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Feasibility, Acceptability, and Preliminary Effectiveness of a 4-week Mindfulness-Based Cognitive Therapy Protocol for Hospital Employees

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Abstract

Hospital employees may experience occupational stress and burnout, which negatively impact quality of life and job performance. Evidence-based interventions implemented within the hospital setting are needed to promote employees' well-being. We offered a 4-week Mindfulness-Based Cognitive Therapy group program for hospital employees, and used a mixed-methods practice-based research approach to explore feasibility, acceptability, and effects on stress and burnout. Participants were 65 hospital employees ($M_{\text{age}} = 44.06$; 85% white) who participated between September 2015 and January 2016. Participants completed validated measures of stress and burnout before and after the program, and answered open-ended satisfaction questions after the program. Groups consistently enrolled at least 10 participants, but attendance rates declined across sessions (76% at session 2 vs. 54% at session 4) due primarily to work-related scheduling conflicts. The program content was acceptable as evidenced by high perceived value ($M = 9.18$ out of 10), homework compliance (51% practicing at least 3 times/week), and qualitative requests for program expansion. There were large, statistically significant decreases in stress ($M = 2.1$, $p < .001$, $d = .85$) and medium decreases in burnout ($M = .46$, $p = .01$, $d = .57$), which were supported by qualitative themes of improved self-regulation and mindfulness skills, stress reduction, emotional well-being, and improved work productivity and patient care skills. Findings suggest

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Author Contributions

CML: completed the data analyses and wrote the paper

RSW: assisted with the execution of the study, assisted with data analysis

KMK: assisted with data analysis, contributed to writing the introduction of the paper

RWS: delivered the intervention, assisted with the execution of the study, contributed to writing the discussion of the paper

CH: assisted with the execution of the study, contributed to writing the paper

SC: designed and executed the study, contributed to writing and editing the paper

that 4-week MBCT is acceptable and useful for hospital employees, though research is needed to identify alternate delivery methods or strategies to enhance session attendance.

Keywords

Mindfulness; MBCT; stress; burnout; hospital employees

Introduction

Hospital employees may experience significant occupational stress and burnout, which negatively impact their mental health, quality of life, and job performance (Galantino et al. 2005; McVicar 2003). For example, nurses experience stress due to their workload, the structure of their work (i.e., shift-work), and the emotional demands of their work, resulting in high levels of mental health problems (Bourbonnais et al. 1999; McVicar 2003). Healthcare providers who experience high levels of stress, burnout, or job dissatisfaction report a greater likelihood of medical errors, deliver sub-optimal patient care, and receive poorer patient evaluations (Leiter et al. 1998; Williams et al. 2007). In order to reduce workplace stress for hospital employees, it is critical to identify evidence-based interventions that can be feasibly implemented within the hospital setting to improve emotional coping strategies and address burnout (McVicar 2003).

Mindfulness-based cognitive therapy (MBCT; Segal et al. 2002) is an evidence-based intervention for reducing stress and promoting psychological well-being. MBCT is a manualized 8-week group intervention, with 2-hour weekly classes and up to 60 minutes of daily homework, which integrates regular mindfulness practice with traditional cognitive-behavioral theory and techniques. Thus, it is similar in structure and content to other mindfulness-based interventions (e.g., Mindfulness-Based Stress Reduction [MBSR]; Kabat-Zinn 1982), though it differs in its use of cognitive-behavioral therapy (CBT) principles and interventions (e.g., antecedent-belief-consequence model, relapse prevention planning). Originally developed for depression relapse prevention, the aim of MBCT is to enhance awareness and acceptance of present moment events through regular mindfulness practice, in order to improve self-regulation and promote adaptive behavior. Multiple randomized controlled trials (RCTs) have shown that MBCT is associated with significant improvements in a range of outcomes including stress, anxiety, depression, and well-being among both clinical (e.g., anxiety, depression) and non-clinical populations (Hofmann et al. 2010; Keng et al. 2011; Ree and Craigie 2007).

