THE EFFECTIVENESS OF MINDFULNESS-BASED STRESS REDUCTION INTERVENTION ON BURNOUT IN NURSES

A Systematic Review

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Sarah Houston

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Abstract

of

THE EFFECTIVENESS OF MINDFULNESS-BASED STRESS REDUCTION INTERVENTION ON BURNOUT IN NURSES

by

Sarah Houston

Statement of Problem

Burnout in nurses can lead to work-related, physical, and emotional symptoms. Nurses are caregivers and are often placed in highly stressful situations taking care of others who may be experiencing mental, physical, and/or emotional pain. The experience of burnout can lead to diminished self-care in the process of caring for oneself and for the patient and may result in poorer outcomes. Thus, the caring-healing environment between nurse-patient could be jeopardized, which is why ongoing exploration and research is needed.

Sources of Data

CINAHL Plus with full text, PubMed Central, PsychINFO, and Google Scholar were the four databases used for the systematic review. Key search terms used were, “burnout in nurses,” “mindfulness-based stress reduction and burnout,” “mindfulness-based stress reduction and nurses,” and “mindfulness-based stress reduction and burnout and nurses.” A review of the
reference lists of pertinent articles and studies also assisted in identifying other potential resources.

**Conclusions Reached**

Five studies were retrieved demonstrating mindfulness-based stress reduction (MBSR) as an effective intervention in reducing burnout in nurses and other healthcare providers. Four out of the five studies were able to show that MBSR was a statistically significant intervention in reducing burnout in nurses by utilization of the MBI as a measuring instrument. The original MBSR program was developed by Jon Kabat-Zinn in 1979 and growing research indicates that modifications to the original program may also prove beneficial to reduce burnout in nurses. Reductions in emotional exhaustion and depersonalization, and an increase in personal accomplishment were revealed in the studies with the use of MBSR. Future research and implementation of MBSR as an intervention is considered valuable based on the positive effects found.

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Chapter 1: Introduction

The concept of burnout has been used for decades in the literature to describe the cumulative effects of a stressful work environment that gradually affect the defenses of staff members, forcing them to withdrawal psychologically (Maslach, 1982; Sahraian, Fazelzadeh, Mehdizadeh, & Toobace, 2008). In the past several decades there have been thousands of articles written and research studies conducted to better understand the phenomenon of burnout. According to Maslach & Jackson (1981), a practitioner (Freudenberger, 1974, 1975) and a researcher (Maslach, 1976), first started studying this unrecognized phenomena over 35 years ago. The initial research of burnout beginning in the mid-to-late 1970’s was exploratory in nature, relying on interviews, questionnaire surveys, and observations suggesting that burnout can lead to deterioration in the quality of care or service that is provided by the staff and appeared to be a factor in job turnover, absenteeism, and low morale (Maslach & Jackson, 1981).

Maslach & Jackson (1981) described burnout as a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do ‘people-work’ of some kind and discuss the three original key aspects of burnout as: increased feelings of emotional exhaustion, the development of negative, cynical attitudes and feelings about one’s clients, and a tendency to evaluate oneself negatively, particularly with regard to one’s work with clients. Burnout can exhibit the following symptoms: emotional exhaustion, depersonalization and a decreased perception of personal accomplishment. There has been plentiful research done on the phenomenon of burnout since its first description in the literature back in the mid-to-late 1970s.
Potter, Deshields, Divanbeigi, Berger, Cipriano, Norris, & Olsen (2010) describe burnout as a phenomenon involving a chronic psychological syndrome of perceived demands from work outweighing perceived resources in the work environment. In addition, burnout is cumulative stress overtime from the demands of daily life; a state of physical, emotional, and mental exhaustion caused by a depletion of the ability to cope with one’s environment, particularly the work environment. Davies (2008) also discusses that stress is a major component of burnout and can increase with the perceived demands and pressure in the workplace, which can lead to professional frustrations, job dissatisfactions, job insecurities, and physical exhaustion. Burnout may also lead to increased interpersonal conflicts, physical symptoms, compulsive behaviors, decreased productivity, and negative emotions (Davies, 2008).

Stewart (2014) suggests that burnout and high levels of stress in the workplace can result in increased financial costs in relation to staff sickness and turnover, as well as reduced quality of patient care. Praissman (2008) proposes that stress and burnout are common among healthcare providers as they struggle to cope with an increasingly complicated healthcare system and with sicker patients. Nurses are considered to be a particularly vulnerable population susceptible to burnout due to the high demands and stress of the working environment and their general nature of wanting to provide care to others who are suffering (Praissman, 2008). Dunn (2009) describes nurses as empathetic, caring individuals, whom may absorb the traumatic stress of being exposed to and wanting to help a traumatized patient or suffering person. Nurses are caregivers and have a duty to care for sick, wounded, and traumatized patients, which personally exposes them to patients’ pain, trauma, and suffering on a daily basis.

Coetzee & Klopper (2010) suggest that exposure to patients’ pain, trauma, and suffering on a daily basis can inadvertently affect nurses and their ability to care for and nurture their
patients. The witness of another’s suffering can impair the well-being and health of nurses. Noticing another person’s suffering, empathically feeling that person’s pain, and acting in a manner intended to ease the suffering can lead nurses to feel sadness and despair. (Lilius, Worline, Maitlis, Kanov, Dutton, & Frost, 2008; Landro, 2012).

Potter et al., (2010) acknowledge that gaining a better understanding of the extent to which nurses are affected by conditions such as burnout is critical for the prevention of the gradual wearing down over time and the development of a positive and nurturing practice environment. Being able to measure burnout in the workplace and coming up with effective interventions to combat this phenomenon is important in order to promote healing for nurses who are experiencing burnout.

The first instrument developed to measure burnout is referred to as the Maslach Burnout Inventory (MBI) and the first study using the MBI to measure burnout was published in the Journal of Organizational Behavior, in 1981 by Christina Maslach and Susan E. Jackson (Maslach, Leiter, & Jackson, 2011). The MBI focused on three subscales including: the Emotional Exhaustion subscale, the Depersonalization subscale, and the Personal Accomplishment subscale.

