Critical Review

The Effects of Mindfulness Meditation on Stress and Burnout in Nurses

Alyssa A. Green, BSN, RN
Elizabeth V. Kinchen, PhD, RN, AHN-BC
University of Central Florida College of Nursing

Journal of Holistic Nursing
American Holistic Nurses Association
Volume XX Number X
XXXX 202X 1–13

10.1177/08980101211015818
journals.sagepub.com/home/jhn
SAGE

Background: Occupational burnout related to stress in the workplace is experienced by nurses who are regularly confronted with trauma, suffering, and high workloads. Burnout can negatively impact patient care and have detrimental effects on nurses' physical and mental health. Mindfulness-based stress reduction programs have been researched as a potential holistic intervention for reducing stress and burnout in nurses through cultivating present awareness, emotional regulation, and positive thinking. **Purpose:** This critical review of the literature explores current knowledge on the effectiveness of mindfulness meditation on stress and burnout in nurses, examines gaps in the current literature, and provides recommendations for future research on this topic. **Methods:** Search terms included mindfulness, meditation, mindfulness-based stress reduction , occupational stress, stress, burnout, and nurs*. Peer-reviewed research directly related to the impact of mindfulness-based stress reduction on nurses experiencing stress and/or burnout was reviewed. **Findings:** Findings reveal evidence that mindfulness meditation is effective in decreasing stress and burnout in nurses. Mindfulness-based interventions have been shown to significantly decrease stress, improve all aspects of burnout, and increase self-compassion and compassion satisfaction in practicing nurses. **Conclusions:** Mindfulness meditation has the potential to decrease stress and burnout in nurses by decreasing self-judgment and overidentification with experience, and by increasing resiliency, compassion, and emotional regulation.

Keywords: *mindfulness meditation; MBSR; nursing; stress; burnout; occupational stress; stress management; alternative/complementary therapies; health and wellness coaching; stress and coping*

Chronic exposure to psychological stress resulting from an imbalance between occupational demand and an individual's ability to cope is known as "burnout" (Saeidi et al., 2020). A growing number of health care professionals are finding themselves unable to cope with high levels of stress, with studies reporting that up to 70% of intensive care unit (ICU) nurses and over 40% of hospital nurses experience work-related burnout (Vahey et al., 2004; van Mol et al., 2015).

Burnout is characterized by emotional exhaustion, depersonalization, and decreased personal accomplishment, and is often a gradual process wherein the individual's physical and emotional capabilities are diminished after prolonged exposure to stress in the workplace (Maslach & Jackson, 1981). The high demands of the health care system are often out of an individual nurse's control, and heavy workloads, lack of support, constrained resources, the emotional nature of the job, and inadequate staffing are major contributing factors (Flynn & Ironside, 2017; Spence Laschinger & Leiter, 2006).

Nurses suffering from burnout are at risk for experiencing physical and psychological symptoms, such as fatigue, anxiety, depression, and overall job

Authors' Note: Please address correspondence to Alyssa A. Green, BSN, RN, University of Central Florida College of Nursing, Orlando, FL 32826, USA; e-mail: areenaa2018@knights.ucf.edu

dissatisfaction (Flynn & Ironside, 2017), and are more likely to abuse substances including caffeine, alcohol, and illicit drugs (Jarrad et al., 2018). Burnout has also been shown to negatively impact an individual's personal relationships and home life, and is associated with higher rates of physical illnesses such as hypertension, heart disease, and sleep disorders (Ferguson et al., 2020).

Research has shown that dissatisfaction, disinterest, and overwork among nurses can also have negative impacts on job satisfaction and patient outcomes, as a result of decreased quality of care. (Flynn & Ironside, 2017; Vahey et al., 2004). Inadequate staffing (a contributing factor) has been linked to inpatient mortality and adverse events for patients, including falls and medication errors. (Spence Laschinger & Leiter, 2006). Understaffing also contributes to "time–pressure", or stress that occurs when one has less time than needed to perform tasks, and time–pressure has been found to reduce the tendency of nurses to provide appropriate interventions. A high level of "burnout" is also an indicator of a reduction in perceived patient safety among critical care nurses (Al Ma'mari et al., 2020; Thompson et al., 2008).

Burnout among nurses can also have long-term negative effects on the facilities that employ them. Research has shown that higher levels of burnout potentiate rates of sick leave and absenteeism (Parker & Kulik, 1995), as well as tardiness and turnover (Vahey et al., 2004). These factors can contribute to the overworking of staff members, further increasing the likelihood of nurses experiencing burnout. High levels of turnover and absenteeism can be costly for health care organizations that find themselves hiring and training new employees, in addition to paying overtime to existing employees when understaffing is an issue. Burnout has also been noted as one of the main contributing factors to attrition and a gradual decrease in effectiveness among health care professionals (Flynn & Ironside, 2017).

Prevention of burnout in nurses is aimed at promoting personal well-being and development of coping mechanisms for occupational stress (Kravitz et al., 2010), and holistic therapies such as mindfulness meditation may be particularly effective.

Mindfulness Meditation

Meditation is defined as an engagement in contemplation or reflection and is traditionally known as an integral part of Buddhism, which aims to seek wisdom from expanding awareness and developing compassion. There are many subcategories of meditation, each with distinct traditions, guidance, and methods of practice. The practice of *Vipassanā*, the Pali word for "special seeing" or "insight," began in Burma in the 1950s. Meditation is strongly associated with the concept of mindfulness, which involves active participation in the present moment and examination of the nature of reality. Because of this association, it is often referred to as "mindfulness meditation."

Mindfulness has been described as a shift in perspective and a detachment to sensations and thought, allowing one to accept rather than avoid unpleasant sensations and cravings. Aversions and cravings promote stress and unhappiness by taking one out of the present moment and judging the current experience as "good" or "bad" (Szekeres & Wertheim, 2014). Similarly, postulating about the future and ruminating about the past may promote stress and contribute to unhealthy coping mechanisms (Baer, 2003). The practice of mindfulness is aimed at maintaining a nonjudgmental view of experience, whether it be internal thought and emotion, or external stimuli such as sights and sounds (Baer et al., 2006). Through repeated acceptance of unpleasant sensation, and nonjudgmental observation of the present, the individual may be better equipped to find a balance between environmental demands and the ability to cope with stress.

