

# Hospice and Palliative Care Provider Experiences With Meditation Using Mobile Applications

Rebecca H. Lehto, PhD, RN, Carrie Heeter, PhD, Marcel Allbritton, PhD,  
and Michelle Wiseman, BSN, MPA, NHA, CHPN®

**PURPOSE:** Healthcare providers who are involved in the care of patients at the end of life are at risk of developing compassion fatigue, a condition characterized by emotional exhaustion and reduced professional engagement. Research has shown that development of a meditation practice can modify stress perceptions and promote quality of life. This study aimed to evaluate perceived benefits, challenges, and recommendations following participation in a workplace mobile application- and email-based meditation research program.

**PARTICIPANTS & SETTING:** 11 healthcare providers who participated in the feasibility pilot were recruited from Sparrow Health System in Lansing, Michigan.

**METHODOLOGIC APPROACH:** Three focus groups and one in-depth interview were conducted. Data were analyzed using qualitative methodology.

**FINDINGS:** Major themes included program advantages and limitations, challenges that affected adherence, and support for caregivers.

**IMPLICATIONS FOR NURSING:** Findings support further evaluation of a technology-mediated meditation program for professional caregivers to reduce perceived stress associated with the work environment.

**KEYWORDS** palliative and hospice care; meditation; compassion fatigue; caregivers; mobile app

**ONF, 45(3), 380-388.**

**DOI** 10.1188/18.ONF.380-388

**E**xcellence in palliative and end-of-life care for patients with cancer is dependent on resilient and motivated healthcare providers (HCPs). In the face of high patient acuity and demanding assignments, time-effective organizational strategies are needed to strengthen HCP capacity to manage increasingly complex and stressful challenges associated with delivering care (Gómez-Urquiza et al., 2016). A focus group study was conducted to evaluate palliative and end-of-life care providers' experiences following participation in a six-week stress management mobile application (app)- and email-based meditation pilot program that was developed to combat compassion fatigue and improve professional quality of life. The study purpose was to evaluate perceived benefits and challenges, as well as any user recommendations to incorporate before progression to a larger-scale efficacy trial.

## Background and Significance

Occupational demands generated by ongoing contact with distressed patients and families, complex assignments, limited autonomy, and personal work-life conflicts can lead to the development of compassion fatigue (Breen, O'Connor, Hewitt, & Lobb, 2014; Gómez-Urquiza et al., 2016; Zeller & Levin, 2013). Compassion fatigue is a condition characterized by malaise and psychological enervation that is attributed to reactions to patient and family suffering (Crowe, 2015). Unresolved compassion fatigue may have a deleterious effect on health and is associated with a broad range of psychological and physical symptoms, negative health behaviors (e.g., substance abuse), and diminished work-related productivity (Gómez-Urquiza et al., 2016). Supportive and uniquely tailored workplace programs that provide training in self-regulation and stress management strategies are

needed to offset the emotional demands associated with caring (Zeller & Levin, 2013).

Meditative practices are purposeful strategies that use techniques, such as breath focus and mindful movement, to build focused attention and interoceptive (somatic) awareness of one's present experience (Kerr, Sacchet, Lazar, Moore, & Jones, 2013). Interoceptive awareness plays a significant role in strengthening self-regulation of cognition, emotions, and behavior (Gard, Noggle, Park, Vago, & Wilson, 2014). By engaging in regular meditation, the "attentional spotlight" is strengthened, activating awareness to immediate somatic perceptions as they arise while contributing to neuroplastic brain structure and function changes that affect capacity for self-regulation under stressful conditions (Farb, Segal, & Anderson, 2013). Building such skills has been found to improve adaptive responses and may hypothetically modify risk and symptoms of compassion fatigue (Back, Steinhäuser, Kamal, & Jackson, 2016).

Studies evaluating the potential salutary health benefits of meditation have proliferated (Smith, 2014). Studies that have targeted HCPs, including nurses, have found that mindfulness meditation training reduced anxiety, depression, and burnout and increased empathy, focus, and mood (Fortney, Luchterhand, Zakletskaia, Zgierska, & Rakel, 2013; Smith, 2014). The mindfulness-based stress reduction (MBSR) program developed by Kabat-Zinn (2009) is the primary intervention evaluated for HCPs. MBSR is an eight-week group-based program that includes weekly two-hour instructional sessions, a full-day retreat, and daily homework (Center for Mindfulness in Medicine, Health Care, and Society, 2016; Kabat-Zinn, 2009). MBSR combines secularized traditional Buddhist meditations, "mindful yoga," and informal and formal stress reduction practices (Kabat-Zinn, 2009). MBSR studies of nurses and other HCPs show beneficial outcomes and barriers secondary to time demands and structured scheduling commitments that affect acceptability and retention (Duarte & Pinto-Gouveia, 2016; Irving, Dobkin, & Park, 2009; Mahon, Mee, Brett, & Dowling, 2017).

