Systematic Review of Mindfulness Practice for Reducing Job Burnout

Michelle Luken, Amanda Sammons

MeSH TERMS

- burnout, professional
- job satisfaction
- mindfulness
- · review literature as topic

Michelle Luken, DScOT, OTR/L, is Chief, Occupational Therapy, Guthrie Ambulatory Health Care Center, Fort Drum, NY; michelle.l.luken.mil@mail.mil

Amanda Sammons, DScOT, OTR/L, is Chief, Occupational Therapy, Bayne-Jones Army Community Hospital, Fort Polk, LA. **OBJECTIVE.** A systematic search and critical appraisal of interdisciplinary literature was conducted to evaluate the evidence for practicing mindfulness to treat job burnout and to explore implications for occupational therapy practitioners.

METHOD. Eight articles met inclusion criteria. Each study was assessed for quality using the Physiotherapy Evidence Database scale. We used the U.S. Agency for Health Care Policy and Research guidelines to determine strength of evidence.

RESULTS. Of the studies reviewed, participants included health care professionals and teachers; no studies included occupational therapy practitioners. Six of the 8 studies demonstrated statistically significant decreases in job burnout after mindfulness training. Seven of the studies were of fair to good quality.

CONCLUSION. There is strong evidence for the use of mindfulness practice to reduce job burnout among health care professionals and teachers. Research is needed to fill the gap on whether mindfulness is effective for treating burnout in occupational therapy practitioners.

Luken, M., & Sammons, A. (2016). Systematic review of mindfulness practice for reducing job burnout. American Journal of Occupational Therapy, 70, 7002250020. http://dx.doi.org/10.5014/ajot.2016.016956

E arly reports of job burnout were initially referenced in the 1970s, mostly focused on people working in professions that provided aid or services to others in need, such as health care fields or human services (Freudenberger, 1974; Maslach, 1978). Despite the growing body of research in the field of job burnout, there is no universally agreed-on definition. However, since the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981) was created, job burnout has been characterized by an "inadequate response to chronic occupational stress with three dimensions: emotional exhaustion, depersonalization, and (lack of) personal achievement" (Gutierrez et al., 2004, p. 98).

Burnout may manifest as depression; blunted affect; aggression; decreased commitment to patients or clients; psychosomatic manifestations; or decreased cognitive performance, motivation, and judgment (Kaschka, Korczak, & Broich, 2011). Burnout has been associated with higher risk of physical and mental ailments such as increased blood pressure, cardiovascular disease (Dimsdale, 2008; McEwen, 2008), anxiety, and depression (Gunnar & Quevedo, 2007; Leiter, Harvie, & Frizzell, 1998).

Background Literature

Job burnout is a problem across the workforce, especially for workers in highly emotional and interactive fields such as health care (Hülsheger, Alberts, Feinholdt, & Lang, 2013) and education (Roeser et al., 2013). Burnout affects not only the individual practitioner but also the recipients of care and services. Among health care professionals, it has been correlated with suboptimal patient care (Shanafelt, Bradley, Wipf, & Back, 2002), decreased subjective patient ratings of quality of care (Leiter et al., 1998), and decreased productivity (Nayeri, Negarandeh, Vaismoradi, Ahmadi, & Faghihzadeh, 2009). Similarly, teacher stress and burnout have been associated with health problems resulting in illness and absenteeism (Roeser et al., 2013), diminished learning in the classroom (Jennings & Greenberg, 2009), and deteriorating student behavior and achievement (Osher et al., 2007).

Occupational therapy is an emotionally demanding career with associated risk factors for job burnout. Occupational therapy practitioners inject themselves into the treatment process of their clients, often relying on therapeutic use of self to empathize with and facilitate participation of the client. Research has shown that occupational therapy practitioners experience burnout, especially in the area of emotional exhaustion (Gutierrez et al., 2004). Moreover, being female and having children, and having multiple roles at home and work, have been associated with a higher incidence of burnout (Cushway & Tyler, 1996; Mor Barak, Nissly, & Levin, 2001). This association is significant because the most recent annual data report states that 92% of occupational therapy practitioners are female (American Occupational Therapy Association, 2010).

Research has shown significant levels of burnout among occupational therapy practitioners. One study reported high levels of all three dimensions of burnout in a sample of occupational therapy practitioners and physical therapists working in various practice settings (Balogun, Titiloye, Balogun, Oyeyemi, & Katz, 2002). Large-scale survey research conducted by Painter, Akroyd, Elliot, and Adams (2003) found significantly higher levels of emotional exhaustion among occupational therapy practitioners, especially those working in chronic care, compared with four other health care professions. Lloyd and King (2004) reported high levels of emotional exhaustion and moderate levels of depersonalization among mental health occupational therapy practitioners and social workers in Australia. Additionally, among mental health occupational therapy practitioners, high levels of burnout correlated with greater turnover intention (Scanlan & Still, 2013).