The Emotional Exhaustion subscale measures feelings of being emotionally overextended and exhausted by one’s work. The Depersonalization subscale measures an unfeeling and impersonal response towards recipients of one’s care or service. The Personal Accomplishment subscale measures feelings of competence and successful achievement in one’s work with people. The development of the preliminary form of the MBI with the three subscales was originally administered to a sample of 605 participants from a variety of health and service occupations. In order to obtain confirmatory data, the 25-item form was administered to a new
sample of 420 participants in the following occupations: nurses, teachers, social workers, probation officers, counselors, mental health workers, and agency administrators. The findings from the two samples found the instrument to be reliable, valid, and easy to administer (Maslach & Jackson, 1981). The instrument has since been used in many different settings and is often seen in the literature as a common tool used to measure burnout in healthcare providers, including nurses.

**Mindfulness-Based Stress Reduction**

Another important aspect in the review of literature for purposes of this systematic review is whether or not there are any effective interventions identified in research studies to help reduce burnout. An intervention of particular interest is referred to as Mindfulness-Based Stress Reduction (MBSR) and will be examined in terms of its effectiveness in reducing burnout in nurses. Praissman (2008) reports that MBSR and modifications to its original program have generated an increased interest over the past two decades and more evidence-based studies are being conducted researching its effectiveness in a variety of different populations, including healthcare providers.

Mindfulness-based stress reduction (MBSR) was originally created by Jon Kabat-Zinn at the University of Massachusetts Medical Center in 1979 in an effort to teach patients with chronic medical conditions how to lead fuller and healthier lives (Bazarko, Cate, & Kreitzer 2013; Schieszer, 2014). Jon Kabat-Zinn defined the concept of “mindfulness” as being fully present to one’s experience without judgment or resistance and the program was originally taught as an 8-week program for 2.5 hours a week including a 6-hour daylong retreat (Cohen-Katz, Wiley, Capuano, Baker, & Shapiro, 2004). Jon Kabat-Zinn described the healthcare program as combining class instruction and practice in mindfulness techniques to promote
physical and psychological well-being (Kabat-Zinn, 1990). The program was based on a patient-centered and self-directed practice for learning how to relax the body and calm the mind with a focus on teaching mindfulness meditation, breathwork, basic yoga, and other relaxation methods with the emphasis of mindfulness as being able to stay in the present moment (Bazarko, et al., 2013). Participants in the original MBSR program were asked to practice the mindfulness techniques 6 days a week as “homework” and were given audiotapes to help facilitate the learning. Group sessions were also used as part of the didactic training (Cohen-Katz et al., 2005).

Since the inception of the original MBSR program there are evidence-based studies that have demonstrated its effectiveness in reducing stress, increasing coping, and improving empathy in healthcare providers providing them with a positive impact on their health and well-being (Emanuel, Ferris, von Gunten, & Von Roenn, 2011). There is still a paucity of evidence-based studies that focus specifically on MBSR as an effective intervention on burnout in nurses, though there are studies to suggest that MBSR is an effective strategy for reducing burnout (Cohen-Katz et al., 2005).
Chapter 2: Problem

There is substantial evidence to suggest that burnout exists amongst nurses and other healthcare providers in the literature. Burnout in the healthcare field can lead to detrimental effects on a personal, interpersonal, and professional basis. Nurses are at particular risk for burnout due to the inherent roles associated with the profession and there is ample literature reviewing the two concepts of nursing and burnout. Sabo (2011) proposed that a review of the literature can be looked at as a broader problem on the health of nurses and leaves little doubt that their work may take a toll on their psychosocial, physical health, and mental well-being increasing the likelihood of developing burnout.

Sabo (2011) describes work related, physical, and emotional symptoms associated with burnout. Work related symptoms include: decreased productivity, nursing shortage, reduced ability to empathize, loss of joyfulness, and more sick days. Physical symptoms may be manifested as frequent headaches, fatigue, dyspepsia, muscle tension, and insomnia. Emotional symptoms include: mood swings, irritability, anxiety, depression, use of illicit substances, and resentment.

Lester (2010) discusses some of the effects of burnout including: exhaustion, an inability to focus and a decrease in productivity, as well as unhappiness, self-doubt, and loss of passion and enthusiasm. Some effects may occur quickly and can go undetected by those experiencing it: one moment they appear to be working hard but the next, they are unable to get out of bed in the morning (Lester, 2010). Burnout in nursing not only has detrimental effects on the healthcare providers, but it can result in poorer outcomes for the patients, which is why ongoing exploration and research is necessary.
Landro (2012) reports that burnout in nurses can lead to feelings of sadness and despair that may impair their health and well-being. Hospitals are tackling the problem amid a worsening shortage of nurses and concerns that patients may suffer. Burnout can lead to avoiding certain patients, raising the risk of substandard care. Landro (2012) suggests that there may be a linkage to more sick days, decreased productivity, and higher turnover rates, which could negatively impact patient safety and the overall mental well-being of nurses. Identifying burnout is important and building supportive work environments will likely lead to healthier outcomes for patients and nurses (Aycock & Boyle, 2009).

Theoretical Model

The theoretical model of exposure, coping, personal/environmental characteristics, and stress reactions to secondary traumatic stress developed by Dutton & Rubinstein (1995) does not focus directly on burnout, but there is a relatedness as depicted in the model (Figure 1). According to this model, burnout can be a factor resulting from nurses’ reactions to stress based on varying factors including exposure to traumatic events, nurses’ coping strategies, and personal/environmental characteristics, which can all contribute to developing secondary traumatic stress reactions (Hinderer, VonRueden, Friedmann, McQuillan, Gilmore, Kramer, & Murray, 2014). The theoretical model is important because it illustrates that burnout can be a reaction to nurses’ stress based on many different variables and there may be a lot of factors involved.
**Figure 1.** Theoretical Model of Exposure, Coping, Personal/Environmental Characteristics, and Stress Reactions to Secondary Traumatic Stress (Dutton & Rubinstein, 1995).

**Theoretical Framework**

Nursing is focused on creating caring-healing environments that assist individuals, families, and communities to attain optimal health (Peterson & Bredow, 2009). Nurses are at the forefront of helping individuals achieve this level of health. Caring is fundamental to the nursing experience and is an essential component of being a healthcare provider. It is valuable to understand the theoretical development of caring and what it can mean for healthcare providers. Kristen Swanson’s theory of caring is a middle-range theory of caring and was inspired by Jean Watson (Andershed & Olsson, 2009).