Mindfulness-based interventions have also been shown to improve psychological outcomes for healthcare providers specifically. Interventions similar to MBCT (but not MBCT specifically) have been associated with significant improvements in stress and burnout, as well as other psychological outcomes, among nurses, physicians, physical therapists, and social workers (Cohen-Katz et al. 2004, 2005; Galantino et al. 2005; Goodman and Schorling 2012; Klatt et al. 2015; Shapiro et al. 2005). Indeed, a review of ten controlled trials of Mindfulness-Based Stress Reduction (MBSR) for healthcare professionals found significant improvements in anxiety, depression, empathy, compassion, stress, burnout,

spirituality, life satisfaction, rumination, and positive and negative affect after 4 to 8 weeks of mindfulness training (Irving et al. 2009).

Although efficacious, the length and weekly time commitment can make standard mindfulness-based interventions (typically 8-weeks in length) infeasible for many individuals. Due to concerns about time demands, researchers have begun to examine abbreviated versions of mindfulness-based interventions (e.g., 4-week or 6-week interventions; Carmody and Baer 2009; Mackenzie et al. 2006). Results generally suggest that shortened mindfulness-based interventions produce benefits that are similar to those of the original full-length interventions (Carmody and Baer 2009). A review of abbreviated MBSR interventions found no evidence that they were less effective than the standard 8-week protocol, as there was no significant relationship between total class hours and effect sizes for psychological improvements (Carmody and Baer 2009). For healthcare providers, an RCT comparing an adapted 4-week MBSR intervention to a wait-list control found significant improvements in burnout and life satisfaction, suggesting that mindfulness-based interventions can be adapted and condensed for providers' busy schedules, without a cost to efficacy (Mackenzie et al. 2006).

There are, however, some important gaps in the research to date. First, our literature search did not reveal any research that has examined MBCT for hospital employees, although previous studies have described a rationale and need for this research (Day and Horton-Deutsch 2004a, 2004b). Indeed, of the different mindfulness-based interventions, it could be particularly useful to deliver MBCT to hospital employees given the intervention's focus on CBT principles and techniques: it would enhance awareness and understanding of gold-standard psychological interventions among hospital employees, which could not only improve employees' own well-being, but also enhance openness to psychology's presence in medical settings and inform patient care. Second, research on abbreviated mindfulness-based interventions has focused exclusively on MBSR, which leaves questions regarding the feasibility and efficacy of shortened MBCT interventions unanswered. We also only identified one study of an abbreviated mindfulness-based intervention for hospital employees, and this intervention was only for direct providers and not other employees who experience job stress (e.g., administration, marketing; Mackenzie et al. 2006). Lastly, most research on mindfulness-based interventions for healthcare providers has utilized controlled clinical trials. Thus, the effectiveness of implementing these interventions in real-world settings remains unclear (Westfall et al. 2007).

Therefore, the purpose of the current study was to examine the feasibility, acceptability, and preliminary effectiveness of a 4-week MBCT program for self-selected employees in an academic hospital setting using a practice-based research approach. Practice-based research involves systematically collecting data on clinical programs as they are offered in actual practice settings, and thus serves to promote the translation of research findings into practice, and establish the effectiveness (rather than efficacy) of evidence-based interventions (Westfall et al. 2007). We first describe the structure and content of the 4-week program, as well as the process of implementing it within a hospital setting. We then use both qualitative and quantitative methods to explore enrollment and attendance rates, homework compliance, changes in stress and burnout, and overall perceived value and

impact of the program across six rounds of the MBCT program (i.e., six separate groups). The hypothesis was that the intervention would be feasible and acceptable as evidenced by enrollment and attendance data, and that it would show preliminary effectiveness as evidenced by improvements in stress and burnout, which would be supported by related qualitative themes.

Method

Participants

Participants were 65 hospital employees at a large academic medical center in the Midwestern United States ($M_{\text{age}} = 44.06$; $SD = 11.41$; 86% female; 85% white). See Table 1 for details.