Mindfulness

Mindfulness has recently been studied as a potential treatment for job burnout (Cohen-Katz et al., 2005; Moody et al., 2013). *Mindfulness* can be defined as "the awareness that emerges through paying attention, on purpose, and nonjudgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003, p. 145). The concept of mindfulness is steeped in Buddhist values,

with the emphasis on switching modes of thinking from mindless to mindful (Reid, 2009). A person who practices mindfulness goes about his or her day being in the present moment and acknowledging, rather than judging, events and emotions. Specific mindfulness exercises can include mindful eating, sitting meditation, body scanning, and hatha yoga (Kabat-Zinn, 1982).

Mindfulness can be learned and practiced in a structured or unstructured manner. Informal learning on the topic can occur through self-guided means such as reading books, conducting online research, and exploring with peers. Formal learning, whether individual or in a group setting, can include enrolling in an online or college-level mindfulness course, participating in a spiritualbased mindfulness practice group, or enrolling in a structured program. Many of the formal programs currently offered are based on mindfulness-based stress reduction (MBSR), a standardized program developed by Jon Kabat-Zinn in the late 1970s. Through MBSR, participants learn the practice of mindfulness in a didactic, experiential, and discussion-based format, typically over 8-10 weekly group sessions and a day-long retreat (Kabat-Zinn, 1982).

Mindfulness and Job Burnout

A limited but growing body of literature has assessed the application of mindfulness as a mitigation tool for job burnout. Several nonrandomized trials have suggested the use of mindfulness to address job burnout. Decreased burnout was noted in primary care physicians after participation in a modified 8-wk MBSR training course (Fortney, Luchterhand, Zakletskaia, Zgierska, & Rakel, 2013; Krasner et al., 2009). Additionally, a study by Goodman and Schorling (2012) noted similar findings of decreased job burnout after mindfulness training with health care providers, including physicians, nurses, psychologists, and social workers. A study by Bazarko, Cate, Azocar, and Kreitzer (2013) implemented an innovative model of MBSR by administering the program through group telephone sessions. Nurses included in this study demonstrated decreased job burnout both at postintervention (8 wk) and at follow-up (4 mo). Irving, Dobkin, and Park (2009) completed an overview of empirical studies evaluating the use of MBSR with health care professionals pertaining to the clinicians' health and wellness, including stress and burnout. This study reviewed 10 articles from all levels of evidence and concluded that participation in MBSR can yield physical and mental health benefits to clinicians.

Although health care providers have been the primary professionals of focus in the research on mindfulness

practice for job burnout, occupational therapy practitioners have not been included. Some studies, however, have justified the benefit of including mindfulness training in occupational therapy education programs (Gura, 2010; Reid, 2013; Stew, 2011). Even so, no research has examined the effects of mindfulness practice on burnout experienced by occupational therapy practitioners.

In addition to the research on the use of mindfulness for health care providers, there has been a growing interest in its use for teachers. Because of the limited body of research specifically addressing burnout, much of the literature involves nonrandomized trials that focus on the use of mindfulness in addressing job stress in teachers. According to Gold et al. (2010), an MBSR course taught to primary school teachers resulted in improvements in anxiety, depression, and stress. Similarly, a 5-wk intervention of a standardized meditation class resulted in decreased stress in teachers (Anderson, Levison, Barker, & Kiewra, 1999).

Because of the growing body of evidence for the use of mindfulness practice to manage job burnout, there is a need for a systematic review of the research. The aims of this review were to conduct a systematic search and critical appraisal of interdisciplinary literature to answer the following research question: What is the evidence for the efficacy of practicing mindfulness to treat job burnout? An additional objective of this review was to explore and discuss its implications for occupational therapy practitioners experiencing burnout.

Method

This systematic review was conducted in accordance with the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (Moher, Liberati, Tetzlaff, & Altman, 2009). A meta-analysis was not performed because of the heterogeneity of the studies. A search strategy was developed by the researchers to include population; inclusion and exclusion criteria; and key search terms based on population, intervention, and study design. Figure 1 provides a comprehensive list of the key terms and combinations searched, with burnout as the dependent variable. Articles included in this review



Figure 1. Key search term combinations.

met the following criteria: published in a peer-reviewed journal; written in English; involved participants age 18 yr and older who reported workplace burnout but were otherwise healthy (no reported physical limitations or diagnoses from the Diagnostic and Statistical Manual of Mental Disorders [5th ed.; American Psychiatric Association, 2013]); and used mindfulness training, which must have accounted for at least half of the intervention. Only randomized controlled trials (RCTs) were included. Studies were excluded if they were published before 2004, if their primary outcome was occupational stress as opposed to job burnout, or if they included mindfulness as a component rather than the foundation of the intervention. Databases searched included MEDLINE, PsycINFO, Cochrane Library (using the "trial" filter), OTseeker, and Google Scholar (using an "all in title" filter).

In March 2014, a computerized literature search of the databases was completed by the first author (Michelle Luken). Articles that met inclusion criteria were reviewed and analyzed using a data extraction form designed for use with RCTs. We assessed the methodological quality of each study independently; discrepancies were discussed until a consensus was reached.