Because of challenges associated with feasibility and access to traditional on-site meditation training programs for busy HCPs, there has been increased interest in the exploration of technology-mediated delivery strategies (Wylde, Mahrer, Meyer, & Gold, 2017). In nursing, limited research has examined use of technology to provide meditation training to offset compassion fatigue and improve professional quality of life (Wylde et al., 2017). Although promising,

studies of nurses that have incorporated technology to introduce meditation training have involved small samples; variation in theoretical underpinnings, program content, duration, and implementation strategies; discrepancies in how an "adequate" number of meditation sessions is determined to evaluate success; and an inability to evaluate practice between sessions beyond self-report (Hevezi, 2016; Spadaro & Hunker, 2016; Wylde et al., 2017).

In a pre-/post-test study by Hevezi (2016) involving one pilot unit, 15 oncology nurses committed to brief meditation training via CD five days per week for four weeks. The intervention entailed an education session (self-care, mindfulness, compassion satisfaction, and compassion fatigue concepts) and a CD that contained three brief breathing and meditations exercises developed by the study investigator (durations of 4, 8, and 4 minutes, respectively). Findings demonstrated improved compassion satisfaction perceptions of relaxation and well-being and reduced burnout and secondary trauma scores following training (Hevezi, 2016).

A pre-/post-test study by Spadaro and Hunker (2016) evaluated the effectiveness of an eight-week online distance learning program modeled with MBSR components for nurses who were completing studies away from their place of employment while still employed. The program used the academic institution's learning platform, with each component released weekly and the opportunity for the participants to communicate on a discussion board. The study involved 26 nurses in diverse nursing programs (RN-BSN, master's, DNP) who were studying and working full- or part-time. Findings showed significant reduction in perceived stress over time and reduced anxiety with increased practice frequency but no significant effects on cognitive parameters from the program (Spadaro & Hunker, 2016).

A pre-/post-test study conducted by Wylde et al. (2017) with novice pediatric nurses in a hospital residency program compared mindfulness and coping outcomes between one cohort (n = 49, first year) who received a traditionally delivered but modified version of MBSR once weekly during a four-week period to a subsequent second cohort (n = 46, second year) who received a subscription to Headspace®, a meditation app, and used the self-administered program once weekly for four weeks while in the same classroom. Findings (tested at three months into residency) compared positively for the Headspace group related to the traditional MBSR group on two components of mindfulness that included "acting with awareness" and "non-reactivity to inner experience" (Wylde et al.,

2017). In addition, the nurses who were free of subclinical post-traumatic stress symptoms at the start of the residency program and participated in the Headspace group had lower compassion fatigue risk compared with the traditional MBSR group (Wylde et al., 2017). Limitations of the study included a lack of ability to comparatively track practice behaviors and substantive differences between programs (Wylde et al., 2017).

Of the many technology-mediated delivery options, the use of smartphones and commercially available apps that promote self-care and healthy behavior provide an opportunity to broaden access of supportive resources (Howells, Ivztan, & Eiroa-Orosa, 2016; Leigh & Flatt, 2015). Health-related apps enjoy widespread popularity because of ease of use, the adaptability of tailored information, and interactive engagement (Birkhoff & Smeltzer, 2017). Although research evaluating the use of smartphone-delivered interventions in healthy and clinical populations is growing, it remains in an early stage of development, with high heterogeneity in methods and design, small scalability, limited evaluation of user perceptions, and disparate applications (Birkhoff & Smeltzer, 2017; Leigh & Flatt, 2015).

Although the availability of meditation apps is plentiful (Dredge, 2016), tailored development and evaluation of meditation training programs that can be delivered via apps and other technology remain limited (Howells et al., 2016). In a smartphone-based study, Howells et al. (2016) evaluated the use of a mindfulness app to improve well-being in a sample of adults recruited online. Participants were randomized to receive either a mindfulness app ( $n = 57$ ) or an active control ( $n = 64$ ) that used a neutral task app. The results indicated that short daily meditation practices (10-minute duration) for 10 days significantly improved positive affect compared to the active control group following this brief time period (Howells et al., 2016). The participants were an international self-selected sample of adults who joined the web-based study to enhance well-being (Howells et al., 2016).

Clear elaboration of the nature of the meditation intervention app being studied with standardized criteria is essential to advance science. A study by Heeter, Lehto, Allbritton, Day, and Wiseman (2017) used a six-week yoga therapy program combining five smartphone apps, each containing a 10-minute meditation, along with twice-weekly automated, personalized emails. The five apps were Calming Meditation, Place in Nature Meditation, Nourishing Meditation, Releasing Meditation, and Space Meditation, all from Mindtoon Lab LLC (2016). Online data collection was specifically developed for oncology and hospice

HCPs. The meditations were carefully tailored to address work stressors and designed to be simple, flexible tools for novice meditators. All five meditations emphasized synchronized movement and breathing at a personalized pace, with meditation objects selected to promote calmness, positive feelings associated with a favorite nature place, feeling nourished, releasing tension, and experiencing expansive inner spaciousness.