Procedure

Program Initiative: The 4-week MBCT program was implemented within the academic medical center as part of a larger employee wellness program with support from the institution's program in Integrative Medicine with a focus on prevention and wellness. The academic medical center had 450 beds and 5500 employees. A senior hospital leader approached integrative medicine leadership requesting the development of a comprehensive wellness program for hospital associates, patients, and visitors. The MBCT program was one component of this larger wellness initiative. The pilot program was offered as an optional wellness activity, though as it was a new program, it was not well integrated into the hospital culture. Hospital administration supported the implementation of the program but was not asked to work directly to accommodate employees' schedules or interests in participating. Future mindfulness programming in the hospital for employees will be woven into the fabric of the culture via engagement from a wider bandwidth of senior leadership at the outset to increase visibility and sustainability.

Recruitment and enrollment: Integrative Medicine and hospital staff worked closely together to market the program and recruit participants. A flyer was created and, for the first two rounds of the group, circulated to managers of different departments; for subsequent groups, the flyer was circulated to the entire hospital employee community for broad distribution. The flyer was distributed via email and posted in non-patient-serving hospital elevators, and it provided a general description of mindfulness, course details (i.e., four weekly one-hour sessions in a group setting, with audio CD and handouts provided to participants), and instructor background and qualifications. The intervention was marketed as a "Mindful Stress Reduction" class aimed at teaching stress reduction skills, since potential participants might interpret the word "therapy" to imply they would be required to make deeply personal disclosures.

Interested employees were instructed to e-mail hospital wellness staff, who assigned individuals to available groups on a first-come first-serve basis. The first four rounds of the group capped recruitment at 10 participants, with subsequent groups increasing the group number to 12. A wait-list was maintained for each round of groups to ensure that interested individuals could participate in subsequent groups once enrollment was closed. Once groups

were advertised, it took only 1 week to fill each group, and there was a consistent waiting list for the program once it began.

Intervention content and structure: The intervention was adapted directly from the 8-week MBCT protocol (Segal et al. 2002; Segal et al. 2012). To develop an abbreviated 4-week intervention, we combined sessions 1 and 2, sessions 3 and 4, sessions 5 and 6, and sessions 7 and 8 of the original protocol. Each session was also shortened to 60 minutes, as compared 120 minutes in the original protocol. Thus, some of the original content was removed or adapted given the time constraints. Each session included at least one mindfulness exercise with facilitator-led post-processing (following the structure of the MBCT mindful inquiry process), and a review of participants' experiences practicing and applying mindfulness skills to their daily life over the previous week. To facilitate home practice, participants were provided with CDs or access to website recordings of mindfulness exercises shortened to 15 minutes long to promote feasibility See Table 2 for description of each session.

Intervention delivery: The intervention was delivered by a licensed clinical psychologist and expert in mindfulness-based interventions with over 10 years of experience in MBCT specifically (RWS). The intervention was offered on the same day each week during regular lunch hours (11am-12pm) and was held in a standard conference room within the hospital. Data are presented from six rounds of groups, which occurred from September 2015 to January 2016. A research assistant attended each group and documented attendance consistently for groups two through six.

Program evaluation: Participants completed survey questionnaires at the beginning of their first and last session. Participants were asked to complete the questionnaires on paper and return them to the on site research assistant; participants who were not present for the last session were contacted via email with a web-link to complete the after-intervention survey online via an online data collection system within 7 days. The study was deemed exempt from IRB approval by the institution's Institutional Review Board.

Measures

Quantitative

Demographics: Participants were asked to report age, sex, and ethnicity on a demographic questionnaire administered before their first session. Participant's job titles were determined via their enrollment emails, which indicated their title within the hospital.

Perceived stress: The 4-item Perceived Stress Scale (PSS-4; Cohen, 1988) was used to assess stress levels before and after the intervention. Participants were asked to indicate on a 5-point scale (0 = never to 4 = very often) how often each stress symptom applied to them over the past month. Symptoms included feeling unable to control important life events, confidence in handling personal problems, perceptions that things are going one's way, and ability to overcome difficulties. The PSS-4 is a widely used and well-validated measure with good psychometric properties including internal reliability (Cohen, 1988). Cronbach's alpha in the current study was .67 before the intervention and .69 after the intervention.