Each study was assessed for quality using the Physiotherapy Evidence Database (PEDro) scale, an 11-item checklist designed to assess the validity and interpretability of RCTs (de Morton, 2009). We used parameters set by Foley, Teasell, Bhogal, and Speechley (2003) to interpret results of the PEDro scale (range = 0-10). Studies with scores of 9-10 were considered to be excellent quality; 6-8, good; 4-5, fair; and <4, poor. Additionally, we used guidelines developed by the U.S. Agency for Health Care Policy and Research (AHCPR) to determine and discuss strength of evidence (Duncan et al., 1995). Evidence was considered to be strong if 2 or more RCTs were of at least fair quality; moderate if 1 RCT was of fair quality; limited if at least 1 nonexperimental study supported findings; a consensus if findings were supported by only opinions of experts (lowest form of evidence); or conflicting if findings of at least 2 studies were inconsistent. Effect sizes were calculated for the studies using Cohen's d (Thalheimer & Cook, 2002).

Results

The initial search produced 202 citations and abstracts (Figure 2). Duplicates were removed, and 81 articles remained. After review of the titles and abstracts, 10 articles potentially met inclusion criteria. One article was excluded because the full text was written in Spanish, and another was excluded because the degree to which the



Figure 2. Flow diagram for study selection.

intervention was based in mindfulness was indeterminable. Therefore, 8 remaining articles were reviewed.

All studies used a between-groups design with waitlist control groups. Two studies also incorporated qualitative methods (Hülsheger et al., 2013; Moody et al., 2013). Each study fell into one of three categories: modified traditional MBSR (8-wk programs closely modeled after traditional MBSR), abbreviated MBSR (encompassing the structure and components of MBSR in an abbreviated manner), and nontraditional mindfulness training (training that was substantially different than MBSR). Supplemental Table 1 (available online at http://otjournal.net; navigate to this article, and click on "Supplemental") presents details of each study.

Modified Traditional Mindfulness-Based Stress Reduction

Cohen-Katz et al. (2005) reported on the effects of an 8-wk program modeled after traditional MBSR aimed at reducing burnout in a sample consisting of mostly nurses, but also pastoral care workers, social workers, and respiratory therapists, at a large suburban hospital. Participants who received mindfulness training were found to have significantly decreased levels of emotional exhaustion and an increased sense of personal achievement when compared with controls immediately after intervention. They were also significantly improved in emotional exhaustion immediately after intervention and at a 3-mo follow-up.

Flook, Goldberg, Pinger, Bonus, and Davidson (2013) conducted a pilot study of an 8-wk closely adapted version of traditional MBSR and evaluated its effects on burnout of public elementary school teachers in a Midwestern city. The treatment group had significantly decreased levels of emotional exhaustion and an increased sense of personal achievement compared with the control group.

Roeser et al. (2013) conducted a study to determine the efficacy of a customized 8-wk mindfulness program in reducing teacher burnout among teachers in Canada and the western United States. The program was conducted over the course of 11 after-school sessions (36 contact hours). Participants in the treatment group reported significantly decreased burnout immediately after the intervention and at a 3-mo follow-up (U.S. participants only).

Shapiro, Astin, Bishop, and Cordova (2005) conducted a pilot study to evaluate the effects of an 8-wk traditional MBSR program on burnout of health care professionals, including physicians, nurses, social workers, physical therapists, and psychologists from the Veterans Affairs divisions of a large health care system in California. Participants in the treatment group demonstrated trends toward positive changes in reducing job burnout when compared with controls (10% vs. 4%); however, this decrease was not statistically significant.

Abbreviated Mindfulness-Based Stress Reduction

Mackenzie, Poulin, and Seidman-Carlson (2006) conducted a pilot study to examine the effects of abbreviated mindfulness training on nursing staff's experiences of burnout while working in long-term and complex continuing care units of a large urban geriatric teaching hospital in Canada. The program consisted of four weekly 30-min group meetings and encouragement to practice 10 min of mindfulness exercises 5 days/wk. The treatment group reported significantly decreased levels of emotional exhaustion compared with the control group. Moreover, participants in the control group had significantly increased scores on levels of emotional exhaustion and depersonalization compared with their pretest scores.

Moody et al. (2013) conducted a pilot study to evaluate the efficacy of an abbreviated MBSR course in reducing burnout among pediatric oncology staff members, including nurses, social workers, medical doctors, nurse practitioners, psychologists, and child life specialists in New York and Israel. The program consisted of an initial session lasting 6 hr, followed by six 1-hr-long weekly sessions focusing on formal meditative practices (i.e., body scan, sitting meditation, mindful movements [gentle stretches, hatha yoga], and loving-kindness meditation). Participants were also encouraged to practice independently and write in a journal daily. Although no significant change occurred in levels of burnout according to the MBI, participants' journal entries revealed many positive themes both at work and at home, including increased inner peace, calm, and joy; decreased stress and anxiety; improved ability to handle stressful situations; increased mindfulness and self-awareness; and increased appreciation, gratitude, and compassion.

Nontraditional Mindfulness Training

A European study by Hülsheger et al. (2013) was unique because their sample included a broad variety of workers, including industrial clerks, bankers, hospitality service employees, retail salespersons, nurses, teachers, social workers, psychologists, and others. It was also unconventional because the intervention was self-guided, instructing participants to complete specific mindfulness exercises independently over the course of 10 workdays. Participants in the treatment group reported significantly decreased levels of emotional exhaustion after receiving the intervention.