The app-based meditations were grounded in Krishnamacharya-Desikachar yoga therapy, a personalized, guided approach for promoting health and healing, incorporating yoga principles and practices (Chandrasekaran, 2012; Desikachar, Bradgon, & Bossart, 2005). These meditations integrate breathing, postures, and mental focus to regulate attention, reduce stress, and promote interoceptive awareness. The program was piloted with 36 volunteer HCPs recruited from hospice-affiliated and palliative care units of Sparrow Health System in Lansing, Michigan. Automated, tailored emails guided by a clinical mind-body therapist were used to introduce each weekly meditation with the corresponding app, along with clear explanations of a core yoga therapy principle. Weekly follow-up emails reinforced principles and reminded participants to do the daily meditations using the apps, motivating ongoing personal practice and guiding recognition of resultant mind-body changes. Findings demonstrated significant improvements in compassion fatigue and interoceptive awareness from pre- to postintervention in the study group (Heeter et al., 2017).

Acceptability and feasibility data in terms of documented recruitment statistics, attrition, and tracked user data were collected and are reported in Heeter et al. (2017). However, in the early stages of developing an intervention using health-tracking apps, it is essential that qualitative feedback from users is elicited prior to wider-scale testing in a formal randomized, controlled trial (Birkhoff & Smeltzer, 2017). Conducting focus group interviews is an appropriate methodology for evaluating benefits and challenges of participation in pilot testing of new programs (Krueger & Casey, 2015). Focus groups are framed in a socially constructivist theoretical paradigm concerned with how humans form meaning from personal encounters; the paradigm identifies that knowledge is created from social and individual co-occurring interaction (Stalmeijer, McNaughton, & Van Mook, 2014). The established approach permits participants with shared encounters to discuss viewpoints in a format where they can exchange meaningful information that leads to relevant thematic content areas (Kisorio &

Langley, 2016). The purpose of the study was to evaluate perceptions of users of the app-based meditation program (Heeter et al., 2017). The specific research questions were as follows:

- What were the perceived benefits associated with participation in a app-based meditation program?
- What were the challenges associated with program participation?
- What recommendations do the users have with regard to program enhancement?

## Methods

### Setting and Participants

The hospital and associated university institutional review boards at Sparrow Health System and Michigan State University in East Lansing approved all study procedures prior to implementation. Palliative or hospice care employees of Sparrow Health System were eligible for inclusion if they had completed the initial pilot testing of the app-based meditation program (Heeter et al., 2017).

### Procedure

Participants who had completed the pre-/post-test app-based meditation study were recruited via email. Informed consent was obtained electronically with an electronic signature, as approved by the institutional review boards before implementation. The list of questions for the focus groups was reflectively developed by the study investigators with attention to question route recommendations from Krueger and Casey (2015) for program evaluation to improve dependability of the procedures undertaken. These questions were aimed at answering the specific research questions with progressive delving into a targeted examination of the perceived experience of using the app-based meditation program. Established focus group rules were discussed, including the importance of strict confidentiality, respect, mutual opportunity to share perspectives, and use of first names only. Using a videoconferencing system to conduct and record the interviews, two doctoral-prepared researchers familiar with focus group methodology facilitated each two-hour session.

Three focus groups were conducted with four nurses, two nurse administrators/managers, and four other providers (physician, social worker, aides) two to three weeks following completion of the app-based meditation program. An additional semistructured interview using the same focus group questions was conducted with a nurse administrator who was unable to attend a focus group. Although including

a semistructured interview deviated from the focus group methodology, use of an alternative data collection strategy provided an opportunity for triangulation, which improves evidence for credibility in evaluating qualitative findings (Shenton, 2004). The standard focus group questions are provided in Figure 1.

### Analysis

Using established methods (Krueger & Casey, 2000), the audio recordings were transcribed verbatim. Transcriptions were assessed for accuracy by reading and rereading the text in relation to the recordings. The content of each focus group and the interview were independently evaluated by using a long-table approach; the investigators organized the results and identified the major knowledge categories (Krueger & Casey, 2000). To improve confirmability, summaries of

### FIGURE 1. Examples of Focus Group Questions for Semistructured Interview

How did you fit the meditation apps into your daily life?

- When did you do them?
- Where did you do them?
- What effect did they have?
- How long did the effect last?
- How did things change over time?
- How did you succeed?

What problems or barriers challenge efforts to commit to a meditation program using apps?