Burnout: Burnout was measured using a self-rated 1-item questionnaire with a score ranging from 0–5 (0 = I enjoy my work, I have no symptoms of burnout to 5 = I feel completely burned out and often wonder if I can go on. I am at the point where I may need some changes or may need to seek some sort of help; Schmoltdt et al. 1994). This single-item measure is strongly correlated with multi-item assessments of burnout, and it is shown to effectively screen for burnout in healthcare settings (Hansen & Girgis, 2010). Burnout was only measured in groups 4–6.

Homework compliance: After the intervention, participants were also asked how often, on average, they practiced the mindfulness exercises during the course of the program. Response options included zero times/no practice at all, 1–2 times per week, 3–4 times per week, 5–7 times per week, or 8 or more times per week.

Qualitative—After the program, participants were asked to answer a series of open-ended questions about their experience. Specifically, participants were asked: (1) “How did this program impact you in your professional career and/or home life, if at all;” 2) “How many sessions did you attend? If you missed a session, please describe why;” and (3) “Additional comments?” Participants were also asked to provide an overall rating of how valuable the intervention was (1 = not valuable to 10 = very valuable), followed by an open-ended question to “please describe why you gave the program this rating.”

Data Analyses

Quantitative—Frequencies and descriptive statistics were examined for all variables. Percentages are reported to describe home practice compliance and attendance rates. All variables were normally distributed before and after the intervention, with skewness and kurtosis values around or below one. Paired-samples *t*-tests were used to explore changes in perceived stress and burnout from before to after the intervention. Cohen’s *d* is reported as an estimate of effect size and interpreted as .2 = small, .5 = medium, and .8 = large (Cohen 1988). Cohen’s *d* was calculated using the formula: $d = t_{\text{obs}}[2(1 - r)/n]^{1/2}$ (Dunlap et al., 1996). Outcomes were collapsed across groups, as all groups showed similar changes. One-way ANOVA was used to examine the relationship between home practice adherence (assessed via ordered categorical adherence groups) and stress and burnout change scores (Time 2 – Time 1). Only individuals with data from both before and after the intervention were included in the analyses ($n = 41$ for perceived stress and 26 for burnout).

Qualitative—Qualitative analyses were conducted on the 41 people who provided responses to the open-ended questions after the intervention. Thematic analysis was used to identify patterns in responses to each open-ended question. Responses were first reviewed for general overview, and then reviewed a second time to specifically code key themes in each response. Three members of the study team (CML, RSW, KMK) reviewed each response and discussed observed themes to identify a final set of thematic categories. A given response could reflect multiple themes.

Results

Quantitative

Ten participants enrolled in groups 1–3, 11 participants enrolled in group 4, and 12 participants enrolled in groups 5 and 6. See Figure 1 for attendance data by group. Overall, across groups, attendance rates increased over time; for example, 20% of participants in the third round of groups attended Session 3, whereas 64% of participants in the sixth round of groups attended Session 3. However, within each group, attendance rates consistently decreased from the first to last session: across groups two through six, on average, 76% of participants attended session 2, 60% attended session 3 and 54% attended session 4.

Regarding home practice compliance, of the 41 participants who completed the post-intervention survey, 51% reported practicing 3–4 times per week, 29% reported practicing 1–2 times per week, 15% reported practicing 5–7 times per week, and 5% reported practicing 8 or more times per week. The mean rating of the overall value of the program was 9.18 out of 10 ($SD = 1.08$; Range: 7 to 10).