Theoretical Support for the Use of Mindfulness Meditation

Reed's theory of self-transcendence may be used to support the practice of mindfulness meditation in treating stress and burnout in nurses, as it provides a framework for the "promotion of well-being in the midst of difficult life situations" (Reed, 2018, p. 119). Self-transcendence, a form of self-awareness, is an integral component of holistic caring, as the ability to accept an adverse situation that cannot be changed contributes to inner growth, an overall sense of health, and well-being (Rew, 2009, p. 198). Reed's theory has three main concepts: *self-transcendence*, *well-being*, and *vulnerability*. Self-transcendence, as a characteristic of developmental maturity, is the capacity to expand personal boundaries, to enhance awareness of the environment, and to broaden the life perspective. It is the ability to

transcend or rise above life-altering experiences, such as the debilitating clinical environments that contribute to burnout in nurses. Well-being, for Reed, is a "sense of feeling whole and healthy," and indicators of well-being include life satisfaction, positive self-concept, hopefulness, self-care, and a sense of meaning in life, all goals of interventions addressing stress and burnout in nurses. Vulnerability is an "awareness of personal mortality or risk to one's well-being" (Reed, 2018, pp. 121-123). Reed posits that life events that heighten one's sense of inadequacy or vulnerability can motivate a person to seek a renewed sense of self-awareness and identity, and Reed's theory has been used to study meditative practices as a way to increase the nurses' self-awareness and "make sense" of difficult work situations (Hunnibell et al., 2008; Palmer et al., 2010; Reed, 2018, p. 123).

Mindfulness-based Stress Reduction

The mindfulness-based stress reduction (MBSR) program, developed by Kabat-Zinn in the 1970s, is the most widely used mindfulness meditation modality, and serves as the blueprint for many modern mindfulness programs. MBSR consists of engaging in guided meditations focused on cultivating non-judgmental awareness. The "traditional" program requires a lengthy time commitment, as it comprises 2.5-h weekly group sessions and 45-min daily meditations over 8 weeks, in addition to one full-day retreat lasting 6 h. The program focuses on increasing mindfulness and attention through various techniques, including formal sitting practice and mindful movement (Kabat-Zinn, 1990).

Studies aimed at determining the effectiveness of mindfulness meditation have found that MBSR programs significantly reduce psychological distress in a variety of populations, including patients with breast cancer and vascular disease, veterans, and university students (Aikens et al., 2014; Benzo et al., 2018; Ghawadra et al., 2020; van der Riet et al., 2018). Imaging studies have also shown that mindfulness meditation calms a part of the brain that triggers fear and anger, and increases brain activity associated with positive emotions (Bartol & Courts, 2009, p. 602).

Nurses experience occupational stress and burnout at alarmingly high rates. Nurses suffering from burnout are at a higher risk for depression and anxiety, in addition to physical illnesses such as hypertension. This can negatively impact the quality of patient care and put additional strain on the workplace. Mindfulness meditation can improve self-awareness and well-being and may offer nurses the ability to achieve self-transcendence, an integral component of holistic caring, so MBSR is a promising holistic intervention for the prevention and treatment of stress and burnout in nurses.

Purpose

The purpose of this critical review of literature is to explore current knowledge on the effectiveness of mindfulness meditation (MBSR) for stress and burnout in nurses, to identify gaps in the literature, and to provide recommendations for future research on the topic.

Methods

Critical Review Framework

Carnwell and Daly's (2001) critical review framework was used to guide the review of studies. Carnwell and Daly (2001, p. 62) suggest that providing a clear structure to a scholarly review will facilitate a critical appraisal of the literature and provide insight, thereby avoiding the charge of "being merely descriptive". In the framework, they advocate clearly defining the scope of the review, identifying relevant sources of information, describing inclusion and exclusion criteria, and using a structured format for the review of literature. Four suggested methods for structuring the critical review are: examining the theoretical and methodological literature, examining the theoretical and empirical literature, dividing the literature into content themes, and examining the literature chronologically (Carnwell & Daly, 2001, pp. 60-62). This critical review of literature for mindfulness meditation on stress and burnout in nurses follows the "content theme" structure. This method allowed the authors to synthesize the literature by intervention effectiveness, impact on outcomes, and implications for nursing practice.

Literature Search

This critical review of literature utilized CINAHL, APA PsycInfo, MEDLINE, and Web of Science databases to identify peer-reviewed research published in academic journals. Search terms included mindfulness, meditation, mindfulness-

Table 1. Inclusion and Exclusion Criteria.

	Inclusion criteria	Exclusion criteria
Design	Peer-reviewed, quantitative research published in academic journals	Qualitative research, or studies not published in academic journals
Population	Registered nurses	Physicians or other health care professionals
Intervention	MBSR and adaptations of it	Interventions not based on Kabat-Zinn's MBSR
Outcomes	Stress and burnout	Studies that did not examine the effect on stress and/or burnout

based stress reduction or MBSR, burnout, stress, occupational stress, and nurs*. Inclusion criteria consisted of peer-reviewed articles in the English language published between 2000 and 2020, quantitative research using Kabat-Zinn's traditional MBSR intervention or adaptations of it, and studies directly related to the impact of mindfulness on nurses who are experiencing stress and/or burnout. Excluded were studies exploring the impact of mindfulness on health care professionals other than nurses, qualitative and mixed methods research, and mindfulness meditation interventions other than MBSR. Inclusion and exclusion criteria are described in Table 1. The sample ($n = 8$) was obtained after careful review of potentially relevant material and references, discarding literature that was inaccessible, redundant, or did not fit the inclusion criteria. The selection process is described in more detail in Figure 1.