- Boredom
- Distractions that occur during the activity
- Sitting for 10 minutes at a time
- Time commitment
- Technical issues

What types of benefits, if any, did you gain from using meditation apps?

- Can you name an instance when the meditation apps were able to help you?
  - Taking care of yourself
  - Taking care of your health
  - Handling an unusually stressful or challenging situation
  - Managing stress
  - Managing burnout

Do you have advice for how to make meditation apps work better for oncology and hospice caregivers?

- Support (e.g., technical, healthcare system)
- Extra training or directions
- Incentives and cost
- Is there anything we should emphasize so that caregivers would see benefit to join this type of program?

app—mobile application

findings from each focus group session, including the semistructured interview data, were developed in relation to the focus group questions and then compared across the sessions, with targeted attention paid to collective similarities for content category development.

## Results

The three focus groups, consisting of three, four, and three members, respectively, and one semistructured interview totaled 11 members. Participants ranged in age from 36–80 years and were primarily women (n = 10). Caregiving experience ranged from 5–40 years. The number of times the focus group participants used the meditation apps during the six-week study ranged from 6–30. Meditation use data were automatically collected electronically each time an app was used to play a meditation. Major findings related to the three research questions and derived content are described in the following paragraphs. Figure 2 provides the major content categories, subcategories, and examples from participants.

### Perceived Benefits Associated With Participation

Participants expressed that having app-based meditations and training was highly convenient. There was strong enthusiasm for the flexible delivery mechanism and endorsement for the 10-minute meditation duration. The ease of being able to participate in the intervention on their own schedules and in any place was viewed as optimal, particularly for busy HCPs. Many positively viewed the email messages that were sent twice weekly reminding participants to practice and introducing the core yoga therapy principle embodied in the practice. Participants also identified the personalized nature of the smartphone platform and choice of when and where to experience the intervention as being positive aspects of the intervention.

Some participants recalled using the apps on a regularly scheduled basis, and others used the apps on challenging days to manage perceived stress. The effects of use were noted to extend beyond the 10-minute meditations. Participants reported stopping to imagine particular breathing, body movements, and meditation objects during stressful work moments. Recalling what was visualized or experienced during the meditations was used to support responses to immediate workplace stressors. Participants described continuing to use the meditation apps for stress management following study conclusion. Improvements in focus and mental clarity; ability to regulate emotion; and ability to notice, experience, and express difficult feelings were identified as perceived gains. Participants

described enhanced relationships with others, including patients and colleagues. Such gains in interpersonal effectiveness included building patience and empathic capacity to understand others and perceptions of heightened collegiality. Access to the program was identified as an additional resource that the participants could use that carried benefits into other aspects of enhancing self-care.

### Perceived Challenges Associated With Participation

The intervention viability is dependent on engaging HCPs to actually use the meditation apps. One participant had difficulty using technology, and another had limited familiarity with the use of apps prior to the study. The availability of technical support to ensure smooth operations was discussed as essential. Although participants recognized that the emails were necessary, some found them annoying.

Each individual needed to develop personal approaches to when, where, and how often to do the meditations. Participants described strategies that they used to ensure that they incorporated the meditations into their routines. Finding time and building discipline were viewed as strong barriers to overcome. Participants also identified life distractions, demands, and physical exhaustion as competing with their ability to participate.

### Program Recommendations

One participant in a focus group suggested keeping a journal as part of the study. The journal could be used to document personal thoughts and experiences about participation and also could be used to guide the researchers with identifying impact. In general, participants expressed satisfaction with study participation and made suggestions that the program be more widely accessible. One individual recommended that text messaging would be more acceptable to some and should be added as an option. Although half mentioned liking the meditation guide's voice, which was the same in all five apps, several participants suggested having a second guide to add variety. Overall, participants appreciated the set of five meditations that were delivered during the six weeks, with different individuals preferring specific meditations.

## Discussion

The focus group findings provide important insights into the personal experiences of participants engaged in an app-based meditation program (Heeter et al., 2017) that aimed to build capacity to adaptively respond to work-related stressors, combat compassion fatigue, and improve professional quality of life.

**FIGURE 2. Content Categories and Subcategories With Examples From Focus Groups**

### Program Advantages

#### Convenience

- “It was only 10 minutes a shot. So I think . . . that was an aspect of convenience that actually drew me to it.”

#### Flexibility

- “Because [it’s] on your iPad or on your smartphone, you could do it any time and at any place. The smartphones make it portable.”
- “That was very user-friendly. It was very easy, and I’m not big on computers, but it was just very simple.”

#### Guided instruction

- “I like this meditation because it can give you the directions and it will tell you what to do. . . . There were times that I was distracted, but I was able to get back into it.”

#### Choice

- “Some were more relaxing. That’s why I kept some and got rid of others.”