There was a large, statistically significant decrease in perceived stress from pre- to post-intervention ($M_{pre} = 7.32$, $SD = 2.66$ vs. $M_{post} = 5.22$, $SD = 2.19$; $t = 5.49$, $p < .001$, $d = .85$). There was also a medium and statistically significant decrease in burnout ($M_{pre} = 2.46$, $SD = .95$ vs. $M_{post} = 2.00$, $SD = .57$; $t = 2.90$, $p = .01$, $d = .57$). Home practice adherence was not related to changes in perceived stress ($F(3) = .58$, $p = .63$, $\eta_p^2 = .05$) though there was a slight trend for the relationship between home practice and change in burnout ($F(3) = 2.84$, $p = .06$; $\eta_p^2 = .28$), with those practicing 1–2 times per week potentially demonstrating greater improvements ($M = -.89$) than those practicing 3–4 times per week ($M = -.23$; $p = .05$).

Qualitative

See Table 4 for commonly identified themes and example quotes across each of the open-ended questions. Responses regarding the overall value of the program and impact of the program were collapsed due to significant content overlap.

In terms of perceived value and program impact, the most commonly reported theme involved the acquisition of practical mindfulness and self-regulation skills. For example, participants reported that they learned how to become more aware and accepting of internal experiences, and able to choose adaptive behavioral responses – rather than reacting automatically out of emotion. Participants stated that these skills contribute to improved interpersonal interactions at home and at work. The next most commonly reported theme was stress reduction, including feeling less stressed and responding to stressors more effectively. Emotional well-being was the next most common theme and included increases in emotional understanding, reductions in negative emotions (e.g., anxiety), and improvements in positive emotions (e.g., happiness). Some participants reported that the program was valuable and helpful due to work-related improvements, including increased productivity and skills for patient care. A few participants stated that the program would have been more useful if they practiced more at home, and one participant stated that the program was helpful but they still had trouble with stress.

Twenty-four participants provided a reason for missed sessions. The vast majority stated that they missed sessions due to work conflicts. A few participants stated that they missed sessions due to planned vacations or other family obligations, and one participant reported missing a session due to illness. Participants often expressed regret for missed sessions.

When asked to provide any additional comments, all of the 41 participants who completed the after-intervention survey expressed gratitude for the program and an interest for program continuation or expansion. Participants offered specific suggestions for ways to continue and grow the program, including suggestions to offer booster sessions, lengthen the intervention duration, and offer the intervention to additional hospital groups. It is worth noting that participants never identified the group component as an important or useful part of the program. No participants expressed dissatisfaction or concerns with the program.

Discussion

The purpose of the current practice-based research study was to examine the feasibility, acceptability, and preliminary effectiveness of a 4-week MBCT intervention, implemented within the hospital setting, to reduce stress and burnout in hospital employees. Results suggest that it was feasible to enroll participants and deliver the intervention in the hospital setting, and the intervention may be effective for reducing stress and burnout, though more work is needed to identify ways to increase attendance rates and make continued participation more feasible.

There consistently were enough interested employees to fill each round of the group, with employees regularly being wait-listed when groups became full. However, across each of the 4-week groups, attendance rates decreased from the first to last session. Qualitative results revealed that conflicting work demands were the primary reason for missed sessions. Indeed, this attrition rate is inconsistent with findings from previous studies of workplace employee mindfulness programs, which showed 97% retention and included approved time release to attend sessions (Klatt et al. 2015). In contrast to Klatt's (2015) study, participants in the current study did not receive institutional release to attend sessions, which may be important for enhancing intervention uptake. In addition to administration-supported time release, another option to improve feasibility is to implement an on-going program with a flexible drop-in model wherein employees can present to individual sessions, as they are able (e.g., Magidson et al. 2014).

It is also possible that changing the timing of the intervention could enhance feasibility (e.g., holding groups before or after work hours). Though none of the participants recommended scheduling changes, employees who were unable to attend the program due to scheduling conflicts in the first place would not have had the opportunity to voice their preference for a different schedule (e.g., nurses who work the night shift). A hospital-wide employee survey (e.g., via email with a simple online poll) could help determine optimal scheduling for more people. Alternate modes of treatment delivery, particularly the use of mobile health interventions, may also be a promising approach, as research increasingly supports the use of mindfulness interventions delivered via telephone and mobile phone applications (e.g., Bazarko et al. 2013; Ruscio et al. 2016). Surveys or interviews with hospital employees

regarding their specific preferences for options for program delivery would help improve feasibility in the future.