Swanson’s middle-range theory of caring (Swanson, 1993) has gained popularity due to its simplicity, elegance, relevance, and ease of application in education, research, and clinical practice (Peterson & Bredow, 2008). Swanson’s theory of caring consists of five categories: (a) knowing, (b) being with, (c) doing for, (d) enabling, and (e) maintaining belief. All five processes are important components in the health of nursing (Swanson, 1991, p. 163).
Andershed & Olsson (2009) describe Kristen Swanson’s five categories (Figure 2) beginning with: knowing as a striving for an understanding of the meaning an event has in an individual’s life and listening carefully to his/her experience. Knowing is the process where the individual and healthcare provider are engaged in developing a therapeutic alliance. Being with is a step beyond knowing and involves being emotionally present for the individual regardless of what emotion is being shared. Being with is an ability to express an emotional openness to sharing another’s experience with a hope to promote further understanding. Doing for includes actions that are helpful and protective in nature, increasing comfort including anticipating needs, performing competently and skillfully, while preserving one’s dignity. Enabling is facilitating the other person’s passage through life transitions and/or unfamiliar events. The purpose is the capacity to grow and heal with the focus on validating feelings, generating alternatives, thinking things through and providing feedback. Maintaining belief is described as sustaining faith in the capacity of others to get through events and holding him/her in high esteem with a positive attitude.
Figure 2. The Structure of Caring as Linked to the Nurses’ Philosophical Attitude, Informed Understandings, Message Conveyed, Therapeutic Actions, and Intended Outcomes (Swanson, 1993).

Jean Watson is important to mention because she was the pioneer in developing the theory of caring. The inception of Jean Watson’s theory of caring began in the 1970s in which she sought to find a common meaning for the discipline of nursing that applied to all work settings (Sitzman, 2007). Watson created 10 caritas (carative factors) to describe what she considered mindful and fully engaged nursing practice: (1) practice loving-kindness and do so in a conscious and caring way, (2) be fully present in the belief system of another, (3) cultivate one’s spiritual practice to seek inter-connectedness beyond the self, (4) maintain authenticity through a helping and trusting relationship, (5) be present and supportive of the fact that individuals have both negative and positive expressions, (6) use all ways of being and knowing in the nursing process, (7) engage in inter-connectedness to provide genuine teaching-learning opportunities, (8) create and maintain a healing environment, (9) tend to spiritual evolution of the self; and (10) maintain an open attitude to attend to spiritual dimensions outside of oneself (Sitzman, 2007, p. 9).
Although different in some respects, both Jean Watson’s and Kristen Swanson’s theory of caring complement one another by developing and explaining the construct of caring and what it means to nursing practice and to the nursing experience. The theory of caring can be used to explore the nurse-patient relationship and the concept of burnout. When the nurse experiences burnout, the ability to provide caring is decreased and what remains is the ability to perform essential technical tasks, thus the caring-healing environment is jeopardized (Dunn, 2009).

**Research Variables**

**Independent variable**

Mindfulness-based stress reduction (MBSR) is the independent variable in this review and will be evaluated for its effectiveness as an intervention for burnout in nurses. Modifications to the original MBSR program will also be looked at. Emanuel et al., (2011) suggest that there is a paucity of evidence-based interventions that have been shown to be effective for either the prevention or treatment of burnout in healthcare providers. A further exploration of the intervention of MBSR as evidence-based practice in the literature related to burnout in nurses will be examined.

**Dependent variable**

In this systematic review, burnout in nurses is the dependent variable. The systematic review will evaluate studies to determine whether burnout amongst nurses will improve with the intervention of mindfulness-based stress reduction (MBSR). Studies will include MBSR, modifications to its original program, and burnout in nurses.

**Problem Statement**

The problem addressed in this systematic review is that burnout in nurses can lead to work-related, physical, and emotional symptoms as previously mentioned. An exploration of
evidence-based interventions to combat burnout in nurses is warranted. Specifically, a review of MBSR as an intervention will be the primary focus of this systematic review and determining its effectiveness on burnout in nurses will be based on the prevailing research and literature.

Research Question

Current published research, including peer-reviewed journals and scholarly articles will be reviewed to answer the following question: what is the effectiveness of mindfulness-based stress reduction intervention on burnout in nurses?

Significance to Nursing

The literature suggests that work related symptoms of burnout could include: decreased productivity, nursing shortage, reduced ability to empathize, loss of joyfulness, and more sick days. Physical symptoms may be manifested as frequent headaches, fatigue, dyspepsia, muscle tension, and insomnia. Emotional symptoms include: mood swings, irritability, anxiety, depression, use of illicit substances, and resentment. Personal limits and years of exposure can make a situation very stressful and being aware of triggers and coping strategies may be helpful (Lester, 2010). Frank & Karioth (2006) discuss that variables correlated with a higher vulnerability to burnout included the sense of personal/family/normal job responsibility disruption, preferences to work less time, and number of hours worked.

Nurses are at an increased risk for denying their own physical, social, emotional, and spiritual needs. The nurse may be emotionally traumatized or suffer through her or his own efforts to empathize and be compassionate with others. The experience can lead to diminished self-care in the process of caring for the patient and may present as a broader problem than once thought, leading to work related, physical, and emotional symptoms (Dunn, 2009). Thus, the caring-healing environment could be jeopardized.
Chapter 3: Search Strategy Methodology

The aim of this review was to identify, evaluate, and grade the evidence on the effectiveness of mindfulness-based stress reduction on burnout in nurses. The databases used to retrieve studies and articles on mindfulness-based stress reduction as an intervention were: CINAHL Plus with full text, PubMed Central, PsychINFO, and Google Scholar. Any modifications to the original training program of mindfulness-based stress reduction were also included when reviewing studies and articles. Nurses in any specialty were considered as part of the search. The initial search strategy focused heavily on scholarly articles and peer-reviewed journals written between the years of 2005-2015. The scholarly articles and peer-reviewed journals were utilized for sake of gaining a stronger foundation to support the introduction and overall background of the significance of burnout in nurses. Whether or not there are studies to support the evidence-based practice of mindfulness-based stress reduction as an effective intervention for burnout in nurses was the more specified approach to the search strategy of this systematic review.

