28 | -0.41 | -0.16 |
| P-value | 0.27 | 0.15 | 0.39 |

| MBI-HSS (MP) Scoring | Emotional Exhaustion | Depersonalization | Personal Accomplishment |
|-------------------------|----------------------|-------------------|-------------------------|
| High | 27+ | 13+ | 39+ |
| Moderate | 17-26 | 7-12 | 32-38 |
| Low | 0-16 | 0-6 | 0-31 |

Table 4 presents data from pre- and post-intervention measurements of burnout using the MBI-HSS (MP). The pre-intervention mean value for emotional exhaustion is high (30.42) and within the moderate range after intervention (21.67). With a p-value of 0.27 it is not possible to conclude this decrease is statistically significant, however. Similarly, the mean value for depersonalization decreased from 9.67 pre-intervention to 5.67 post-intervention, which would indicate a reduction from moderate to low levels of depersonalization but its p-value of 0.15 renders this conclusion statistically uncertain. Personal accomplishment was the one category with impaired outcome at post-intervention, i.e., indicating higher rate of burnout, by dropping from moderate to low levels of personal accomplishment.

Qualitative Data

Qualitative data were obtained from questions in post-intervention surveys and voluntary semi-structured interviews. Post-intervention survey questions inquired about challenges and

distractions encountered while listening to audio sessions, benefits gained that were not already evaluated in the Likert-style questions, and improvements that would help the program succeed. With respect to challenges, one response indicated that access to headphones and quiet spaces was sometimes a barrier to completing the sessions. Regarding benefits gained, one participant noted that the program offered "gentle reminders of things I forgot." When asked for improvements, one participant suggested that didactic material and meditative practice, which were typically combined into each session, should instead be divided into separate sessions.

One of the three participants who completed the post-intervention survey volunteered for an interview. The participant indicated that the program's cumulative effect was helpful, especially because it was a time of transition for them as an MHS who recently switched from the night shift (7pm to 7am) to the day shift (7am to 7pm). They reflected that the mindfulness program "increased my ability to see my value in the work that I'm doing," and they offered positive feedback about the content's mix of evidence-based didactic material with meditative practices that were designed to reduce stress and cultivate relaxed, aware states of mind. They felt the program was easily accessible thanks to features like the QR codes printed on recruitment flyers, which brought interested prospective participants directly to the program website. With respect to things that did not work well, the participant echoed a pattern that emerged from survey data about ten sessions being too many. However, they felt the session duration of 10 to 12 minutes was "perfect." When asked why the participant decided not to utilize the meditation room outside the unit, they cited concerns about COVID-19 precautions as a reason to stay inside the unit or in spaces they knew had little or no traffic. With respect to improvements, the participant suggested focusing on "cheerleading" to create and sustain a sense of accomplishment, such as more frequent reminders, check-ins, and prizes while participants

progress through a program. Lastly, they suggested that it might be challenging to convince clinical staff to use break periods for the program sessions, and that it would be helpful to find ways for them to participate in the program while also keeping their break periods open-ended.

Discussion

The purpose for this quality improvement project was to design and evaluate a mindfulness-based intervention for inpatient psychiatric clinical staff to reduce stress and burnout. The project had four objectives: to implement a brief mindfulness-based intervention that fits seamlessly within the current workflow structures in the medical center's inpatient psychiatric units; to evaluate the intervention's effectiveness in reducing symptoms of stress and burnout; to assess the viability of the intervention's design and acceptance by clinical staff; and to provide recommendations for its sustainability as an ongoing program for the medical center's clinical staff.

Analysis of quantitative and qualitative data from pre-intervention and post-intervention surveys suggests that for the clinical staff who participated in the program, they were able to conveniently access the program before or during their shifts; they utilized quiet spaces within or just outside their particular unit to complete the individual sessions; and they received some benefit in terms of stress reduction and symptoms of burnout as measured by the MBI-HSS (MP). There was a 28% reduction in emotional exhaustion and 41% reduction in depersonalization – two of the three conditions measured in the MBI-HSS (MP) – and a 16% decrease in personal accomplishment. With respect to the reduction in personal accomplishment, one participant who completed the post-intervention survey noted that there was a particularly challenging patient at the time they completed the survey and their answers to the survey were impacted as a result. Although the improvements in MBI-HSS (MP) scores imply a positive

result of the mindfulness program, there were several barriers that complicated precise evaluation of the program's impact. Statistically, conclusions about its impact was challenged by high p-values that resulted from performing a t-test (Welch's t-test: two-sample assuming unequal variances) for the pre- and post-intervention MBI-HSS (MP) scores: p-value of 0.27 for emotional exhaustion, 0.15 for depersonalization, and 0.39 for personal accomplishment. The small sample size, which decreased from n=12 at the start of the program's implementation to n=3 at the conclusion, implies poor statistical power that further obfuscates determinations about the program's role in pre- to post-intervention changes in burnout scores.