Jennings, Frank, Snowberg, Coccia, and Greenberg (2013) conducted a study to examine the efficacy of a mindfulness-based program, Cultivating Awareness and Resilience in Education (CARE), to address teacher burnout in urban and suburban public schools in a small metropolitan area in the Northeast. This comprehensive 30-hr program took place over five sessions of varying lengths, with coaching phone calls between sessions, and a "booster" session 1 mo later. Teachers in the treatment group reported a significantly increased sense of personal accomplishment compared with those in the control group.

Quality and Strength of Evidence

The studies ranged from 3 to 6 points on the PEDro scale (0-10 points). One study was good quality (Flook et al., 2013), 6 were fair quality (Cohen-Katz et al., 2005; Hülsheger et al., 2013; Jennings et al., 2013; Mackenzie et al., 2006; Moody et al., 2013; Roeser et al., 2013), and 1 was poor quality (Shapiro et al., 2005). All 8 articles reported random allocation of participants to groups; 1 article reported allocation concealment (Moody et al., 2013). All articles presented results of between-group statistical comparisons and reported measures of at least one key outcome for more than 85% of participants. Half of the articles reported that the most important prognostic indicators of the intervention and control groups were similar at baseline (Cohen-Katz et al., 2005; Flook et al., 2013; Jennings et al., 2013; Moody et al., 2013). Half of the articles reported using intention-to-treat analysis to account for noncompleters (Flook et al., 2013;

Hülsheger et al., 2013; Mackenzie et al., 2006; Roeser et al., 2013). Two of the articles presented point measures and measures of variability for at least one key outcome (Flook et al., 2013; Jennings et al., 2013). None of the studies included blinded participants, therapists, or assessors because it would have been impossible to do so given the nature of the intervention.

Effect size was able to be determined for only 5 studies. Two studies lacked the data necessary for calculation (Cohen-Katz et al., 2005; Moody et al., 2013), and 1 study used mediational statistics, for which Cohen's d was an inappropriate method for calculating effect size (Hülsheger et al., 2013).

Discussion

In accordance with the AHCPR guidelines, 7 of the 8 studies in this systematic review were fair to good quality. Therefore, there is strong evidence for the use of mind-fulness practice to reduce job burnout among health care professionals and teachers.

Populations Receiving Interventions

Half of the included studies investigated the effects of mindfulness practice on burnout among health care providers (Cohen-Katz et al., 2005; Mackenzie et al., 2006; Moody et al., 2013; Shapiro et al., 2005). Their findings are consistent with the results of three other studies (Fortney et al., 2013; Krasner et al., 2009; Goodman & Schorling, 2012) that reported decreased job burnout in health care providers after mindfulness training. Results of this review are also consistent with an empirical review of studies evaluating the use of MBSR by health care professionals to reduce job stress and burnout (Irving et al., 2009).

Although much of the previous literature on mindfulness practice to address job burnout has been focused on health care providers, the findings of our review demonstrate the growing body of evidence for use of mindfulness practice by teachers. All 3 of the reviewed studies involving teachers reported significantly reduced burnout (Flook et al., 2013; Jennings et al., 2013; Roeser et al., 2013). These results support and add to the findings of Gold et al. (2010) and Anderson et al. (1999), who reported on the stress-reduction benefits of mindfulness practice among teachers.

The remaining study included a broad population of workers with interactive service jobs or jobs requiring interpersonal interaction (Hülsheger et al., 2013). Its significant findings and large effect size established a strong foundation and justification for future research to investigate the effects of mindfulness on professionals outside of health care and education.

It is notable that the participants in 7 of the studies included in this review were mostly women. This predominance of women in such studies is reflective of the general population of teachers and nurses, with 84% of teachers (Feistritzer, Griffin, & Linnajarvi, 2011) and 90% of nurses (U.S. Census Bureau, 2011) being women. However, according to the National Center for Health Workforce Analysis (2015), the majority of physicians are men, yet the participants of both studies that included physicians (Hülsheger et al., 2013; Moody et al., 2013) were predominately women. This disparity could be explained by prior research findings that men are more likely to report higher levels of depersonalization, whereas women are more likely to report higher levels of emotional exhaustion (Purvanova & Muros, 2010) and are more likely than men to use coping skills to address burnout (Greenglass, Burke, & Ondrack, 1990). Although this explanation offers one reason why women dominated the samples in the majority of reviewed studies, it also raises concern for potential selfselection bias.

Format and Duration of Interventions

Four of the studies involved mindfulness teachings with content closely adapted from the standardized MBSR course (Cohen-Katz et al., 2005; Flook et al., 2013; Roeser et al., 2013; Shapiro et al., 2005). Their results are consistent with findings from previous research that also used modified MBSR training resulting in decreased job burnout for participants (Fortney et al., 2013; Goodman & Schorling, 2012; Krasner et al., 2009). A growing and consistent body of literature supports the use of traditional or modified traditional MBSR training for the reduction of job burnout.