Despite difficulties with attendance, participants found the content of the intervention to be highly acceptable. Participants perceived the program to be valuable and most reported practicing regularly on their own time. Perhaps the strongest indication of acceptability is the fact that when asked for any additional comments about the program, all participants asked that the program continue and expand, either by lengthening the program to include additional session, or offering follow-up booster sessions. Thus, similar to previous studies among healthcare providers (e.g., Cohen-Katz et al., 2005), participants enjoyed learning mindfulness skills and were interested in ways to continue participating in MBCT, further highlighting the need to develop more feasible delivery models. Although qualitative indicators of social validity (acceptability) should be interpreted with caution given that they are not always associated with quantitative improvements (Sorensen, Duberstein, Gill, & Pinquart, 2006), the qualitative and quantitative results were congruent in the current study suggesting that these qualitative data are useful.

The current results also support the effectiveness of the 4-week MBCT intervention. Stress and burnout both showed medium-large and significant improvements from before to after the intervention, and qualitative results revealed themes of improved emotional well-being, self-regulation, and stress reduction. These results are consistent with studies of 4-week MBSR interventions for nurses, which also showed large effect sizes for burnout and stress-related outcomes (Mackenzie et al. 2006). Additionally, the effect sizes observed in the current study are similar, if not a bit larger, as compared to effect sizes for stress reduction in standard 8-week mindfulness-based interventions (Carmody and Baer 2009). The observed qualitative themes mirror those of previous studies of MBSR among healthcare providers, which similarly reported positive qualitative responses and requests that the program be expanded within the hospital (Cohen-Katz et al., 2005). The current study demonstrates the potential effectiveness of abbreviated MBCT specifically, suggesting that even with additional elements of CBT theory and techniques (e.g., the nourishing-draining activities/behavioral activation exercise typically practiced in session 7 of standard MBCT), it is still possible to condense MBCT without compromising important treatment components, and healthcare providers find this particular mindfulness-based intervention useful.

The relationship between home practice adherence and outcomes was somewhat unclear in the current study. Home practice adherence was not consistently associated with outcomes, though there was a trend for greater improvements in burnout for those practicing only once or twice per week, which may be confounded by higher levels of baseline burnout that interfered with home practice but left greater room for burnout improvement. These largely non-significant and unclear findings are contextualized by a larger inconsistent literature on formal mindfulness practice and outcomes (Vettese, Toneatto, Stea, Nguyen, & Wang, 2009), which is an important area for further research to focus on (e.g., by developing standardized or objective measures of mindfulness practice; Wahbeh, Zwick, & Oken, 2011).

The current study also adds to the paucity of research on the implementation of MBCT. Despite the evidence base for MBCT efficacy, the results of this research have not yet translated into widely-utilized clinical practice (Demarzo et al. 2015). For example, national healthcare guidelines in the United Kingdom call for the delivery of MBCT for patients at risk for depression, but only 9% of healthcare providers report that their organization has implemented MBCT services (Crane and Kuyken 2013). The current practice-based research study is therefore an important step for informing MBCT implementation efforts, as well as developing an evidence base for MBCT effectiveness in real-world settings.

Indeed, we experienced and problem-solved several challenges that could inform future implementation efforts, including noise outside of the room, interruptions (e.g., other employees entering the room, fire alarms going off), and space conflicts (e.g., frequently changing rooms). Program leadership advocated for stable and protected room space, which improved the delivery of the program. Additionally, because employees were often late to sessions, sessions were often adapted to begin with processing of the previous week, before practicing mindfulness exercises, so that late participants would not miss new meditations or opportunities to practice. For future MBCT interventions implemented in hospital settings, it will be important for group facilitators to be flexible and feel comfortable in the fast-paced environment, as well as be able to incorporate distractions into mindfulness exercises (when appropriate), and model mindfulness of these challenges.