The initial search started with a more general term: “burnout in nurses,” from there the search became more refined and included the following terms to identify studies and articles focusing on mindfulness-based stress reduction: “mindfulness-based stress reduction and burnout,” “mindfulness-based stress reduction and nurses,” and “mindfulness-based stress reduction and burnout and nurses.” Studies and articles including the search terms published between the years of 2005-2015 were retrieved and reviewed to determine whether or not they met the inclusion and exclusion criteria. Utilizing the four databases, “burnout in nurses” generated over 32,000 results. A search focusing on “mindfulness-based stress reduction and burnout” retrieved over 7,500 results. “Mindfulness-based stress reduction and nurses” retrieved
over 17,000 results. A more defined search including “mindfulness-based stress reduction and burnout and nurses” generated over 4,000 results, with the majority retrieved from Google Scholar.

It became clear that the search strategy would need further refinement including only evidence-based practice studies between the years of 2005-2015 focusing specifically on “mindfulness-based stress reduction and burnout and nurses.” Examining the results generated through the four databases and after performing an exhaustive search, 5 evidence-based practice studies were retrieved that met both the inclusion and exclusion criteria. A PRISMA flow chart of systematic review has been utilized to display the search strategy methodology.
Chapter 4: The Sample

Selection Criteria

The search of the four databases identified relevant studies looking at the independent variable of mindfulness-based stress reduction as the only intervention in this review. Modifications to the original mindfulness-based stress reduction program were included if they met the inclusion and exclusion criteria. Reference lists from previous scholarly articles were utilized as part of the search strategy in identifying relevant studies. Burnout in nurses was the dependent variable and studies needed to include this variable in order to be considered in the overall review. Key words such as: “burnout in nurses,” “mindfulness-based stress reduction and burnout,” “mindfulness-based stress reduction and nurses,” and “mindfulness-based stress reduction and burnout and nurses” were entered in the four databases to retrieve published scholarly articles, studies, and peer reviewed journals.

Inclusion Criteria

Quantitative and qualitative studies, meta-analyses, scholarly articles, peer-reviewed journals, and systematic reviews were included. Studies conducted in other countries were reviewed, but the written language was in English. All ages of nurses were considered. Different specialties of nurses and nurses working in either an inpatient or outpatient setting were also included. The age of participants, years of experience, part-time versus full-time and 8-hr shifts versus 12-hr shifts were accepted in the search strategy and were not excluded based on these variables. The intervention of mindfulness-based stress reduction was necessary to include and studies reviewing modifications to the original program were also accepted if they met the criteria.
Exclusion Criteria

In this systematic review, studies reviewing burnout in healthcare providers were considered as long as nurses were included as part of the population being measured. Studies reviewing interventions such as on-site professional resources, educational courses, off-site retreats were excluded if they did not specifically measure mindfulness-based stress reduction or modifications to its original program. Studies discussing concepts related to burnout in the literature such as, compassion fatigue, secondary victimization, and vicarious traumatization were also excluded.
Figure 3. PRISMA Flow Chart of Systematic Review
Chapter 5: Quality Appraisal

Four out of the five studies examined in the review demonstrate statistical significance that MBSR and modifications to the original program acted as an effective intervention on burnout in nurses and other healthcare providers. Of the five evidence-based studies, Cohen-Katz et al., (2005) was the earliest conducted and described the intervention of mindfulness-based stress reduction, the dependent variable of burnout and the target population of nurses. Cohen-Katz et al. investigated the effects of mindfulness-based stress reduction on nurse stress and burnout, utilizing several instruments, including the MBI, the Emotional Exhaustion subscale, the Brief Symptom Inventory (BSI) and a Mindfulness Attention Awareness Scale (MAAS). Nurses were the participants in the study and the setting was at Lehigh Valley Hospital & Health Network (LVHNN) on the east coast. Nurses at LVHNN were recruited to attend a 1-hour informational session about an 8-week stress management program. Thirty people attended the initial information session; of these, 27 signed up for the study. The MBSR intervention consisted of an 8-week group modeled closely after Jon Kabat-Zinn’s original program and met for 2.5 hours a week and included a 6-hour daylong retreat. Researchers looked at the comparison between the treatment and wait-list control groups pre-intervention and post-intervention and were able to demonstrate statistical significance in reductions of emotional exhaustion and depersonalization, and a trend toward significance in improvement in personal accomplishment. Independent t tests were used to test differences in means between the treatment and wait-list control groups at T1 (pre-intervention) and T2 post-intervention. Following treatment of the intervention, on emotional exhaustion a significant difference was found at post-intervention (p = .050) with the treatment group. Similarly, the personal
accomplishment subscale showed statistical significance (p = .014). On the depersonalization subscale, there was a trend toward significance (p = .063).

Mackenzie et al., (2006) focused on a brief mindfulness-based stress reduction intervention for nurses and nurses’ aides. The study involved the development and evaluation of a brief 4-week mindfulness intervention. The brief version of the traditional MBSR program included 16 nurses and nurse aides who provided pre-intervention and post-intervention ratings that focused on burnout as one of the outcome measures. The instruments used in this study, included the Maslach Burnout Inventory (MBI), the Smith Relaxation Dispositions Inventory, the Intrinsic Job Satisfaction subscale from the Job Satisfaction Scale, the Satisfaction With Life Scale, and the 13-item version of Antonovsky’s Orientation to Life Questionnaire. The 16 participants in the mindfulness intervention experienced significant improvements in burnout symptoms, relaxation, and life satisfaction. Statistical significance was demonstrated in each of the MBI subscales: emotional exhaustion (p < .05), depersonalization (p < .05), and personal accomplishment (p = .004).