Perhaps even more important to note is the sample's attrition by the time of the program's conclusion. No RNs who started the program completed the post-intervention survey. In a discussion with one psychiatric RN who chose not to participate in the program, they reflected that although they desired to support the project and participate, a sense of moral injury from feeling unsupported by their hospital administration kept them from starting it. The project's implementation therefore suffered from a paradoxical effect of a design that was meant to alleviate symptoms of stress and burnout, but which prospective participants may not have engaged because of the felt burden of stress and burnout. And although clinical staff other than RNs and MHSs were recruited for the program, there were no participants among the psychiatrists, social workers, occupational therapists, or physical therapists who also provide direct care to psychiatric patients.

The small sample size and high attrition rate cast doubt upon the program's acceptance by clinical staff and the viability of its design. Communication with clinical staff before, during, and after the program emphasized that the intervention was not meant as a solution to broader systemic conditions contributing to high levels of stress and burnout, but rather as a tool to use

while also addressing those conditions. However, the problems uncovered by the project suggest that the broader issues such as those highlighted by the psychiatric RN who felt unsupported by their administration are significant obstacles to accepting a new program like the one offered in this project.

Recommendations about future iterations of similar programs to address stress and burnout might focus on solutions to achieve greater buy-in from clinical staff. After all, participants who did stick with the program ultimately reported gaining benefit from it, and they also agreed that the program would likely benefit clinical staff in other units as well.

Incentivizing programs like the one in this project will likely generate more interest and participation. Incentives can include adding a brief break period exclusively for stress-reduction interventions and providing resources to encourage participation, such as prizes and personal affirmations. In addition, the broad variety of mindfulness-based content currently available can be leveraged to offer different types of programs that resonate with their participants. Choice in content, rather than assigned content, can encourage participants to experience greater agency in their efforts to address symptoms of stress and burnout.

As is evident in the research literature, a multi-pronged approach to reduce stress and burnout is the most effective approach; healthcare administrations are wise to be proactive and vigilant in addressing systemic conditions that contribute to workplace stress and burnout (Aryankhesal et al., 2019; Busireddy et al., 2017; Dreison et al., 2018). Although complex and potentially costly, removing the etiological factors contributing to stress and burnout is primary and can demonstrate greater return on investment by preventing even costlier issues like poor staff retention and medical errors. But these solutions also take time, so it is paramount that administrations also communicate to their clinical staff about the steps they are taking to address

the problem. This will likely generate greater trust and sense of support among clinical staff, and also lead to greater buy-in for interventions like mindfulness programs that ask individual clinical staff to do something "extra," when the additional time spent demonstrably leads to improving the work life of health care providers, including clinicians and staff, as the fourth aim of the healthcare Quadruple Aim (Bodenheimer & Sinsky, 2014).

Limitations

Several limitations were identified through the process of implementing this project. Although the survey data suggested improvements in MBI-HSS(MP) scores in two of three categories (emotional exhaustion and depersonalization), high p-values (> 0.05) determined that the data are not statistically significant. This prevents inferring conclusions about the efficacy of the mindfulness program on symptoms of stress and burnout and whether or not these improvements were due to chance. A second and related limitation of this project was the relatively small sample size, which grew even smaller by the conclusion of the program. A larger sample would be more likely to convey meaningful information about the utility of a mindfulness intervention for psychiatric clinical staff. With one of the project's objectives of determining if such a program could be generalizable to other hospital units, the small sample size and the data's lack of statistical significance makes it more challenging to say one way or another.

A third limitation of the project's design was its inability to verify how many participants completed the program, or how many sessions if not all ten, other than by self-report in the surveys. It is possible that some participants from the sample of 12 who completed the pre-intervention survey did in fact complete some or even all of the audio recordings but did not complete the post-intervention survey in which they were asked to specify how many. Similarly,

it was impossible to verify that the number of sessions reported as completed by the participants in the post-intervention survey was accurate, since their progress was not tracked. The data set as it is may not precisely reflect the realities of the project's implementation and would be impacted if any of these potential discrepancies were reconciled in the data.

Another limitation of the project design is that because there is such a diverse range of mindfulness-based interventions and no standardization of "mindfulness" *per se*, there is instead tremendous variability among the intervention as the independent variable of the project's primary question: can a mindfulness-based intervention reduce stress and burnout among psychiatric clinical staff? The particular mind-body program selected for this project was based on the assumption that clinical staff would be more receptive to a science-based approach to didactic content, in addition to a relaxation-based meditation practice that targets the parasympathetic nervous system to elicit a relaxation response. What is effective for some may not be effective for others, however, and this likely impacted the degree of participation seen in this project as well as the reported burnout scores that were measured by the MBI-HSS(MP).

Lastly, a limitation that likely impacted this project's implementation was the disruption caused by the COVID-19 global pandemic. Day-to-day operations in all the project site's units, not only psychiatric, took special precautions and made temporary operational changes in order to adjust to the challenges the pandemic presented. Not only did these changes further contribute to workplace stress and burnout, but they also impacted the ability of participants to commit to a program under such challenging clinical circumstances as well as unique precautionary conditions such as limited or no-occupancy staff rooms.