#### Regular feedback and interaction

- “I liked the emails. One time they reminded me, ‘You haven’t done your meditation this week.’ I was like, ‘Oh, I’ve got to get to that.’ And other times, they would say, ‘You’ve done it twice or three times this week.’”

### Program Limitations

#### Email reminders

- “At first, I thought they were helpful. But later I thought they were like a bill collector who kept reminding me that I owed money. It was like, OK, you’ve got to make sure you do this.”

#### Technology literacy and need for technical support

- “If it wasn’t for [technical support], I would never have been able to do it. I am computer challenged. I was intimidated by the iPad.”

### Challenges That Affected Adherence

#### Time

- “I’m running late.”

#### Building discipline

- “I did not fit them in a unified way . . . when I look back. . . . I maybe should have set an alarm every day to do them. . . . What I found is that I would plan to do the meditation, and then I would just forget about it as the day would go on.”

#### Inconsistent schedules

- “There were times where I intended on doing it like, I’ll do it tonight after supper. But then I have a meeting or I’m running errands, and then I’ll be ready for bed late at night and I’m like, my gosh! . . . It may not be the same time every day as schedules change from day to day.”

#### Competing demands

- “I’ve got to get to work. I’m running late. I’ve got to go see a patient.”

#### Fatigue

- “Well . . . I’ve got to go to bed. I’m really tired.”

### Caregiver Gains

#### Stress management

- “I noticed that when I’m feeling the stress that I visualize the movement and the breathing to calm me down. I don’t necessarily do the movements now, but I visualize it all the time if I’m stressed.”

- “When I get wound up, when I get tensed and scared, those exercises I got were wonderful. [Doing the meditation] stops the process and unravels it for a while, lets me get back to my usual equilibrium. It worked best when I needed it most.”

#### Interoceptive awareness

- “If there was a family that was difficult or just a task at work itself, the one time, I did it before I got angry at somebody, and I was able to catch myself. I was able to take a big deep breath and start doing some breathing and be able to stop from entering my foot in mouth.”

#### Releasing negative thoughts and emotions

- “What I noticed was, I became more likely to let things go a little bit easier. I don’t carry as much. I had something that stuck with me throughout the day today, but it’s not something that I’m going to go to work tomorrow and it’s going to color what I do.”

- “A couple of times, I found myself when I get home. . . . I had to cry, and it’s been easier to get emotions out.”

#### Interpersonal effectiveness

- “I think when you’re taking better care of your mental, your emotional health, you’re able to relate better towards others.”

#### Increased empathy and compassion for self

- “We’re our own worst enemy in how we may criticize ourselves or how we think that we could’ve done something better. . . . I am a heavy thinker and tend to overanalyze things; I think that this was particularly beneficial for me to be able to stop doing that when I’m away from work and to actually just be present and enjoy what I like to do when I’m at home.”

#### Increased empathy and compassion for others

- “It’s just that shared experience where, if I’m feeling the sadness and grief, then why wouldn’t a coworker also be feeling the same way? It helps me be more aware that my coworkers are equally as frustrated. . . . It’s not just me with compassion fatigue; it’s all of us together because of what we do.”

#### Loss and grief management

- “We deal with so much grief every day, and we can’t help but absorb some . . . because we’re all vulnerable. . . . I think this is one healthy method to find balance.”

#### Mental focus and clarity

- “I feel like it focused me. I can be a person that can get distracted because I have a lot of things coming to me at one time on some days. I feel like, on the days that I did it, it helped me focus.”

#### Extra resource

- “This is another arrow in the quiver.”
- “Some of the things I did to relax, to renew or cope were similar things that I’ve always done. It just added to it. I have ways that I can decompress and reset to recalibrate.”

#### Self-care

- “I think I also took more interest in my overall health. . . . I started to eat differently. I started working out in the mornings. And I’ve actually stuck to it. It’s something that I’m still doing, and I think I sleep better.”
- “I often put my needs on hold. I will put lunch off until long after when I want to eat because patients or family members need me. The [meditation] reminds me to focus on me.”

The rich dialogue exchanged in the focus groups deepened understanding for how the app-based meditation program could improve strategies for combating the development of compassion fatigue. Regular meditation practice is shown to heighten capacity to be cognizant and connected to moment-to-moment somatic experience (Farb et al., 2013). Such heightened interoceptive awareness enhances ability to notice, experience, and express difficult feelings, laying the groundwork for building occupational resilience skills, such as setting boundaries and realistic expectations and self-regulation (Back et al., 2016). Participants described a range of positive gains, including better stress management, improved focus and clarity, thoughts and feelings reflecting heightened interoceptive awareness, improved empathy, and better interpersonal effectiveness. Of note, the personal gains that were described resulted from self-scheduled use of the 10-minute meditations that were introduced and motivated through short emails as compared to traditional time-intensive programs. Other nursing programs with shorter meditation practice training have also reported increased perceived stress management skills (Gauthier, Meyer, Greife, & Gold, 2015).