Two of the studies included in this review conducted interventions with similar content to MBSR but abbreviated dosage and duration of the program (Mackenzie et al., 2006; Moody et al., 2013). Mackenzie and colleagues' (2006) intervention resulted in a statistically significant decrease in job burnout. Although Moody and colleagues' (2013) abbreviated MBSR intervention did not have statistically significant findings, participants' qualitative results indicated themes of decreased stress and anxiety and increased inner peace, calmness, and joy. Additional research is needed to substantiate the use of an abbreviated mindfulness training program to address job burnout.

Two studies used nontraditional mindfulness training. Jennings and colleagues (2013) conducted the CARE program, which involved many of the basic tenets of MBSR tailored to professionals in the education field. Hülsheger and colleagues' (2012) effective self-training approach to mindfulness supports the results of a study by Bazarko et al. (2013) in which decreased job burnout was reported by nurses after participating in mindfulness training through telephonic training sessions. Current findings are promising for nontraditional mindfulness training that addresses job burnout; however, because of the heterogeneous nature of each program, additional research is needed to establish guidelines.

Limitations

This systematic review used strict inclusion criteria that limited included studies to RCTs only. Although RCTs are among the highest level of evidence, it is likely that additional findings from studies with varying levels of evidence exist and could provide insightful information about this topic.

Several limitations existed at the outcome level of the studies reviewed. Use of the MBI was not consistent among the studies. Seven of the studies used all three MBI subscales (Emotional Exhaustion, Depersonalization, and Personal Accomplishment); however, 1 study (Hülsheger et al., 2013) administered only the Emotional Exhaustion subscale. Two studies (Roeser et al., 2013; Shapiro et al., 2005) synthesized the results of the MBI into the broad term of *burnout* instead of delineating the findings for each subscale. Additionally, Roeser et al. (2013) determined the total burnout score by averaging the frequency of symptoms across the 22 MBI items in the three subscales. However, MBI subscales are intended to be scored separately, and no instruction or theory exists on combining them for a total score (Hülsheger et al., 2013; Schaufeli, Bakker, Hoogduin, Schaap, & Kladler, 2001). Therefore, because each study used the MBI differently, a consistent definition of burnout across all studies was indeterminable.

Several limitations were noted in the process of assessing the quality of the reviewed studies. None of the studies used blinded participants or therapists because it would have been impossible to do so given the nature of the intervention. In addition, assessor blinding was not possible in these studies because the outcome measure used was self-report. In this case, the participant is considered to be the assessor and consequently cannot be blinded (Verhagen et al., 1998). Therefore, only 7 of the 11 criteria on the PEDro scale were truly applicable to these RCTs. This shortcoming is an established limitation of using the PEDro scale to evaluate certain interventions and is a common problem in many allied health RCTs (de Morton, 2009; McCluskey et al., 2005). However, the lack of concealed allocation in all but 1 study reviewed (Moody et al., 2013) is a significant threat to internal validity, and, in contrast to blinding, it is a study component that can be easily achieved in any RCT (Bennett et al., 2007; McCluskey et al., 2005).

Future Research

The evidence in this review does not provide substantial findings for the effects of abbreviated or nontraditional mindfulness training programs. Therefore, future research that evaluates the efficacy of mindfulness practice to ameliorate job burnout should further assess the effects of dosage and intervention techniques. In addition, the majority of the research studied evaluated the benefits of mindfulness practice for physicians, nurses, and teachers. Future research should expand into a larger variety of professions to determine the ability to generalize the effects of mindfulness practice.

It is apparent from previous research and this review that the MBI is currently the most used tool in the measurement of job burnout. However, the relevance of all three MBI subscales is not made clear from this review. Future research is warranted to determine whether the Depersonalization subscale in particular is affected by mindfulness practice or is relevant to job burnout in the populations studied in our review. Future researchers of burnout should consider using the Professional Quality of Life Scale (Hudnall Stamm, 2009), a brief questionnaire that encompasses dimensions of burnout, compassion fatigue, and compassion satisfaction. Additionally, it would be beneficial for future studies to assess outcome measures over a longer period of time to evaluate the long-term efficacy of mindfulness practice.

Implications for Occupational Therapy Practice

This review provides strong evidence for the use of mindfulness practice to reduce job burnout among the populations studied. Half of the studies included health care professionals; however, none included occupational therapy practitioners. Research is needed to fill the gap on whether mindfulness is effective for treating burnout in occupational therapy practitioners specifically. However, occupational therapy practitioners share many demographics with the populations studied here: They are health care professionals, are majority female, provide emotionally demanding care, and often work in hospitals and schools. Because burnout exists among occupational therapy practitioners, this systematic review has the following implications for their approach to occupational therapy practice:

- Occupational therapy practitioners should be aware of their own risk factors and predisposition to developing burnout.
- Objective measures, such as the MBI and the Professional Quality of Life Scale, should be used to assess practitioners' own levels of burnout.
- Practitioners should consider practicing mindfulness to mitigate job burnout by reading mindfulness books and websites, watching or listening to mindfulness prompts and tutorials, attending local mindfulness groups (e.g., meet-up groups, spiritual groups), and enrolling in a mindfulness course (e.g., college or continuing education offerings, MBSR program).
- Research on the effectiveness of mindfulness practice for reducing burnout among occupational therapy practitioners is needed, especially as it relates to worker role participation, job performance, and client satisfaction with care outcomes.