Future Implications

The results of this project compiled foundational data that can help determine the extent to which a mindfulness program for healthcare clinical staff is an effective and sustainable intervention to reduce stress and burnout, improve staff retention rates and workplace satisfaction, and thereby contribute to the objectives of the healthcare Quadruple Aim. The small sample size and attrition rate among participants do not necessarily lead to the conclusion that there is little need for an intervention that addresses symptoms of stress and burnout among clinical staff. Rather, they are more likely symptomatic of the toll that stress and burnout have generated among healthcare professionals during a time described as the "great resignation," during which the United States healthcare industry has lost an estimated 20% of its workforce over the past two years, including 30% of nurses (Sheather & Slattery, 2021).

Recommendations provided as a result of this project's quantitative and qualitative data can help inform future iterations of mindfulness-based programs for clinical staff, not only in psychiatric units but across clinical specialties and disciplines. The pilot program can serve as a model for further improvement and refinement that address challenges identified during the project's implementation and post-intervention analysis.

Appendices

APPENDIX A

Maslach Burnout Inventory - Human Service Survey for Medical Personnel (MBI-HSS (MP))

1. I feel emotionally drained from my work.
2. I feel used up at the end of the workday.
3. I feel fatigued when I get up in the morning and have to face another day on the job.
4. I can easily understand how my patients feel about things.
5. I feel I treat some patients as if they were impersonal objects.
6. Working with people all day is really a strain for me.
7. I deal very effectively with the problems of my patients.
8. I feel burned out from my work.
9. I feel I'm positively influencing other people's lives through my work.
10. I've become more callous toward people since I took this job.
11. I worry that this job is hardening me emotionally.
12. I feel very energetic.
13. I feel frustrated by my job.
14. I feel I'm working too hard on my job.
15. I don't really care what happens to some patients.
16. Working with people directly puts too much stress on me.
17. I can easily create a relaxed atmosphere with my patients.
18. I feel exhilarated after working closely with my patients.
19. I have accomplished many worthwhile things in this job.
20. I feel like I'm at the end of my rope.
21. In my work, I deal with emotional problems very calmly.
22. I feel patients blame me for some of their problems.

Never (0)

A few times a year or less (1)

Once a month or less (2)

A few times a month (3)

Once a week (4)

A few times a week (5)

Every day (6)

| | Emotional Exhaustion | Depersonalization | Personal Accomplishment |
|----------|----------------------|-------------------|-------------------------|
| High | 27+ | 13+ | 39+ |
| Moderate | 17-26 | 7-12 | 32-38 |
| Low | 0-16 | 0-6 | 0-31 |

- EE I feel emotionally drained from my work.
- DEP I don't really care what happens to some patients.
- PA I have accomplished many worthwhile things in this job.

APPENDIX B

Pre-Intervention Demographic Information

1. Your age:

- 20-29
- 30-39
- 40-49
- 50-59
- > 59

2. Your gender:

- Male
- Female
- Non-binary / third gender
- Prefer not to say

3. Professional role:

- RN
- MHS
- Social Work
- OT/PT
- MD
- Other:

4. Number of years in this professional role:

- < 1
- 1-5
- 6-10
- 11-15
- 16-20
- > 20

5. Permanent or temporary (ex: traveler) staff:

- Permanent staff
- Temporary staff

6. Number of years worked at Harborview:

- < 1
- 1-5
- 6-10
- 11-15
- 16-20
- > 20

7. Number of years worked in inpatient psychiatry:

- < 1
- 1-2
- 3-5
- 6-10
- 11-15
- 16-20
- > 20

8. Previous experience with mindfulness and/or meditation techniques:

- Yes
- No

9. If yes to the previous question, what type of technique and how long have you practiced?

APPENDIX C

Post-Intervention Survey Questions

1. Your primary unit at Harborview:

- 5WA
- 5WB
- 5MB
- PES
- Other:

2. How many of the ten sessions did you complete?

3. Did you listen to the sessions before or during your shifts?

- Before
- During
- Mix
- Other:

4. How did you decide to listen to the sessions when you did (i.e., before or during your shift)?

5. What location did you use for the mindfulness sessions?

- 4W Meditation room
- Break room
- Seclusion room
- Mix of spaces
- Other:

6. Did you have to deal with any disruptions/distractions during the mindfulness sessions?

- Yes
- No

If yes, what kinds of disruptions/distractions?

7. The Insight Timer app was easy to access:

- Yes
- No

If no, what was the issue(s)?

8. The pre-recorded audio sessions were:

- Too long
- Too short
- About right

9. Ten sessions was:

- Too many
- Too few
- The right number

10. Overall, the 10-session program was beneficial:

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

11. The program has helped me feel less stressed:

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

12. The program helped me apply principles of mind-body medicine to my work experience:

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

13. The program has helped me improve how I care for patients:

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

14. Have you experienced any other benefits?

- No
- Yes

If yes, what benefits?

15. I can see myself continuing to use this tool:

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

16. This program would be beneficial for other HMC staff and units:

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

17. Changes and improvements I would make to the mindfulness program:

18. Are you willing to meet to discuss your experience and ideas for the program in more detail?

If yes, please type email address:

19. Your email address if interested in the raffle prize (\$20 gift card to Amazon):

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