A study conducted by Brady, O’Connor, Burgermeister, & Hansen (2012) included staff working in an acute psychiatric unit, nurses, and other behavioral health staff. The sample included 16 behavioral health staff and 7 were psychiatric nurses. The study examined the impact of the mindfulness-based stress reduction program on managing stress and improving patient outcomes. A one-group pre-/post-test design was used to measure the impact of the MBSR program. The Mental Health Professionals Stress Scale (MHPSS), the Sense of Self Scale (SOSS), the Toronto Mindfulness Scale (TMS), and the Maslach Burnout Inventory were used. To participate in the study, staff members needed to be available to attend weekly classes for 4 weeks and be willing to attempt to do nightly homework of 30 minutes. The MBSR program for
this study was modified by a reduction of time per class to 1 hour per week for 4 weeks. The MBSR program included sessions in learning and practicing meditation, didactic presentations, group discussions, and homework assignments. The overall stress score of participants on the MHPSS decreased after taking the MBSR class and post MBSR class, $p < .01$. Mindfulness scores on the TMS increased over the course of the class, $p < .01$. Results from the total SOSS, demonstrate statistical significance ($p < .05$) on the following subscales: sense of self-acceptance, the sense of what is possible, and the sense of responsibility to care for oneself and one’s health. Burnout, however did not show statistical significance utilizing the MBI, but did show improvement in the personal accomplishment subscale.

Goodman & Schorling (2012) investigated the effect of mindfulness-based interventions on decreasing burnout and improving well-being among health care providers. The sample in this study included 93 participants. Physicians represented the largest group, and nurses represented the second largest group with 15 participants. The intervention in the study was a continuing education course based on mindfulness-based stress reduction that met 2.5 hours a week for 8 weeks plus a 7-hour retreat. The classes included training in four types of formal mindfulness practices, including the body scan, mindful movement, walking meditation and sitting meditation, as well as discussion focusing on the application of mindfulness at work. The main outcome measures were work-related burnout as measured by the Maslach Burnout Inventory and self-perceived mental and physical well-being as measured by the SF-12v2. Results from the Maslach Burnout Inventory showed statistical significance from before to after the course for both physicians and other healthcare providers for the Emotional Exhaustion ($p < 0.03$), Depersonalization ($p < 0.04$), and Personal Accomplishment ($p < 0.001$) scales.
Bazarko et al., (2013) focused on the health and well-being of 36 nurses in a corporate setting utilizing an innovative new model of the original MBSR program with group telephonic sessions. The new model focused on health, stress, burnout, self-compassion, serenity, and empathy at three points in time and at the end of the 8-week intervention, participants showed an improvement in general health, decreased stress, decreased work burnout, and improvement in other areas. The telephonic MBSR sessions were considered to be lower in cost and more feasible. Improvement in general health, p < .01, decreased stress, p < .001, and decreased work burnout, p < .001 were all found to be statistically significant after the 8-week telephonic MBSR intervention.

Strengths

The five studies identified in this systematic review measured burnout in nurses as one of the dependent variables and MBSR, including modifications to the original program as the independent variable. Modifications to the original program were included as part of the independent variable due to the lack of accessibility of healthcare workers to attend an 8-week course. The modifications to the original program can be seen as a strength due to the adaptation of the original program resulting in improved results utilizing the intervention from the five studies reviewed. The studies were conducted by highly educated and trained professionals. The studies did support evidence that MBSR can contribute to reducing burnout and met both the inclusion and exclusion criteria.

Limitations

One of the main limitations of this review was the small sample size in each study reviewed and another being the lack of studies addressing the three concepts of ‘MBSR
effectiveness’ on ‘burnout’ in ‘nurses.’ There were very few studies that addressed the three concepts together. Each study included nurses as part of the population, but some did focus on other healthcare providers as part of the sample, which made it more challenging to determine how the intervention directly affected nurses. Only three of the five studies in this review focused directly on studying the intervention of MBSR on nurses as the main population. The other two studies included other healthcare providers as part of the sample.

Goodman & Schorling (2012) focused on healthcare providers including nurses and other healthcare specialties, but provided more statistical analysis on physicians in comparison to other healthcare providers. Brady et al., (2011) conducted a study comprised of nurses, but also included many other behavioral health staff such as psychiatrists, psychologists, social workers, mental health technicians, and activity therapists.

**Level of Evidence**

Joanna Briggs Level of Evidence table (2014) was used to determine the quality of evidence to support the five studies based on a Level Scale: I-V (Appendix A). According to the scale, Level 1 is considered to provide the highest level of evidence, whereas Level 5 is considered to provide the lowest level of evidence. The goal in this systematic review was to find studies with the highest level of evidence to determine if MBSR can be used as an evidence-based intervention to reduce burnout in nurses.

Level 1 consists of experimental designs and includes subcategories from Level 1.a to Level 1.d. Level 1.a provides the highest level of evidence and consists of a systematic review of randomized control trials (RCTs); level 1.b studies include systematic review of RCTs and other study designs; level 1.c studies are solely RCTs, and level 1.d are pseudo-RCTs. Level 2 focuses
on quasi-experimental designs with subcategories from Level 2.a to Level 2.d. Level 2.a focuses on systematic reviews of quasi-experimental studies; level 2.b includes systematic review of quasi-experimental and other lower study designs; level 2.c are quasi-experimental prospectively controlled studies; level 2.d are pre-test/post-test or historic/retrospective control group studies. Level 3 includes observational-analytic designs with subcategories from Level 3.a to Level 3.e. Level 3.a are systematic reviews of comparable cohort studies; level 3.b are systematic reviews of comparable cohort and other lower study designs; level 3.c are cohort studies with a control group; level 3.d are case-controlled studies; level 3.e are observational studies without a control group. Level 4 is based on observational-descriptive studies with subcategories from Level 4.a to Level 4.d. Level 4.a includes systematic reviews of descriptive studies; level 4.b are cross-sectional studies; level 4.c are case series; level 4.d are case studies. Level 5 looks at the expert opinion and bench research with subcategories from Level 5.a to 5.c. Level 5.a is based on systematic reviews of expert opinion; level 5.b is expert consensus; level 5.c is bench research/single expert opinion.