Conclusion

Burnout is a serious risk among people working in emotionally demanding professions. This review demonstrates strong evidence to support the efficacy of mindfulness practice to reduce job burnout among health care providers and educators. This result is consistent with the current body of evidence for mindfulness practice, which has demonstrated positive psychological and cognitive effects among nonclinical populations. Future research should further investigate the effects of dosage and format of mindfulness practices to refine recommendations for workers experiencing burnout. This review has implications for occupational therapy practitioners, who often experience job burnout and share many characteristics of the populations studied in this review. Moreover, this review represents an opportunity for occupational therapy practitioners to heed their own advice to monitor and maintain occupational balance and well-being.

Acknowledgments

This research was conducted while both authors were working at Brooke Army Medical Center, Fort Sam Houston, TX. The views expressed herein are those of the authors and do not reflect the official policy or position of Brooke Army Medical Center, the U.S. Army Medical Department, the U.S. Army Office of the Surgeon General, the Department of the Army and Department of Defense, or the U.S. government.

References

- American Occupational Therapy Association. (2010). 2010 occupational therapy compensation and workforce study. Bethesda, MD: AOTA Press.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Anderson, V. L., Levinson, E. M., Barker, W., & Kiewra, K. R. (1999). The effects of meditation on teacher perceived occupational stress, state and trait anxiety, and burnout. *School Psychology Quarterly*, 14, 3–25. http://doi.dx.org/ 10.1037/h0088995
- Balogun, J. A., Titiloye, V., Balogun, A., Oyeyemi, A., & Katz, J. (2002). Prevalence and determinants of burnout among physical and occupational therapists. *Journal of Allied Health*, 31, 131–139.
- Bazarko, D., Cate, R. A., Azocar, F., & Kreitzer, M. J. (2013). The impact of an innovative mindfulness-based stress reduction program on the health and well-being of nurses employed in a corporate setting. *Journal of Workplace Behavioral Health, 28*, 107–133. http://doi.dx.org/10.1080/ 15555240.2013.779518
- Bennett, S., McKenna, K., McCluskey, A., Tooth, L., Hoffmann, T., & Strong, J. (2007). Evidence for occupational therapy interventions: Effectiveness research indexed in the OTseeker database. *British Journal of Occupational Therapy*, 70, 426– 430. http://doi.dx.org/10.1177/030802260707001003
- *Cohen-Katz, J., Wiley, S., Capuano, T., Baker, D. M., Deitrick, L., & Shapiro, S. (2005). The effects of mindfulness-based stress reduction on nurse stress and burnout: A qualitative and quantitative study, part III. *Holistic Nursing Practice*, 19, 78–86. http://doi.dx.org/10.1097/00004650-200503000-00009
- Cushway, D., & Tyler, P. (1996). Stress in clinical psychologists. *International Journal of Social Psychiatry*, 42, 141–149. http://doi.dx.org/10.1177/002076409604200208
- de Morton, N. A. (2009). The PEDro scale is a valid measure of the methodological quality of clinical trials: A demographic study. *Australian Journal of Physiotherapy*, 55, 129–133. http://doi.dx.org/10.1016/S0004-9514(09)70043-1
- Dimsdale, J. E. (2008). Psychological stress and cardiovascular disease. *Journal of the American College of Cardiology*, *51*, 1237–1246. http://doi.dx.org/10.1016/j.jacc.2007.12.024
- Duncan, P. W., Gresham, G. E., Stason, W. B., Adams, H. P., Adelman, A. M., & Holland, A. L. (1995). Post-stroke rehabilitation: Clinical practice guideline. Austin, TX: Pro-Ed.
- Feistritzer, C. E., Griffin, S., & Linnajarvi, A. (2011). Profile of teachers in the US, 2011. Washington, DC: National Center for Education Information.
- *Flook, L., Goldberg, S. B., Pinger, L., Bonus, K., & Davidson, R. J. (2013). Mindfulness for teachers: A pilot study to assess effects on stress, burnout and teaching efficacy. *Mind, Brain and Education*, 7, 182–195. http://doi.dx.org/10.1111/mbe.12026

*Indicates articles that were systematically reviewed for this article.