Results

Sample Characteristics

This critical review of literature examined eight studies involving mindfulness meditation interventions in nurses across various disciplines, including oncology, pediatrics, intensive care and other acute care settings, and represents 290 nurses across the globe. Studies were performed in varying countries and cultures, and one study took place in both Israel and the United States. Most studies ($n = 5$) had a sample size between 10 and 40 nurses, and the largest sample size was 65. Although participating nurses in all studies were predominantly female, five studies included at least one male in their sample. One study did not specify gender. Six studies reported varying marital status and number of offspring. Three studies indicated that participants ranged from the ages of 20 to over 60 years, with one study examining nurses between the ages of 20 and 24 years. Five studies reported that nursing experience across the sample ranged from less than 1 year to over 30 years. Four studies indicated that their sample was primarily full-time employees, and one study differentiated between day shift and night shift nurses.

One study reported that 81% of their sample had not heard of mindfulness prior to the study, and that none of the participants had practiced mindfulness before. Two studies indicated that most nurse participants had earned a bachelor's degree, in addition to one with a master's degree and 15 with associate's degrees. One study reported that over half of the sample considered themselves to be religious. All studies found that sociodemographic data did not have a significant impact on results. Characteristics of research studies included in the review are presented in Table 2.

Interventions

Four of the eight studies reviewed used the traditional MBSR approach, while the remaining four used a modified MBSR program. The majority of interventions ($n = 6$) took place over 8 weeks, whereas the two shortest were delivered over a 4-week period. Most of the interventions ($n = 6$) were group-based, meaning participants met weekly to practice together, with the guidance of a trained instructor. In addition, some group-based intervention participants were given prerecorded meditations ranging from 10 to 45 min and were encouraged to practice at home. In the remaining studies ($n = 2$), participants individually completed prerecorded meditations 5-7 days a week. Four studies included either a full-day retreat, a half-day retreat, or an extended final group session. All studies examined the effects of mindfulness meditation on stress, burnout, or both. A summary of these primary outcomes is presented in Table 3.

Measurement

Most of the studies reviewed ($n = 7$) used well-established instruments, including the Maslach Burnout Inventory (Maslach & Jackson, 1981), the Self-Compassion Scale (SCS) (Neff, 2003), the

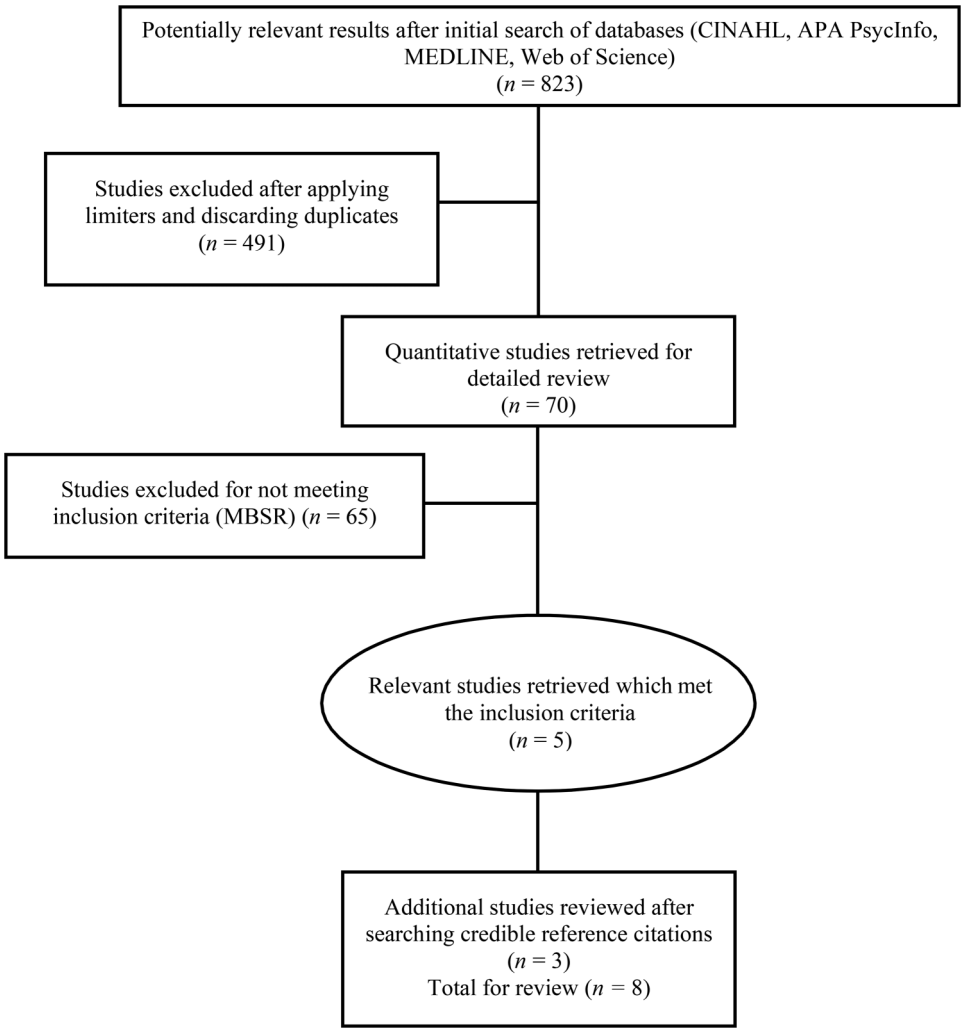

Figure 1. Study selection process.

Perceived Stress Scale (PSS) (Cohen et al., 1983), and the Professional Quality of Life Scale (Stamm, 2012). All measures were evaluated for validity, reliability, and international use. Together, these measures provided quantitative data on participants' levels of burnout, stress, compassion satisfaction, and secondary traumatic stress.

The Maslach Burnout Inventory (Maslach & Jackson, 1981) is a well-established instrument designed for professionals who regularly work closely with the public, such as nurses, police, or educators. The subscales measure emotional exhaustion, depersonalization, and decreased personal accomplishment. "Burnout" is characterized by high emotional exhaustion, depersonalization, and low personal accomplishment.