Strengths and limitations to the current study are worth noting. Some elements of the current research are considered limitations in the context of randomized controlled trials, but are intentional and reflect strengths in practice-based research; namely, the lack of control group and self-selection of patients into the intervention. While randomized controlled trials are important for establishing efficacy, these studies have already been conducted, and it is now important for practice-based research studies to examine how MBCT interventions are received in real-world settings where participants would have the option to participate. Thus, a primary strength of the current practice-based research is the ability to draw inferences about real-world feasibility, acceptability, and effectiveness of MBCT.

There are, however, limitations of practice-based research relevant to the current study. For example, the groups did not all complete the same measures and we were unable to collect data from participants who attended the first session or two but did not complete the program or provide after-intervention data. Thus, we do not know if the intervention was unacceptable to some employees or if work conflicts were responsible for this attrition, as well. It is possible that this attrition reflects several individuals who found the intervention unhelpful and decided to withdraw. Another limitation is that we aimed to minimize the burden on very busy hospital employee participants and therefore collected a very brief set of outcome measures which could have negatively impacted the reliability of our assessments, for example as demonstrated by the moderate internal consistency of the 4-item PSS. Lastly, the sample size was relatively small, particularly for examining burnout, and largely consisted of white women, highlighting the need for effectiveness studies with larger and more diverse samples.

Further research on the differences and comparative efficacy of MBCT and MBSR is another area for future work. In the current paper, we took the perspective that because MBCT is built on a cognitive-behavioral therapy (CBT) framework for depression prevention, it uses CBT psychoeducation and skills training techniques (e.g., walking down the street/antecedent-belief-consequence psychoeducation exercise, nourishing-draining/behavioral activation exercise) more explicitly than MBSR. Although MBSR is in theory more focused on stress reduction and well-being and thus would also be relevant for hospital employees, we believe that the CBT focus might be an advantage of MBCT in this population because it is useful for hospital employees to be aware of CBT principles and skills due to the frequency of strong thoughts and emotions that can arise in hospital work, and because those who are involved in patient care could share specific CBT interventions with patients. Also, while explicit use of the name “cognitive therapy” may dissuade potential participants who do not suffer from psychopathology, understanding the principles of how thoughts and emotions relate to the stress response appeared useful for hospital employees. However, further work is needed to explore whether the CBT focus of MBCT has any unique effect on outcomes.

Dismantling studies that test active components of MBCT and MBSR would also be informative for refining the interventions to maximize their efficacy and determining whether one intervention has any advantage over the other for different populations (e.g., whether an intervention focused on mindfulness of breath might be just as efficacious as multi-component MBCT with various meditation practices and CBT techniques). Dismantling studies are particularly important for brief interventions where investigators retain the components they believe are most essential while leaving other components out for the sake of brevity. It is currently unclear whether investigators are making optimal choices in these cases, and whether other brief interventions that choose to incorporate different exercises may have different effects. Dismantling studies of full-length MBCT and MBSR interventions would provide evidence-based guidelines to inform the development of brief interventions, and dismantling studies of brief interventions would guide further treatment adaptation and optimization efforts.

Overall, results of the current study suggest that it is feasible to shorten MBCT and implement this intervention for employees within a hospital setting to reduce stress and burnout. Hospital employees, however, may prefer and benefit more from longer interventions or more flexible delivery models that maximize their ability to attend in-person sessions more frequently, or engage in content remotely. Future research should explore optimal methods and hospital employees’ preferences for MBCT delivery.

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Figure 1.

Session attendance by group.

Note. Session 2 and 3 attendance data is missing for Group 1.

Table 1**Participant Characteristics**

Age, <i>M</i> (<i>SD</i>), Range	44.06 (11.41) 22–64
Female sex, <i>N</i> , %	56 (86%)
Race, <i>N</i> , %	
White	55 (85%)
African-American	7 (11%)
Asian	1 (2%)
Job title, <i>N</i> , %	
Social workers	9 (13%)
Nurses	19 (28%)
Marketing	3 (4%)
Health unit coordinator	1 (1%)
Physician	1 (1%)
Dietician	5 (7%)
Pastoral services	2 (3%)
Administration	27 (40%)

Note. Job title data reflects a sample size of 67 because two employees enrolled in the program but did not attend any sessions.