- Foley, N. C., Teasell, R. W., Bhogal, S. K., & Speechley, M. R. (2003). Stroke rehabilitation evidence-based review: Methodology. *Topics in Stroke Rehabilitation*, 10, 1–7.
- Fortney, L., Luchterhand, C., Zakletskaia, L., Zgierska, A., & Rakel, 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. http://doi.dx.org/10.1370/afm.1511
- Freudenberger, H. J. (1974). Staff burn-out. *Journal of Social Issues*, 30, 159–165. http://doi.dx.org/10.1111/j.1540-4560.1974.tb00706.x
- Gold, E., Smith, A., Hopper, I., Herne, D., Tansey, G., & Hulland, C. (2010). Mindfulness-based stress reduction (MBSR) for primary school teachers. *Journal of Child* and Family Studies, 19, 184–189. http://doi.dx.org/ 10.1007/s10826-009-9344-0
- Goodman, M. J., & Schorling, J. B. (2012). A mindfulness course decreases burnout and improves well-being among healthcare providers. *International Journal of Psychiatry in Medicine*, 43, 119–128. http://doi.dx.org/10.2190/ PM.43.2.b
- Greenglass, E. R., Burke, R. J., & Ondrack, M. (1990). A gender-role perspective of coping and burnout. *Applied Psychology*, *39*, 5–27
- Gunnar, M., & Quevedo, K. (2007). The neurobiology of stress and development. *Annual Review of Psychology*, 58, 145–173. http://doi.dx.org/10.1146/annurev.psych.58.110405.085605
- Gura, S. T. (2010). Mindfulness in occupational therapy education. Occupational Therapy in Health Care, 24, 266–273. http://doi.dx.org/10.3109/07380571003770336
- Gutierrez, J. L. G., Rodriguez, R. M., Recio, L. A., del Barco Cerro, P., Cuesta, N. A., Cuadros, J. A., & Puente, C. P. (2004). Burnout in occupational therapy: An analysis focused on the level of individual and organizational consequences. *Psychology in Spain, 8*, 98–105.
- Hudnall Stamm, B. (2009). Professional Quality of Life: Compassion satisfaction and fatigue, version 5 (ProQOL). Pocatello, ID: Author.
- *Hülsheger, U. R., Alberts, H. J. E. M., Feinholdt, A., & Lang, J. W. B. (2013). Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychol*ogy, 98, 310–325. http://doi.dx.org/10.1037/a0031313
- 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. http://doi.dx.org/10.1016/j.ctcp.2009.01.002
- *Jennings, P. A., Frank, J. L., Snowberg, K. E., Coccia, M. A., & Greenberg, M. T. (2013). Improving classroom learning environments by Cultivating Awareness and Resilience in Education (CARE): Results of a randomized controlled trial. *School Psychology Quarterly, 28, 374–390.* http://doi.dx.org/10.1037/spq0000035
- Jennings, P. A., & Greenberg, M. (2009). The prosocial classroom: Teacher social and emotional competence in relation to child and classroom outcomes. *Review of Educational Research*, 79, 491–525. http://doi.dx.org/ 10.3102/0034654308325693

- Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry*, 4, 33–47. http://doi.dx.org/10.1016/0163-8343(82)90026-3
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice, 10,* 144–156. http://doi.dx.org/10.1093/ clipsy.bpg016
- Kaschka, W. P., Korczak, D., & Broich, K. (2011). Burnout: A fashionable diagnosis. *Deutsches Ärzteblatt International*, 108, 781–787. http://doi.dx.org/10.3238/arztebl.2011.0781
- Krasner, M. S., Epstein, R. M., Beckman, H., Suchman, A. L., Chapman, B., Mooney, C. J., & Quill, T. E. (2009). Association of an educational program in mindful communication with burnout, empathy, and attitudes among primary care physicians. *JAMA*, 302, 1284–1293. http:// doi.dx.org/10.1001/jama.2009.1384
- Leiter, M. P., Harvie, P., & Frizzell, C. (1998). The correspondence of patient satisfaction and nurse burnout. *Social Science and Medicine*, 47, 1611–1617. http://doi.dx.org/ 10.1016/S0277-9536(98)00207-X
- Lloyd, C., & King, R. (2004). A survey of burnout among Australian mental health occupational therapists and social workers. *Social Psychiatry and Psychiatric Epidemiology*, 39, 752–757. http://doi.dx.org/10.1007/s00127-004-0808-7
- *Mackenzie, C. S., Poulin, P. A., & Seidman-Carlson, R. (2006). A brief mindfulness-based stress reduction intervention for nurses and nurse aides. *Applied Nursing Research*, 19, 105–109. http://doi.dx.org/10.1016/j.apnr. 2005.08.002
- Maslach, C. (1978). The client role in staff burn-out. *Journal* of Social Issues, 34, 111–124. http://doi.dx.org/10.1111/ j.1540-4560.1978.tb00778.x
- Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Occupational Behaviour, 2*, 99–113. http://doi.dx.org/10.1002/job.4030020205
- McCluskey, A., Lovarini, M., Bennett, S., McKenna, K., Tooth, L., & Hoffmann, T. (2005). What evidence exists for work-related injury prevention and management? Analysis of an occupational therapy evidence database (OTseeker). *British Journal of Occupational Therapy, 68,* 447–456. http://doi.dx.org/10.1177/030802260506801003
- McEwen, B. S. (2008). Central effects of stress hormones in health and disease: Understanding the protective and damaging effects of stress and stress mediators. *European Journal of Pharmacology*, 583, 174–185. http://doi.dx.org/ 10.1016/j.ejphar.2007.11.071
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G.; PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *British Medical Journal*, 339, b2535. http://doi.dx.org/10.1136/ bmj.b2535
- *Moody, K., Kramer, D., Santizo, R. O., Magro, L., Wyshogrod, D., Ambrosio, J., . . . Stein, J. (2013). Helping the helpers: Mindfulness training for burnout in pediatric oncology—a pilot program. *Journal of Pediatric Oncology Nursing*, 30, 275–284. http://doi.dx.org/10.1177/1043454213504497