Two of the studies done by Cohen-Katz et al., (2005) and Mackenzie et al., (2006) were given a Level 1.c because they were experimental designs and included randomized control trials in their studies utilizing both a control and a wait-list group. Level 1.c is considered a high level of evidence. Two of the studies conducted by Goodman & Schorling (2012) and Bazarko et al., (2013) were given a Level 2.c because they were quasi-experimental prospectively controlled studies. The study by Brady et al., (2012) was placed on a Level 3.c due to its observational/analytic design; it was not a controlled or randomized trial, but rather a sample of self-selected individuals who were interested in participating in the MBSR intervention.
Table 1. Level of Evidence Table: Scale I-V (Joanna Briggs Institute, 2014)

<table>
<thead>
<tr>
<th>No.</th>
<th>Year</th>
<th>Research Design</th>
<th>Level of Evidence</th>
<th>Theoretical Framework</th>
<th>Type and duration of intervention</th>
<th>Sample/Characteristics</th>
<th>Variables/Instrument</th>
<th>Results</th>
<th>Critique: Strengths/Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2005</td>
<td>Randomized controlled trial pretest-posttest waitlist control group design with randomization</td>
<td>1.C</td>
<td>Not described</td>
<td>MBSR intervention consisted of an 8-week group modeled closely after Jon Kabat-Zinn’s original program meeting 2.5 hours a week and including a 6-hour daylong retreat between the 6th and 7th week.</td>
<td>N=27</td>
<td>Maslach Burnout Inventory, Emotional exhaustion subscale, Brief Symptom Inventory, Mindfulness Attention Awareness Scale, Evaluation Questionnaire</td>
<td>Statistical significance demonstrated from results of the MBI and the MAAS. The evaluation questionnaire resulted in positive responses.</td>
<td>Strengths: Level of evidence, the only study that focused primarily on the three concepts of MBSR, nurses, and burnout. Researchers highly educated and knowledgeable in studying MBSR and burnout. The researchers performed a series of three separate studies over time. Weaknesses: Small sample size, the study was completed ten years ago, otherwise a very strong study.</td>
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<tr>
<th>No.</th>
<th>Year</th>
<th>Research Design</th>
<th>Level of Evidence</th>
<th>Theoretical Framework</th>
<th>Type and duration of intervention</th>
<th>Sample/Characteristics</th>
<th>Variables/Instrument</th>
<th>Results</th>
<th>Critique: Strengths Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2006</td>
<td>Randomized Control Trial</td>
<td>1.c</td>
<td>Not provided</td>
<td>A 4-week mindfulness intervention program.</td>
<td>N=16 nurses and nurses’ aides completed the brief MBSR program and provided pre-intervention and post-intervention ratings.</td>
<td>Maslach Burnout Inventory, the Smith Relaxation Dispositions Inventory, the Intrinsic Job Satisfaction subscale from the Job Satisfaction Scale, the Satisfaction With Life Scale, and the 13-item version of Antonovsky’s (1987) Orientation to Life Questionnaire</td>
<td>Following the intervention, MBSR participants based the MBI demonstrated reductions in exhaustion resulting in a significant Group x Time interaction. With respect to depersonalization, intervention participants showed relative stability over the two testing periods resulting in a significant Group x Time interaction. Job-related personal accomplishment did show improvement but did not have a significant Group x Time interaction.</td>
<td>Strengths: Randomized control study. Statistical results show significance. The intervention had a powerful effect on participants, as indicated by large effect sizes for five of the seven outcomes. The participants were a heterogeneous group. Weaknesses: Small sample size limiting generalizability and reduced statistical power.</td>
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<tr>
<th>No.</th>
<th>Year</th>
<th>Research Design</th>
<th>Level of Evidence</th>
<th>Theoretical Framework</th>
<th>Type and duration of intervention</th>
<th>Sample/Characteristics</th>
<th>Variables/Instrument</th>
<th>Results</th>
<th>Critique: Strengths/Weaknesses/Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2012</td>
<td>Descriptive study</td>
<td>3.c</td>
<td>Paterson and Zderad (1988) Theory of Humanistic Nursing.</td>
<td>MBSR program is modified by a reduction of time per class to 1 hour per week for 4 weeks.</td>
<td>N=16 of behavioral health staff, including nurses.</td>
<td>The Mental Health Professionals Stress Scale, the Toronto Mindfulness Scale, the Sense of Self Scale, the Maslach Burnout Inventory for Human Services, and the hospital patient satisfaction survey.</td>
<td>Burnout scores, as measured by the MBI did not demonstrate significant decrease on the emotional exhaustion or depersonalization subscales. There was improvement in the personal accomplishment subscale, but it was not statistically significant.</td>
<td>Strengths: The study did demonstrate some statistical findings. The authors discuss that the structured 4-week program in mindfulness was successful in impacting the personal stress levels, degree of mindfulness, and intrapersonal presence of inpatient psychiatric staff members. Weaknesses: Small sample size. The study did include 7 psychiatric nurses, but did not specifically report on how they were affected.</td>
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<th>No.</th>
<th>Year</th>
<th>Research Design</th>
<th>Level of Evidence</th>
<th>Theoretical Framework</th>
<th>Type and duration of Intervention</th>
<th>Sample/Characteristics</th>
<th>Variables/Instrument</th>
<th>Results</th>
<th>Critique: Strengths &amp; Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2012</td>
<td>Pre-post observational</td>
<td>2.c</td>
<td>Not described</td>
<td>Continuing education course based on mindfulness-based stress reduction that met 2.5 hours a week for 8 weeks plus a 7-hour retreat.</td>
<td>N=93 healthcare providers, including physicians from multiple specialties, nurses, psychologists, and social workers who practiced in both university and community settings, participated.</td>
<td>Maslach Burnout Inventory and self-perceived mental and physical well-being as measured by the SF-12v2.</td>
<td>Maslach Burnout Inventory scores improved significantly from before to after the course for both physicians and other healthcare providers for the Emotional Exhaustion (p &lt; 0.03), Depersonalization (p &lt; 0.04), and Personal Accomplishment (p &lt; 0.001) scales. Mental well-being measured by the SF12v2 also improved significantly (p &lt; 0.001). There were no significant changes in the SF12v2 physical health scores.</td>
<td>Strengths: Statistical significance demonstrated. A larger sample provided in comparison to other studies. Highly educated and trained professionals conducted the study and have taught MBSR for over a decade. Weaknesses: Observational and did not have a control group. The measurement occurred before and after the classes, but no data exists regarding the duration of the effects. Participants paid a fee for the course.</td>
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<th>No.</th>
<th>Year</th>
<th>Research Design</th>
<th>Level of Evidence</th>
<th>Theoretical Framework</th>
<th>Type and duration of intervention</th>
<th>Sample/Characteristics</th>
<th>Variables/Instrument</th>
<th>Results</th>
<th>Critique: Strengths Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>2013</td>
<td>Quasi-experimental Non-randomized pre-post intervention</td>
<td>2.c</td>
<td>Not described</td>
<td>The telephonic MBSR program focused on health, stress, burnout, self-compassion, serenity, and empathy at three points in time for 8 weeks.</td>
<td>N=41 nurses from a large health care company participated, of which 36 completed the survey measure at all three time points.</td>
<td>Consolidated online survey instrument (The Perceived Stress Scale, The Copenhagen Burnout Inventory, The SF-12v2 Health Survey, The Brief Serenity Scale, The Jefferson Scale of Physician Empathy, The Self Compassion Scale),</td>
<td>Statistically significant improvements were observed for those nurses participating in the tMBSR program on almost every measure from baseline to post-intervention. The changes were sustained 4 months later and, on some measures, nurses continued to show significant improvement from Time 2 to Time 3.</td>
<td>Strengths: Statistically significant improvements demonstrated. Findings suggest that the tMBSR program can be a low cost, feasible, and scalable intervention that shows positive impact on health and well-being, and could allow MBSR to be delivered to employees who are otherwise unable to access traditional, on-site programs. Weaknesses: Small sample size, the study did not include a randomized control group, homogeneity of sample (all female nurses), threats to internal validity (participants were self-selected and arguably highly motivated to participate).</td>
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Chapter 6: Conclusion