Table 2

Description of the Abbreviated MBCT Intervention

Session	Themes	Content	Adaptations	Suggested Homework
1	Awareness, automatic pilot, and living in our head	<ul style="list-style-type: none"> Raisin exercise Psychoeducation of CBT theory (walking down the street exercise) Body scan (15 minutes) 	<ul style="list-style-type: none"> Mindful breathing was described but not practiced 	<ul style="list-style-type: none"> Body scan (15 minutes) Mindful breathing (10 minutes) Pleasant events calendar Mindfulness of routine activity Mindful eating
2	Gathering the scattered mind, recognizing aversion, and staying present	<ul style="list-style-type: none"> Sitting meditation (breath, body, sounds, thoughts) (15 minutes) Automatic thoughts 3-minute breathing space 	<ul style="list-style-type: none"> Mindful walking and stretching exercises were described but not practiced 	<ul style="list-style-type: none"> Alternate mindful sitting and stretching or walking (15–20 minutes) 3-minute breathing space regular and responsive Unpleasant events calendar
3	Allowing/letting be, thoughts are not facts	<ul style="list-style-type: none"> Sitting with difficulties meditation (breath, body, sounds, thoughts, difficult thought or sensation) (15 minutes) 3-minute breathing space Turning toward the difficult Moods, thoughts, and alternative viewpoints exercise Early warning signs, coping plan 	<ul style="list-style-type: none"> Breath, body, sounds, and thoughts shortened to a couple of minutes each, followed by sitting with a difficulty, ending with 3-min breathing space 	<ul style="list-style-type: none"> Sitting meditation or sitting with difficulty meditation (15 minutes) 3-minute breathing space regular and responsive Finish early warning signs/coping plan handout
4	How can I best take care of myself?	<ul style="list-style-type: none"> Sitting with difficulties meditation (breath, body, sounds, thoughts, difficult thought or sensation) (15 minutes) Nourishing/draining exercise 3-minute breathing space- action step 	<ul style="list-style-type: none"> Body scan and final exercise (stone or loving-kindness) not done 	<ul style="list-style-type: none"> Plan for daily mindfulness

Note. The current intervention was directly adapted from the original MBCT protocol (Segal et al., 2013). Adaptations refer to content from this original protocol that was modified in the current abbreviated intervention. Homework recordings were from Sears, R. W., Tirsch, D. D., & Denton, R. B. (2011). *Mindfulness practices* [audio CD]. Sarasota, FL: Professional Resource Press.

Table 3

Common Themes and Sample Quotes from the Post - Intervention Survey

Theme	Quotes
Mindfulness and self-regulation skills	Less time with my mind “wandering.” Able to stop and think about thought and feeling before reacting/responding.
	I am much more focused and when things seem a bit overwhelming, I take a few minutes to re-center myself with some of the techniques.
	It helped me accept things more instead of over-thinking.
Stress reduction	I have definitely learned to react better in stressful situations, which leads to more positive and pleasant experiences in work and at home.
	I can relax more and be more peaceful.
	The mindful techniques are helping me to have better control over stress.
Emotional well- being	I am generally happier and more focused.
	It helped me to be less anxious/upset and therefore more patient.
	The tools...have taught me not to be overcome by emotion.
Work-related improvements	I have some tools that I feel comfortable using with patients.
	I am becoming more productive in all areas of my life.
	Good ideas for treatment/suggestions for my patients (acute inpatient psychiatry).
Work-related scheduling conflicts	Missed one session due to being at a conference and the last due to catching up from the week at the conference... I regret missing the last one, I truly was impressed with the class.
	Unfortunately I had to miss the last 2 sessions because of department needs
	I felt horrible for only being at half of the classes. We had operational and staffing issues that required me to stay in the department during the last 2 sessions.