- Mor Barak, M. E., Nissly, J. A., & Levin, A. (2001). Antecedents to retention and turnover among child welfare, social work, and other human service employees: What can we learn from past research? A review and metanalysis. *Social Service Review*, 75, 625–661. http://doi.dx.org/10.1086/ 323166
- National Center for Health Workforce Analysis. (2015). Sex, race, and ethnic diversity of U.S. health occupations (2010–2012). Retrieved from http://bhpr.hrsa.gov/healthworkforce/ supplydemand/usworkforce/diversityushealthoccupations.pdf
- Nayeri, N. D., Negarandeh, R., Vaismoradi, M., Ahmadi, F., & Faghihzadeh, S. (2009). Burnout and productivity among Iranian nurses. *Nursing and Health Sciences, 11,* 263–270. http://doi.dx.org/10.1111/j.1442-2018.2009.00449.x
- Osher, D., Sprague, J., Weissberg, R. P., Axelrod, J., Keenan, S., & Kendziora, K. T. (2007). A comprehensive approach to promoting social, emotional, and academic growth in contemporary schools. In A. Thomas & T. Grimes (Eds.), *Best practices in school psychology* (Vol. 5, 5th ed., pp. 1263–1278). Bethesda, MD: National Association of School Psychologists.
- Painter, J., Akroyd, D., Elliot, S., & Adams, R. D. (2003). Burnout among occupational therapists. *Occupational Therapy in Health Care, 17,* 63–78. http://doi.dx.org/10.1080/ J003v17n01_06
- Purvanova, R. K., & Muros, J. P. (2010). Gender differences in burnout: A meta-analysis. *Journal of Vocational Behavior*, 77, 168–185. http://doi.dx.org/10.1016/j.jvb.2010.04.006
- Reid, D. (2009). Capturing presence moments: The art of mindful practice in occupational therapy. *Canadian Jour*nal of Occupational Therapy, 76, 180–188. http://doi.dx. org/10.1177/000841740907600307
- Reid, D. T. (2013). Teaching mindfulness to occupational therapy students: Pilot evaluation of an online curriculum. *Canadian Journal of Occupational Therapy, 80,* 42–48. http://doi.dx.org/10.1177/0008417413475598
- *Roeser, R. W., Schonert-Reichl, K. A., Jha, A., Cullen, M., Wallace, L., Wilensky, R., . . . Harrison, J. (2013). Mindfulness training and reductions in teacher stress and burnout: Results from two randomized, waitlist-control field trials. *Journal of Educational Psychology*, 105, 787–804. http://doi.dx.org/10.1037/a0032093
- Scanlan, J. N., & Still, M. (2013). Job satisfaction, burnout and turnover intention in occupational therapists working in mental health. *Australian Occupational Therapy Journal*, 60, 310–318. http://doi.dx.org/10.1111/1440-1630.12074
- Schaufeli, W. B., Bakker, A. B., Hoogduin, K., Schaap, C., & Kladler, A. (2001). On the clinical validity of the Maslach Burnout Inventory and the Burnout Measure. *Psychology* and Health, 16, 565–582. http://doi.dx.org/10.1080/ 08870440108405527
- Shanafelt, T. D., Bradley, K. A., Wipf, J. E., & Back, A. L. (2002). Burnout and self-reported patient care in an internal medicine residency program. *Annals of Internal Medicine*, 136, 358–367. http://doi.dx.org/10.7326/ 0003-4819-136-5-200203050-00008
- *Shapiro, S. L., Astin, J. A., Bishop, S. R., & Cordova, M. (2005). Mindfulness-based stress reduction for health

care professionals: Results from a randomized trial. *International Journal of Stress Management*, *12*, 164–176. http://doi.dx.org/10.1037/1072-5245.12.2.164

- Stew, G. (2011). Mindfulness training for occupational therapy students. British Journal of Occupational Therapy, 74, 269–276. http://doi.dx.org/10.4276/030802211X13074383957869
- Thalheimer, W., & Cook, S. (2002). *How to calculate effect sizes* from published research articles: A simple methodology. Retrieved from http://work-learning.com/effect-sizes.htm
- U.S. Census Bureau. (2011). *Men in nursing occupations*. Retrieved from https://www.census.gov/people/io/files/Men_ in_Nursing_Occupations.pdf
- Verhagen, A. P., de Vet, H. C., de Bie, R. A., Kessels, A. G., Boers, M., Bouter, L. M., & Knipschild, P. G. (1998). The Delphi list: A criteria list for quality assessment of randomized clinical trials for conducting systematic reviews developed by Delphi consensus. *Journal of Clinical Epidemiology*, 51, 1235–1241. http://doi.dx.org/10.1016/S0895-4356(98)00131-0