A goal of the app-based meditation program was to improve professional quality of life. Part of building resilience in responding to distressing patient care situations is enhanced by working with team members who are also able to communicate their experiences with suffering. The support from colleagues who were also engaged in the program appeared to improve camaraderie, increase willingness to continue with the program, and strengthen skills and capacity to work through difficult interpersonal workplace issues.

The workplace culture, including sense of community, values, resources, and rewards, affect HCP engagement and personal efficacy (Back et al., 2016). As noted by Zeller and Levin (2013), the presence of institution-supported programs may facilitate building relationships and solidarity among HCPs who share similar occupational stressors. In addition, when building resilience skills is part of the workplace framework, the positive benefits are more likely to have broad and sustained impact (Back et al., 2016). However, institution-supported MBSR programs that require work time may not be feasible to implement on a wider scale (dos Santos et al., 2016). The app-based meditation program, which involved leadership from management, was aimed at providing a scalable solution to such challenges.

Although the flexible and brief app-based meditations were tailored to the unique lifestyles of busy

HCPs, finding time and building the discipline to do the meditations could be daunting. Participants described barriers, such as distractions, erratic schedules, and fatigue, that demonstrated the challenges involved in the establishment of healthy behavior patterns for HCPs with demanding work-life responsibilities. In this regard, the app-based meditations entail similar challenges to other modalities aimed at creating sustainable behavioral changes (Mahon et al., 2017). An advantage of the approach remains that the tool is readily available with smartphone access.

Use of technology to deliver meditation training presents barriers, particularly for HCPs with less computer literacy. Offering training sessions prior to program implementation may improve the attractiveness of such programs for HCPs with limited familiarity with apps and smartphones or other technology. Such training sessions could also provide strategies for managing challenges, such as erratic schedules, distraction, forgetfulness, and fatigue. Focus group findings suggested that offering choices for messaging via email and/or text messaging could increase program customization. Design improvements, such as slowing the pace of the meditations while retaining 10-minute duration and adding an additional guide voice, were improvements suggested through focus group feedback.

### Limitations

The study has numerous limitations. Evaluation of the program was confined to the perceptions of a small self-selected sample. The participating HCPs may have consisted of those most inspired by use of the meditation apps. Another limitation stems from the potential that information could be withheld and/or aligned with what the members think the facilitator wants to hear, and input may be hampered by “group think,” which confines discourse to singular perspectives (Krueger & Casey, 2000). The transferability of focus group findings cannot be extended beyond the current context, but the findings provide unique and effective content addressable to the specific inquiry.

### Implications for Practice

Workplace stressors are commonly experienced by oncology nurses. Such stressors can have a negative impact on nurses' capacity to focus and concentrate, regulate emotions constructively, and connect with patients and families (Zeller & Levin, 2013). Finding 10 minutes for restoration and engagement in meditation practices may enhance perceived well-being and improve the capacity to respond constructively

to ongoing work-related stressors. Strategies that may increase the ability of practicing nurses to establish a meditation practice include setting a smartphone to prompt meditation and selecting practices that are most compatible with individual inclinations. Although practicing nurses may perceive obstacles in finding time for self-care, a plethora of meditation resources, including apps, are accessible online. The focus group study also yielded useful information about promoting unit-based meditation practice groups within health-care settings. More research is needed relative to these programs, but they appear feasible, and participants may find opportunities to support one another in using meditation to combat compassion fatigue and improve professional quality of life.

### Future Research

The study demonstrated important areas for further inquiry. Because of wide variability in program use, offering choices for receiving messaging strategies needs additional evaluation. Studies that incorporate objective tracking of usability (e.g., duration and frequency of practice) are essential. Given the increasing popularity and availability of meditation apps, future research is needed that evaluates app-based meditation delivery with representative samples, standardized app content that is theoretically congruent, and allocation of study conditions. Studies conducted among oncology nurse populations remain in developmental phases, with limited randomized, controlled trials and scant replication. Similar to other reported studies (Smith, 2014), the app-based meditation program was intentionally piloted with an interprofessional group of hospice and palliative care providers. Future studies are needed to evaluate whether cross-disciplinary testing of app-based meditation programs could improve communications and facilitate teamwork to deliver the best care. Few studies have evaluated long-term adherence to occupational meditation programs and determined whether positive outcomes on perceived stress and professional quality of life are sustainable over time.