The SCS comprises six subscales: self-kindness, self-judgment, common humanity, isolation, mindfulness, and overidentification (Neff, 2003). Respondents are asked to rate how often they react in a particular way in difficult situations, on a scale of 1 (almost never) to 5 (almost always). The PSS (Cohen et al., 1983) is one of the most widely used instruments for measuring stress. The 10- or 14-item PSS is designed to account for the inner experience in response to stress, and how well an individual tends to cope. The Professional Quality of Life Scale (Stamm, 2012) assesses compassion satisfaction and compassion fatigue, as well as burnout and secondary traumatic stress. It is designed for professionals in caretaker roles.

Primary Outcomes

Stress. Daigle et al. (2018) found that nurses participating in a modified MBSR program had a significant decrease in work-related stress after 2.5-h sessions

Table 2. Study Summary.

Author(s) (year)	Duration and frequency	Sample size	Primary outcomes	Secondary outcomes	Setting
Daigle et al. (2018)	2.5-h sessions over 8 weeks	$n = 37$	Stress and well-being	Nursing errors	General hospital setting Canada
Gracia-Gozalo et al. (2017)	5-8 min daily over 8 weeks	$n = 13$	Burnout, mindfulness, empathy, and self-compassion		ICU Spain
Hevezi (2016)	5 days/week over 4 weeks	$n = 17$	Compassion fatigue and compassion satisfaction	Burnout, stress	Oncology the United States
Lin et al. (2018)	2-h sessions over 8 weeks	$n = 55$	Stress, affect, and resilience	Job satisfaction	General hospital setting China
Moody et al. (2013)	6-h introduction, 6 weekly 1-h sessions, and 1.3-h final session	$n = 24$	Burnout	Depression and stress	Pediatric oncology Israel and the United States
Slatyer et al. (2018)	6-h introduction followed by 1.75-h sessions over 3 weeks	$n = 65$	Burnout and stress		General hospital setting Australia
Wang et al. (2016)	3-h sessions over 8 weeks	$n = 31$	Stress and mindfulness		Newly graduated/newly employed Taiwan
Yang et al. (2018)	Once a week for 8 weeks	$n = 48$	Stress and well-being	Anxiety and depression	Psychiatric nurses China

Table 3. Primary Outcomes.

Author(s) (year)	No. of weeks	No. of sessions per week (session length in minutes)	At-home practice requirements	Measurement scales	Stress	Burnout
Daigle et al. (2018)	8	1 (150); full-day retreat (360)	45 min/day	POMS-TA	Significant decrease when compared to control group ($p \leq .05$)	—
Gracia-Gozalo et al. (2017)	8	7 (5-8)	—	MBI	—	Significant decrease in EE and increase in PA ($p \leq .005$)
Hevezi (2016)	4	5 (<10)	—	ProQOL	—	Significant decrease postintervention ($p \leq .005$)
Lin et al. (2018)	8	1 (120)	20 min/day, 6 days a week	PSS	Significant decrease ($p \leq .01$)	—
Moody et al. (2013)	8	1 (60) with 1 introduction session (360) and 1 final session (180)	10-20 min daily	MBI, PSS	Nonsignificant when compared to control group	Nonsignificant when compared to control group
Slatyer et al. (2018)	4	1 (105) with 1 introduction session (360)	10-25 min	ProQOL, DAS	Nonsignificant	Significant decrease ($p \leq .005$)
Wang et al. (2016)	8	1 (180); full-day retreat (360)	45 min daily	NSC	Nonsignificant when compared with control group	—
Yang et al. (2018)	8	1	Not specified	NSS	Significant decrease postintervention when compared with control ($p \leq .001$)	—

Note. MBI = Maslach Burnout Inventory; PSS = Perceived Stress Scale; ProQOL = Professional Quality of Life Scale; DAS = Depression, Anxiety, and Stress Scale; POMS-TA = Tension-Anxiety subscale of Profile of Mood States; NSC = Nurse Stress Checklist, NSS = Nursing Stress Scale; EE = emotional exhaustion; D = depersonalization; PA = decreased personal accomplishment.

over 8 weeks, along with a retreat. The sessions were focused on increasing attention and mindfulness through formal sitting practice as well as body scans, yoga, and mindful walking. Most of the nurses who received the intervention experienced at least a 50% reduction in stress when compared to nurses in the control group (receiving no intervention). Almost all participants (96.4%) reported feeling that it was worthwhile to continue the practice after the program's conclusion, and 75% of participants rated the perceived benefit on their work performance as at least an 8 out of 10. Furthermore, three of the eight participants who admitted to making errors at work before the intervention reported a decreased frequency of errors over 3 months postintervention.

Newly graduated or newly employed nurses participating in a traditional MBSR program also experienced decreased levels of stress and increased levels of mindfulness, which were sustained for 6 months following the intervention. Interestingly, levels of stress increased after 4 weeks, but decreased to a new low by the end of the intervention. However, as Wang et al. (2016) point out, new nurses participating in stress reduction programs may initially experience increased levels of stress related to the additional time commitment to the program. In 2018, psychiatric nurses participated in a randomized controlled trial conducted to examine the effects of mindfulness on stress. After 8 weeks of MBSR training, nurses in the intervention group had significantly lower levels of stress, depression, and anxiety. Nurses in the control group had no significant changes after 8 weeks of routine psychological support and activities (Yang et al., 2018).

Researchers in China developed a modified 8-week MBSR program consisting of 2-h weekly group sessions and 20-min independent meditations for at least 6 days a week (Lin et al., 2018). Nurses participating in this study experienced statistically significant improvements in stress at the end of the 8-week program, which were sustained at follow-up, 3 months postintervention. Participants in this study saw no improvements in resilience at the conclusion of the program; however, significant improvements in resilience were seen at the 3-month follow-up. This delayed improvement may suggest that mindfulness practice can gradually affect other coping skills through increased emotional regulation and decreased overidentification during stressful events.