Recommendation

The aim of this systematic review was to answer the following research question, “is MBSR an effective intervention on burnout in nurses?” Four of the five studies reviewed did show a statistical significance in evidence supporting that MBSR and modifications to its original program as an intervention in reducing burnout in nurses and other healthcare providers based on the measuring instruments utilized.

Recommendation Grade

The recommendation grade used was Joanna Briggs Institute Grading of Recommendation (2014) and the intervention was graded based on its feasibility, appropriateness, meaningfulness, and effectiveness (FAME). Feasibility, appropriateness, meaningfulness, and effectiveness looking at MBSR and modifications to its original program as an intervention were classified using a Grade A and Grade B tool (Appendix B) looking at whether evidence was strong or weak and the level of support meriting application.

Explanation of Recommendation using FAME

Feasibility

The Joanna Briggs Institute (2014) considers an intervention to be feasible if it is cost effective, the resources to implement the intervention are available and if there is sufficient competency involved to implement the intervention being studied. The feasibility of the studies reviewed looking at MBSR and modifications to the original program as an intervention received a Grade A (Table 2). The study conducted by Cohen-Katz et al., (2005) closely followed the original MBSR program by including an 8-week program meeting for 2.5 hours a week. Mackenzie et al., (2006) were able to provide evidence that their study did support the feasibility
factor and potential effectiveness of the intervention for reducing symptoms of burnout, enhancing relaxation, and improving life satisfaction for nurses and nurse aides. Goodman & Schorling (2012) and Bazarko et al., (2013) were able to demonstrate statistical significance with their findings utilizing a modified version of the original MBSR program with in-class and telephonic sessions. The study by Brady et al., (2012) did not demonstrate statistical significance in reduction of burnout with the use of the MBI, but there is question whether or not a longer intervention or more intensive training could have provided more of a trend to statistical significance. The five studies in the systematic review were conducted by highly educated and trained professionals. The studies reviewed did consider cost effectiveness and demonstrated support for modifications to the original MBSR program, which is why a Grade A on feasibility was given.

**Appropriateness**

The Joanna Briggs Institute (2014) considers an intervention to be appropriate based on ‘cultural acceptability’ meaning how transferable/applicable is it to the majority of the population and is it easily adaptable to a variety of circumstances. Based on the description of appropriateness, the five studies received a Grade B (Table 2) because it is unclear how easily transferable/applicable the utilization of MBSR would be to the majority of the population. This systematic review focused on nurses and because of this focus studies reviewing the majority of the general population were not part of the inclusion criteria. Though, for purposes of this systematic review, focusing on healthcare providers, more specifically nurses, appropriateness does show promise. The adaptability of MBSR as an intervention to a variety of circumstances was not considered a main focus of the studies reviewed.
Meaningfulness

The Joanna Briggs Institute (2014) regards the meaningfulness of an intervention on whether or not it is associated with positive experiences and is not associated with negative experiences. Each one of the five studies in this systematic review provided evidence to support the meaningfulness of MBSR. MBSR was associated with positive experiences and benefits. There was not mention of any negative associations in any of the studies. In the grading of recommendation table, the meaningfulness of the five studies received a Grade A (Table 2). There is strong evidence to merit application. Mackenzie et al., (2006) supports the meaningfulness of the intervention and suggest that MBSR can help reduce symptoms of burnout, enhance relaxation, and improve life satisfaction amongst nurses. Cohen-Katz et al., (2005), Mackenzie et al., (2006), Brady et al., (2012), Goodman & Schorling (2012), & Bazarko et al., (2103) support the meaningfulness of the intervention of MBSR on burnout.

Effectiveness

The Joanna Briggs Institute (2014) proposes that the effectiveness of an intervention is based on if there are beneficial effects and how safe it is. Effectiveness is associated with what level of harm would be accompanied with the practice. Each one of the five studies discussed the beneficial effects of MBSR and proposed potential long term benefits. Safety concerns were not an issue and there was no report of any detrimental effects during participation of any MBSR programs reviewed. Four out of the five studies received a Grade A (Table 2) because they were able to demonstrate statistical significance in the use of MBSR as an effective intervention in reducing burnout in nurses. Though, statistical reductions in emotional exhaustion and depersonalization, and a significant trend toward personal accomplishment were noted in all five studies. It is unclear why the study conducted by Brady et al., (2012) was not considered
statistically significant, but there is indication to suggest using the MBSR intervention for a longer period of time with more intensive training during the week may prove more beneficial.
Table 2. Grading of Recommendations Table: Findings for effectiveness of MBSR intervention on burnout in nurses (Joanna Briggs Institute, 2014).