### Conclusion

The focus group findings provide useful context-specific information relative to evaluating a program aimed at flexibly offering meditation training for busy oncology and hospice HCPs. The suite of five apps with 10-minute targeted meditations, introduced and supported through email, appeared to yield professional and personal benefits, justifying continued efforts to conduct larger-scale testing of efficacy with

---

### KNOWLEDGE TRANSLATION

- Developing effective stress management interventions that can be flexibly adapted for busy lifestyles for professional caregivers is imperative.
  - Professional caregivers report an enhanced capacity to manage work-related stressors by participating in a tailored, supportive mobile application- and email-based meditation training program at an institution.
  - Although engaging in adapted wellness activities may lead to higher professional well-being for nurses, studies need to evaluate potential secondary gains for improved patient care delivery.
- 

palliative care and oncology nursing professionals. Adaptable initiatives are needed to ensure that HCPs are inspired to engage in supportive activities that carry potential to improve professional quality of life and enhance care for patients and their families.

---

**Rebecca H. Lehto, PhD, RN**, is an associate professor in the College of Nursing, and **Carrie Heeter, PhD**, is a professor in the Department of Media and Information, both at Michigan State University in East Lansing; **Marcel Allbritton, PhD**, is a self-employed clinical yoga therapist in New Orleans, LA; and **Michelle Wiseman, BSN, MPA, NHA, CHPN®**, is director of hospice and palliative care at the Sparrow Health System in Lansing, MI. Lehto can be reached at rebecca.lehto@hc.msu.edu, with copy to ONFEditor@ons.org. (Submitted May 2017. Accepted January 3, 2018.)

This study was funded, in part, by a grant from the Michigan State University/Sparrow Health System Center for Innovation and Research. Mindtoon Lab LLC and associated copyrights are owned by Heeter.

Lehto, Heeter, and Wiseman completed the data collection. All authors contributed to the conceptualization and design, provided the analysis, and contributed to the manuscript preparation.

### REFERENCES

- Back, A.L., Steinhäuser, K.E., Kamal, A.H., & Jackson, V.A. (2016). Building resilience for palliative care clinicians: An approach to burnout prevention based on individual skills and workplace factors. *Journal of Pain and Symptom Management*, 52, 284–291. <https://doi.org/10.1016/j.jpainsymman.2016.02.002>
- Birkhoff, S.D., & Smeltzer, S.C. (2017). Perceptions of smartphone user-centered mobile health tracking apps across various chronic illness populations: An integrative review. *Journal of Nursing Scholarship*, 49, 371–378. <https://doi.org/10.1111/jnu.12298>
- Breen, L.J., O'Connor, M., Hewitt, L.Y., & Lobb, E.A. (2014). The