Burnout. Preintervention burnout scores indicated that all participants in a study of pediatric oncology nurses had high degrees of depersonalization and diminished personal accomplishment, in addition to significantly higher levels of perceived stress than the U.S. national average (Moody et al., 2013). The study intervention included an introduction session, six weekly sessions, and a final group session, for a total of 15 h of formal group practice over 8 weeks. Sessions focused on awareness of body, thought, and emotions, identifying personal biases, developing listening and communication, exploring self-care, and noticing reactions to stress. Postintervention, there were almost no changes in burnout or stress. However, all of the participants described experiencing a perceived benefit from the program, including increased inner peace, decreased stress and anxiety, increased self-awareness, anger management, improved relationships, and improved focus. Nurses from this group reported using mindfulness techniques that were taught in the intervention such as "STOP" (Stop, Take a breath, Observe, and Proceed) at work when preparing for stressful situations.

Slatyer et al. (2018) developed the Mindful Self-Care and Resiliency (MSCR) intervention from Kabat-Zinn's MBSR to reduce burnout and increase compassion satisfaction, self-compassion, and resiliency in nurses. The program featured educational workshops on compassion fatigue resiliency and mindfulness over 4 weeks, in addition to required practice at home. Results included significant improvements in compassion satisfaction, depressed mood, self-compassion, subjective quality of life, and burnout. Reduced levels of burnout remained unchanged by the 6-month follow-up.

Secondary Outcomes

The studies in this literature review that examined mindfulness meditation's effect on stress and burnout also included outcome variables resulting from chronic workplace stress that may be synonymous or closely related to burnout. Several studies examined general health and well-being, anxiety, depression, and job satisfaction, which are often affected by burnout. Secondary outcomes were measured using scales for depression, anxiety, empathy, mindfulness, resilience, job satisfaction, affect, and self-efficacy.

Compassion fatigue and secondary traumatic stress may result from acute or chronic exposure to

the suffering of others and are often comorbidities of nurses who are experiencing burnout (Slatyer et al., 2018). Notably, one study examined the effect of mindfulness on nursing errors. A summary of secondary outcomes is presented in Table 4.

Some studies also looked at mindfulness meditation's effect on factors that may be protective against burnout, including self-compassion, resilience, and compassion satisfaction, which is the positive feeling of providing competent and compassionate care (Hevezi, 2016). During the postintervention phase, some researchers asked participants to identify the perceived benefit of the program on their personal life, well-being, and job satisfaction. Of the participants, 100% said they were either "pretty likely" or "definitely likely" to continue mindfulness meditation.

Despite finding that high levels of burnout and stress remained unchanged after intervention in a study of pediatric oncology nurses, participants still reported a significant perceived benefit from the program and the practice of mindfulness (Moody et al., 2013). Prior to the intervention, these nurses described their experience with burnout as feeling overwhelmed with high workloads, being ineffective in influencing patient outcomes, and as experiencing physical discomfort. They also felt that workplace stress affected their home life, caused rumination on negative thoughts, and difficulty sleeping. After the program, nurses were able to use the techniques they learned to feel calm and relaxed, detach themselves from angry patients to resolve problems, and provide relief from physical pain. Some of the participants viewed the meditation class as an additional task to add to their already busy day, and felt the program increased their stress. However, journal entries revealed that this additional stress decreased as the program progressed.

Discussion

Stress and burnout in clinical nursing environments put nurses at risk for physical and psychological conditions such as fatigue, anxiety, depression, substance use, overall job dissatisfaction, attrition, and decreased quality of care. Mindfulness meditation has been shown to have positive effects on nurse stress and burnout, providing an evidence-based way for nurses to cope with stressful practice environments, as well as with other difficult life situations. Using Carnwell and Daly's (2001) Critical Review Framework, this review of the literature included studies using MBSR-based meditation interventions on stress and burnout in nurses. Themes identified in the literature included type and effectiveness of mindfulness meditation interventions, instruments used, and primary and secondary outcomes.

This critical review provides evidence that the holistic practice of mindfulness meditation is effective in decreasing stress and burnout in nurses. Mindfulness-based interventions have been shown to significantly decrease stress, improve all aspects of burnout, and increase self-compassion and compassion satisfaction (Gracia Gozalo et al., 2017; Hevezi, 2016; Slatyer et al., 2018). Some nurses reported a decreased frequency of self-reported medication errors (Daigle et al., 2018).

Although some studies found that mindfulness produced nonsignificant results or had no effect on certain variables, other studies found significant or positive results in the same variables. This may reflect the multifaceted nature of workplace stressors between units, and the varying degree of nurses' experiences, and suggests that mindfulness interventions should be implemented with the demographics and specific needs of the population in mind. This may be accomplished by administering surveys, such as the Maslach Burnout Inventory or SCS, to establish baseline characteristics, existing protective factors, and potential areas of improvement.

Mindfulness-based holistic interventions are typically well received and have demonstrated strong sustainability (Gracia Gozalo et al., 2017). Studies with postintervention surveys indicated that participants were interested in continuing to practice mindfulness after the program and found the skills they gained had a positive impact on their work and personal lives (Daigle et al., 2018; Gracia Gozalo et al., 2017; Hevezi, 2016; Moody et al., 2013).

Some researchers believe the extended time commitment of traditional MBSR could be a deterrent for health care professionals (Lin et al., 2018). Nurses often work 12-h shifts and may find it difficult to commit to the practice of mindfulness meditation long-term, especially if they are already experiencing stress and burnout. Preliminary inquiry in progressive care unit nurses' interest in mindfulness revealed preconceived beliefs that meditation is time consuming and difficult (Hevezi, 2016). However, research has shown that as little as 5-10 min of meditation a day over 4-8 weeks can decrease compassion fatigue

Table 4. Secondary Outcomes.