<table>
<thead>
<tr>
<th>FEASIBILITY</th>
<th>A, B</th>
<th>APPROPRIATENESS</th>
<th>A, B</th>
<th>MEANINGFULNESS</th>
<th>A, B</th>
<th>EFFECTIVENESS</th>
<th>A, B</th>
</tr>
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<tbody>
<tr>
<td>Strong evidence that merits application</td>
<td>A. X</td>
<td>Strong evidence that merits application</td>
<td>A.</td>
<td>Strong evidence that merits application</td>
<td>A. X</td>
<td>Strong evidence that merits application</td>
<td>A. X</td>
</tr>
<tr>
<td>A weak support, evidence supports the application but not high quality</td>
<td>B.</td>
<td>A weak support, evidence supports the application but not high quality</td>
<td>B.</td>
<td>A weak support, evidence supports the application but not high quality</td>
<td>B.</td>
<td>A weak support, evidence supports the application but not high quality</td>
<td>B.</td>
</tr>
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</table>

Limitations of Systematic Review

Limitations of this systematic review rely heavily on the lack of evidence-based studies looking at the effectiveness of MBSR intervention on burnout in nurses. After completing an exhaustive research utilizing four databases, five studies were considered appropriate in the review that measured both the independent and dependent variables. Of the five studies, four included small sample sizes. The study by Goodman & Schorling (2012) had the largest sample size of 93. Bazarko et al., (2013) had the second largest sample size of 36 and the remaining three studies had a smaller sample size. Of the five studies, it is unclear how effective MBSR is as an intervention on burnout in nurses if not continued post-intervention.

Implications for clinical nursing practice, patient education, and future research

Continued research is warranted to study the effectiveness of modifications to the original MBSR program, though out of the five studies reviewed improvements were found and each suggested benefits of practicing mindfulness. Goodman & Schorling (2012) suggest that
mindfulness classes can offer a practical and viable method to decrease stress and improve well-being as healthcare professionals continue to face increasing pressures. Though, measuring the benefits of mindfulness over time and finding practical ways to do so is implied.

Bazarko et al., (2013) implies that future research should include more randomized control trials across employees who work in a variety of high-stress roles in the health care industry, including not only nurses, but also customer service representatives and behavioral health intake health counselors, including men and women in these roles. Additionally, the studies were based on subjective self-reporting; future research could look into finding more objective ways of measuring burnout and stress. Cohen-Katz et al., (2005) recommend that although teaching an 8-week program was considered a powerful intervention, it is unclear the lasting changes in nurse burnout and stress if not accompanied by ongoing support and larger sample sizes are needed to further study the impact of MBSR on nurses in practice. Longer follow-up studies focusing on the ongoing effectiveness of MBSR post-intervention.

Mackenzie et al., (2006) provided a brief 4-week intervention in comparison to the traditionally based program and looking at other ways to provide MBSR in a modified form may prove helpful due to the time constraints and workplace demands nurses are already facing. Measurements post-intervention could be helpful to determine whether or not long term effects are sustained if the training materials learned in the program are continued. Mackenzie et al., (2006) suspect that if participants continue to develop their mindfulness practices and integrate this new way of thinking into their daily lives, greater improvement may be seen at follow-up periods.

Brady et al., (2012) suggest the importance of future research to include other staff on hospital units other than the study they conducted on an acute inpatient psychiatric unit. Benefits
may be seen in other nursing specialties and may help reduce stress, enhancing mindfulness, improving patient satisfaction, and decreasing patient safety events. Retention of staff may also be affected utilizing the MBSR program. Of the five studies, it is clear that practicing mindfulness has positive outcomes for nurses and other healthcare providers, which is why future research and education is important. Nurses practicing mindfulness may also provide their patients with education with a hope to improve patient safety, quality of life, and healthier outcomes.
Appendix A. Level Scale: I-V Key for Joanna Briggs Institute Levels of Evidence (2014)

Levels of Evidence - Effectiveness

Level 1 – Experimental Designs
- Level 1.a – Systematic review of Randomized Controlled Trials (RCTs)
- Level 1.b – Systematic review of RCTs and other study designs
- Level 1.c – RCT
- Level 1.d – Pseudo-RCTs

Level 2 – Quasi-experimental Designs
- Level 2.a – Systematic review of quasi-experimental studies
- Level 2.b – Systematic review of quasi-experimental and other lower study designs
- Level 2.c – Quasi-experimental prospectively controlled study
- Level 2.d – Pre-test – post-test or historic/retrospective control group study

Level 3 – Observational – Analytic Designs
- Level 3.a – Systematic review of comparable cohort studies
- Level 3.b – Systematic review of comparable cohort and other lower study designs
- Level 3.c – Cohort study with control group
- Level 3.d – Case – controlled study
- Level 3.e – Observational study without a control group

Level 4 – Observational – Descriptive Studies
- Level 4.a – Systematic review of descriptive studies
- Level 4.b – Cross-sectional study
- Level 4.c – Case series
- Level 4.d – Case study

Level 5 – Expert Opinion and Bench Research
- Level 5.a – Systematic review of expert opinion
- Level 5.b – Expert consensus
- Level 5.c – Bench research/ single expert opinion

From the Joanna Briggs Institute (Joanna Briggs Institute, 2014)
Appendix B. Grading of Recommendations Tool (Joanna Briggs Institute, 2014).

**JBI Grades of Recommendation**

**Grade A**

A ‘strong’ recommendation for a certain health management strategy where (1) it is clear that desirable effects outweigh undesirable effects of the strategy; (2) where there is evidence of adequate quality supporting its use; (3) there is a benefit or no impact on resource use, and (4) values, preferences and the patient experience have been taken into account.

**Grade B**

A ‘weak’ recommendation for a certain health management strategy where (1) desirable effects appear to outweigh undesirable effects of the strategy, although this is not as clear; (2) where there is evidence supporting its use, although this may not be of high quality; (3) there is a benefit, no impact or minimal impact on resource use, and (4) values, preferences and the patient experience may or may not have been taken into account.
REFERENCES