- “specter” of cancer: Exploring secondary trauma for health professionals providing cancer support and counseling. *Psychological Services*, 11, 60–67. <https://doi.org/10.1037/a0034451>
- Center for Mindfulness in Medicine, Health Care, and Society. (2016). History of MBSR. Retrieved from <https://bit.ly/2qqDLqk>
- Chandrasekaran, D.N. (2012). *Principles and practice of yoga therapy: A complete guide for learning and practicing yoga therapy*. Chennai, India: VHP Publications.
- Crowe, C. (2015). Burnout and self-considerations for oncology professionals. *Journal of Pain Management*, 8, 191–195.
- Desikachar, K., Bradgon, L., & Bossart, C. (2005). The yoga of healing: Exploring yoga’s holistic model for health and well-being: An introduction. *International Journal of Yoga Therapy*, 15, 17–39.
- dos Santos, T.M., Kozasa, E.H., Carmagnani, I.S., Tanaka, L.H., Lacarda, S.S., & Nogueira-Martins, L.A. (2016). Positive effects of a stress reduction program based on mindfulness meditation in Brazilian nursing professionals: Qualitative and quantitative evaluation. *Explore*, 12, 90–99.
- Dredge, S. (2016, May 26). Five of the best meditation apps. *The Guardian*. Retrieved from <https://www.theguardian.com/technology/2016/may/26/five-of-the-best-meditation-apps>
- Duarte, J., & Pinto-Gouveia, J. (2016). Effectiveness of a mindfulness-based intervention on oncology nurses’ burnout and compassion fatigue symptoms: A non-randomized study. *International Journal of Nursing Studies*, 64, 98–107.
- Farb, N.A., Segal, Z.V., & Anderson, A.K. (2013). Mindfulness meditation training alters cortical representations of interoceptive attention. *Social Cognitive Affective Neuroscience*, 8, 15–26.
- Fortney, L., Luchterhand, C., Zakletskaia, L., Zgierska, A., & Rakei, D. (2013). Abbreviated mindfulness intervention for job satisfaction, quality of life, and compassion in primary care clinicians: A pilot study. *Annals of Family Medicine*, 11, 412–420.
- Gard, T., Noggle, J.J., Park, C.L., Vago, D.R., & Wilson, A. (2014). Potential self-regulatory mechanisms of yoga for psychological health. *Frontiers in Human Neuroscience*, 8, 770.
- Gauthier, T., Meyer, R.M., Greife, D., & Gold, J.I. (2015). An on-the-job mindfulness-based intervention for pediatric ICU nurses: A pilot. *Journal of Pediatric Nursing*, 30, 402–409.
- Gómez-Urquiza, J.L., Aneas-López, A.B., Fuente-Solana, E.I., Albendín-García, L., Díaz-Rodríguez L., & Fuente, G.A. (2016). Prevalence, risk factors, and levels of burnout among oncology nurses: A systematic review [Online exclusive]. *Oncology Nursing Forum*, 43, E104–E120. <https://doi.org/10.1188/16.ONF.E104-E120>
- Heeter, C., Lehto, R.H., Allbritton, M., Day, T., & Wiseman, M. (2017). Effects of a technology-assisted meditation program on healthcare providers’ interoceptive awareness, compassion fatigue, and burnout. *Journal of Hospice and Palliative Nursing*, 19, 314–322.
- Hevezi, J.A. (2016). Evaluation of a meditation intervention to reduce the effects of stressors associated with compassion fatigue among nurses. *Journal of Holistic Nursing*, 34, 343–350.
- Howells, A., Ivtzan, I., & Eiroa-Orosa, F. (2016). Putting the ‘app’ in happiness: A randomized controlled trial of a smartphone-based mindfulness intervention to enhance wellbeing. *Journal of Happiness Studies*, 17, 163–185.
- Irving, J.A., Dobkin, P.L., & Park J. (2009). Cultivating mindfulness in health care professionals: A review of empirical studies of mindfulness-based stress reduction (MBSR). *Complementary Therapies in Clinical Practice*, 15, 61–66.
- Kabat-Zinn, J. (2009). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness* (15th ed.). New York, NY: Delta Trade Paperbacks.
- Kerr, C.E., Sacchet, M.D., Lazar, S.W., Moore, C.I., & Jones, S.R. (2013). Mindfulness starts with the body: Somatosensory attention and top-down modulation of cortical alpha rhythms in mindfulness meditation. *Frontiers in Human Neuroscience*, 7, 12.
- Kisorio, L.C., & Langley, G.C. (2016). Intensive care nurses’ experiences of end-of-life care. *Intensive and Critical Care Nursing*, 33, 30–38. <https://doi.org/10.1016/j.iccn.2015.11.002>
- Krueger, R.A., & Casey, M.A. (2000). *Focus groups: A practical guide for applied research* (3rd ed.). Thousand Oaks, CA: Sage.
- Krueger, R.A., & Casey, M.A. (2015). *Focus group interviewing*. In K.E. Newcomer, H.P. Hatry, & J.S. Wholey (Eds.), *Handbook of practical program evaluation* (4th ed., pp. 506–534). Hoboken, NJ: John Wiley and Sons.
- Leigh, S., & Flatt, S. (2015). App-based psychological interventions: Friend or foe? *Evidence-Based Mental Health*, 18(4), 97–99.
- Mahon, M.A., Mee, L., Brett, D., & Dowling, M. (2017). Nurses’ perceived stress and compassion following a mindfulness meditation and self compassion training. *Journal of Research in Nursing*, 22, 572–583. <https://doi.org/10.1177/1744987117721596>
- Mindtoon Lab LLC. (2016). Meditation apps—2016: Meditations for hospice and palliative health care professionals. Retrieved from <http://mindtoonlab.com/meditation-apps-2016>
- Shenton, A.K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22, 63–75. <https://doi.org/10.3233/EFI-2004-22201>
- Smith, S.A. (2014). Mindfulness-based stress reduction: An intervention to enhance the effectiveness of nurses’ coping with work-related stress. *International Journal of Nursing Knowledge*, 25, 119–130. <https://doi.org/10.1111/2047-3095.12025>
- Spadaro, K.C., & Hunker, D.F. (2016). Exploring the effects of an online asynchronous mindfulness meditation intervention with nursing students on stress, mood, and cognition: A descriptive study. *Nurse Education Today*, 39, 163–169.
- Stalmeijer, R.E., McNaughton, N., & Van Mook, W.N. (2014). Using focus groups in medical education research: AMEE Guide No. 91. *Medical Teacher*, 36, 923–939.
- Wylde, C.M., Mahrer, N.E., Meyer, R.M.L., & Gold, J.I. (2017). Mindfulness for novice pediatric nurses: Smartphone application versus traditional intervention. *Journal of Pediatric Nursing*, 36, 205–212. <https://doi.org/10.1016/j.pedn.2017.06.008>
- Zeller, J.M., & Levin, P.F. (2013). Mindfulness interventions to reduce stress among nursing personnel: An occupational health perspective. *Workplace Health and Safety*, 61, 85–89.