Author(s) (year)	Week s	Measurement scales	Affect	Anxiety/ depression/ tension	Empathy/ compassion	Errors	General health/ wellbeing	Mindfulness	Resilience	Satisfaction (job, compassion)	Self-efficacy/ productivity
Daigle et al. (2018)	8	POMS-TA, NERS		S*		Decrease					
Gracia-Gozalo et al. (2017)	8	FFMQ, SCS, JES			NS			NS			
Hevezi (2016)	4	ProQOL								S*	
Lin et al. (2018)	8	PANAS, CDRS, SS	S*						NS	NS	
Moody et al. (2013)	8										
Slatyer et al. (2018)	4	ProQOL, DAS, CDRS, GSES, SCS, WHO-5		S*			S****		NS	S*	NS
Wang et al. (2016)	8	FFMQ						S*			
Yang et al. (2018)	8	SAS, SDS, SCL-90		S****			S****				

Note. S = significant; NS = nonsignificant; PANAS = Positive and Negative Affect Schedule; POMS-TA = Tension-Anxiety subscale of Profile of Mood States; DAS = Depression, Anxiety, and Stress Scale; NERS = Nursing Errors Ratings Scale; WHO5 = WHO-5 Well-being Index; VAS = Visual Analogue Scale; FFMQ = Five Facet Mindfulness Questionnaire; CDRS = Conor-Davidson Resilience Scale; SS = McCloskey/Mueller Satisfaction Scale; ProQOL = Professional Quality of Life Scale; SCS = Neff 26-item Self-compassion scale; GSES = General Self-Efficacy Scale; JES = Jefferson Empathy Scale.
* = $p \leq .05$; ** = $p \leq .01$; *** = $p \leq .005$; **** = $p \leq .001$

and emotional exhaustion, and improve self-esteem, self-compassion, and compassion satisfaction (Gracia Gozalo et al., 2017; Hevezi, 2016; Yang et al., 2018).

Mindfulness requires careful attention to the present moment, thereby decreasing ruminative thoughts and anxiety. Careful attention to the present moment can also promote a safer work environment and improve patient care by reducing distraction-induced mistakes. Mindfulness can also promote emotional flexibility, allowing nurses to gain more control over how they respond to negative emotions or challenging situations. Mindfulness can increase the individual's ability to examine their experience without judgment or attachment. This nonjudgmental perspective promotes a positive, compassionate relationship with the self, which can extend to others and improve relationships with loved ones, patients, and coworkers.

Mindfulness practice is not limited to formal sitting meditation. Programs typically encourage participants to be mindful while performing everyday activities, such as eating, walking, or while at work, further increasing the potential flexibility of their self-care routines, and mindfulness can be learned and practiced without the purchase of additional materials.

Furthermore, many study participants had an overall positive response to the programs and maintained high attendance rates, suggesting that nurses who begin practicing mindfulness find it enjoyable, relevant, and beneficial. These benefits, along with the lack of negative side effects of mindfulness meditation, suggest that mindfulness meditation should be encouraged to prevent stress and burnout in nursing environments.

Implications for Nursing Practice

Once one has practiced mindfulness meditation and learned how to be mindful, it can be used anywhere, at any time. Nurses working in a pediatric ICU described feeling more confident, focused, self-aware, and able to handle difficult situations at work and at home (Moody et al., 2013). These nurses attributed these changes to the practice of techniques learned in the intervention program such as self-reflection, self-awareness, body scans, and breathing exercises. The "STOP" method taught in this program requires one to pause for a moment, take a breath, and become aware of the current mind and body experience before proceeding. This method can easily be used before entering a patient's room and may allow nurses to be more focused and aware of situations. Throughout their shift, nurses can practice breathing exercises, active listening, and mindful walking to increase their awareness of the present moment.

Working on the "frontlines" of health care puts nurses at risk for frequent exposure to the suffering, stress, and negative emotions of others, especially in the case of a pervasive public health crisis such as COVID-19. Nurses may find that mindfulness allows them to disengage from stress by decreasing the sense of overidentification with experience. By reducing reactivity to stressful or difficult situations, mindful nurses may find themselves feeling more relaxed and less susceptible to negative emotions (Yang et al., 2018).

Meditation can be beneficial when practiced in group settings or individually, giving nurses the freedom to decide which setting they find most effective, and allowing them to be flexible with their self-care routine. Independent practice has been shown to significantly increase self-compassion and have a positive effect on emotional exhaustion, personal achievement, and reactions to stress (Gracia Gozalo et al., 2017; Hevezi, 2016). Therefore, clinical units may benefit from offering introductory information sessions, to provide nurses with a foundation for individual practice. However, formal group programs may have the added benefit of producing the positive emotions associated with social support, which could strengthen relationships and improve teamwork among nurses on a unit. Some nurses felt that group discussions were beneficial and made them feel validated, and they enjoyed being able to use the techniques with colleagues participating in the same program (Moody et al., 2013).

When deciding on a mindfulness program, it is important to assess the population's strengths, weaknesses, and risk factors to determine the efficacy and primary focus of the intervention. A unit with a large number of nurses who score low in self-compassion may be at risk for widespread burnout and should consider implementing a formal group program, whereas a unit scoring high in self-compassion and mindfulness might consider investing in an independent option for individuals to enroll in during particularly stressful times.

Limitations

Several limitations can be noted within the review sample. Despite significant findings, all of the studies had small sample sizes, with most of the studies having a sample between 10 and 40 nurses. This makes the results difficult to generalize. The reviewed studies also lacked consistency in their interventions. While each intervention was based on the established principles of Kabat-Zinn's MBSR, each intervention had varying methods in regard to the length of meditations, required amount of practice each week, and program length. It is yet to be determined which intervention method is most effective across nursing populations.

Finally, the self-regulated nature of the interventions and the voluntary recruitment of participants allows for the possibility of "healthy user bias" and "healthy adherence effect," which is the increased likelihood of practicing other healthy behaviors outside of the study (Shrank et al., 2011). This could suggest that those who choose to actively participate in MBSR programs are also more likely to practice healthy self-care routines. It is possible that the nurses who took part in these studies were predisposed to self-reflection and self-compassion, and thus had a greater ability to avoid burnout.

Recommendations for Future Research

Further research on the effects of mindfulness meditation on stress and burnout in nurses is warranted, using larger and more diverse samples to enhance the degree to which findings can be generalized. Future longitudinal studies should be conducted to determine the long-term efficacy of MBSR-based meditation on nurses. Finally, research should be conducted on the feasibility of implementing mindfulness programs into the workplace as a self-care intervention for nurses.

Conclusions

This study used Carnwell and Daly's (2001) Critical Review Framework to guide a critical review of literature on mindfulness meditation as holistic therapy for stress and burnout in practicing nurses. Nurses experiencing burnout can have a negative impact on patient care through emotional exhaustion and depersonalization, diminishing their ability to connect with patients and deliver high-quality care. Similarly, nurses suffering from burnout can affect other members of their team through absenteeism, which increases the workload and stress of the unit. Improvements in levels of stress may have a profound impact on reducing burnout in nurses, and holistic modalities such as mindfulness meditation should be further explored as a potential intervention for improving satisfaction, personal achievement, depersonalization, emotional exhaustion, and other negative consequences of occupational burnout. Mindfulness meditation has the potential to prevent stress and burnout in nurses by decreasing self-judgment and overidentification with experience and can increase resiliency, compassion, and emotional regulation. Perhaps most importantly, mindfulness meditation is available to anyone at any time or place, making it a cost-effective, flexible, and psychologically beneficial holistic practice for nurses suffering from occupational stress and burnout.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

ORCID iD

Alyssa A. Green https://orcid.org/0000-0001-8535-8893

References

Aikens, K. A., Astin, J., Pelletier, K. R., Levanovich, K., Baase, C. M., Yeo Yung, P., & Bodner, C. M. (2014). Mindfulness goes to work. *Journal of Occupational and Environmental Medicine*, 56(7), 721-731. https://doi.org/10.1097/JOM.0000000000000209

Al Ma'mari, Q., Sharour, L. A., & Al Omari, O. (2020). Fatigue, burnout, work environment, workload and perceived patient safety culture among critical care nurses. *British Journal of Nursing*, 29(1), 28-34. https://doi.org/10.12968/bjon.2020.29.1.28

Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice*, *10*(2), 125-143. https://doi.org/10.1093/clipsy.bpg015

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, *13*(1), 27-45. https://doi.org/10.1177/1073191105283504

Bartol, G. M., & Courts, N. F. (2009). The psychophysiology of body-mind healing. In B. M. Dossey, & L. Keegan (Eds.), *Holistic nursing: A handbook for practice* (5th ed., pp. 601-615). Jones and Bartlett.

Benzo, R. P., Anderson, P. M., Bronars, C., & Clark, M. (2018). Mindfulness for healthcare providers: The role of non-reactivity in reducing stress. *Explore (NY)*, *14*(6), 453-456. https://doi.org/10.1016/j.explore.2018.03.008

Carnwell, R., & Daly, W. (2001). Strategies for the construction of a critical review of the literature. *Nurse Education in Practice*, *1*(2), 57-63. https://doi.org/10.1054/nepr.2001.0008

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*, 385-396. https://doi.org/10.2307/2136404

Daigle, S., Talbot, F., & French, D. J. (2018) Mindfulness-based stress reduction training yields improvements in well-being and rates of perceived nursing errors among hospital nurses. *Journal of Advanced Nursing*, *74*, 2427-2430. https://doi.org/10.1111/jan.13729

Ferguson, C., Low, G., & Shiau, G. (2020). Burnout in Canadian radiology residency: A national assessment of prevalence and underlying contributory factors. *Canadian Associations of Radiologies Journal*, *71*(1): 40-47. https://doi.org/10.1177/0846537119885672

Flynn, L., & Ironside, P. M. (2017). Burnout and its contributing factors among midlevel academic nurse leaders. *The Journal of Nursing Education*, 57(1), 28-34. https://doi.org/10.3928/01484834-20180102-06

Ghawadra, S. F., Abdullah, K. L., Choo, W. Y., Danaee, M., & Phang, C. K. (2020). The effect of mindfulness-based training on stress, anxiety, depression and job satisfaction among ward nurses: A randomized control trial. *Journal of Nursing Management*, *28*, 1088-1097. https://doi.org/10.1111/jonm.13049

Gracia-Gozalo, R. M., Ferrer Tarrés, J. M., Ayora Ayora, A., Alonso Herrero, M., Amutio Kareaga, A., & Ferrer Roca, R. (2017). Application of a mindfulness program among healthcare professionals in an intensive care unit: Effect on burnout, empathy, and self-compassion. *Medicina Intensiva*, *43*(4), 207-216. https://doi.org/10.1016/j.medin.2018.02.005

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*(4), 343-350. https://doi.org/10.1177/0898010115615981

Hunnibell, L. S., Reed, P. G., Quinn-Griffin, M., & Fitzpatrick, J. J. (2008). Self-transcendence and burnout in hospice and oncology nurses. *Journal of Hospice and Palliative Nursing*, *10*(3), 172-179. https://doi.org/10.1097/01.NJH.0000306742.95388.80

Jarrad, R., Hammad, S., Shawashi, T., & Mahmoud, N. (2018). Compassion fatigue and substance use among nurses. *Annals of General Psychiatry*, *17*(1), 13. https://doi.org/10.1186/s12991-018-0183-5

Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. Dell Publishing.

Kravitz, K., McAllister-Black, R., Grant, M., & Kirk, C. (2010). Self-care strategies for nurses: A psycho-educational intervention for stress reduction and the prevention of burnout. *Applied Nursing Research*, *23*(3), 130-138. https://doi.org/10.1016/j.apnr.2008.08.002

Lin, L., He, G., Yan, J., Gu, C., & Xie, J. (2018). The effects of a modified mindfulness-based reduction program for nurses. *Workplace Health & Safety*, *67*(3), 111-122. https://doi.org/10.1177/2165079918801633

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2*(2), 99-113. https://doi.org/10.1002/job.4030020205

Moody, K., Kramer, D., Santizo, R. O., Magro, L., Wyshogrod, D., Ambrosio, J., Castillo, C., Lieberman, R., & Stein, J. (2013). Helping the helpers: Mindfulness training for burnout in pediatric oncology – A pilot program. *Journal of Pediatric Oncology Nursing*, *30*(5), 275-284. https://doi.org/10.1177/1043454213504497

Neff, K. D. (2003). Development and validation of a scale to measure self-compassion. *Self and Identity*, *2*, 223-250. https://doi.org/10.1080/15298860309032

Palmer, B., Quinn-Griffin, M. T., Reed, P., & Fitzpatrick, J. J. (2010). Self-transcendence and work engagement in acute care staff registered nurses. *Critical Care Nursing Quarterly*, *33*(2), 138-147. https://doi.org/10.1097/CNQ.0b013e3181d912d8

Parker, P. A., & Kulik, J. A. (1995). Burnout, self- and supervisor-rated job performance, and absenteeism among nurses. *Journal of Behavioral Medicine*, *18*, 581-599. https://doi.org/10.1007/BF01857897

Reed, P. G. (2018). Theory of self-transcendence. In M. J. Smith, & P. Liehr (Eds.), *Middle range theory for nursing* (4th ed., pp. 119-145). Springer Publishing Company.

Rew, L. (2009). Self-reflection. In B. M. Dossey, & L. Keegan (Eds.), *Holistic nursing: A handbook for practice* (5th ed., pp. 195-207). Jones and Bartlett Publishers.

Saeidi, R., Izanloo, A., & Izanlou, S. (2020). A study of the relationship between job satisfaction and burnout among neonatal intensive care unit staff. *Iranian Journal of Neonatology*, *11*(1), 67-70. https://doi.org/10.22038/ijn.2019.39744.1634

Shrank, W. H., Patrick, A. R., & Brookhart, M. A. (2011). Healthy user and related biases in observational studies of preventive interventions: A primer for physicians. *Journal of General Internal Medicine*, *26*(5), 546-550. https://doi.org/10.1007/s11606-010-1609-1

Slatyer, S., Craigie, M., Heritage, B., Davis, S., & Rees, C. (2018). Evaluating the effectiveness of a brief mindful self-care and resiliency (MSCR) intervention for nurses: A controlled trial. *Mindfulness*, *9*(2), 534-546. https://doi.org/10.1007/s12671-017-0795-x

Spence Laschinger, H. K., & Leiter, M. P. (2006). The impact of nursing work environments on patient safety outcomes: The mediating role of burnout engagement. *The Journal of Nursing Administration* 36(5), 259-267. https://doi.org/10.1097/00005110-200605000-00019

Stamm, B.H. (2012). Professional quality of life: Compassion satisfaction and fatigue version 5 (ProQOL). www.proqol.org

Szekeres, R. A., & Wertheim, E. H. (2014). Evaluation of vipassana meditation course effects on subjective stress, well-being, self-kindness and mindfulness in a community sample: Post-course and 6-month outcomes. *Stress and Health*, *31*(5), 373-381. https://doi.org/10.1002/smi.2562

Thompson, C., Dalgleish, L., Bucknall, T., Estabrooks, C., Hutchinson, A. M., Fraser, K., de Vos, R., Binnekade, J., Barrett, G., & Saunders, J. (2008). The effects of time pressure and experience on nurses' risk assessment decisions: A signal detection analysis. *Nursing Research*, 57(5), 302-311. https://doi.org/10.1097/01.NNR.0000313504.37970.f9

Vahey, D. C., Aiken, L. H., Sloane, D. M., Clarke, S. P., & Vargas, D. (2004). Nurse burnout and patient satisfaction. *Medical Care*, *42*(2), II57-II66. https://doi.org/10.1097/01.mlr.0000109126.50398.5a

van der Riet, P., Levett-Jones, T., & Aquino-Russell, C. (2018). The effectiveness of mindfulness meditation for nurses and nursing students: An integrated literature review. *Nurse Education Today*, 65, 201-211. https://doi.org/10.1016/j.nedt.2018.03.018

van Mol, M. M., Kompanje, E. J., Benoit, D. D., Bakker, J., & Nijkamp, M. D. (2015). The prevalence of compassion fatigue and burnout among healthcare professinoals in intensive care units: A systematic review. *PLoS ONE*, *10*(8), e0136955. https://doi.org/10.1371/journal.pone.0136955

Wang, S., Wang, L., Shih, S., Chang, S., Fan, S., & Hu, W. (2016). The effects of mindfulness-based stress reduction on hospital nursing staff. *Applied Nursing Research*, 38(2017), 124-128. https://dx.doi.org/10.1016/j.apnr.2017.09.014

Yang, J., Tang, S., & Zhou, W. (2018). Effect of mindfulness-based stress reduction therapy on work stress and mental health of psychiatric nurses. *Psychiatria Danubina*, *30*(2), 189-196. https://doi.org/10.24869/psyd.2018.189

Author Biographies

Alyssa A. Green, BSN, RN, received her Bachelor of Science in Health Sciences and Bachelor of Nursing with Honors from the University of Central Florida. She is currently working as a registered nurse in an inpatient setting. Her areas of interest include mindfulness and other holistic therapies for wellness.

Elizabeth V. Kinchen, PhD, RN, AHN-BC, is an assistant professor at the University of Central Florida and a Board-certified Advanced Holistic Nurse. Her primary research interest is Holistic nursing care and the importance of patient-centered, holistic, and comprehensive care to health outcomes. She is an author and frequent presenter of her research in advanced practice and generalist nursing care. Her holistic nursing research interests include exploration of the processes of co-created care and shared decision-making, and holistic therapies for stress relief in patients and practicing, advanced, and student nurses.