Mindfulness-based stress reduction: A literature review and clinician’s guide

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Abstract

Purpose: To provide nurse practitioners (NPs) with clinical research about Mindfulness-Based Stress Reduction (MBSR) and demonstrate its usefulness for reducing stress in a variety of populations.

Data Sources: A literature review was conducted using the following databases: EBSCO, Cinahl, Psychline, and Medline. English language articles published between 2000 and 2006 in peer-reviewed journals were reviewed. Search terms “mindfulness,” “meditation,” and “stress” were used. Additional information was obtained through select, reputable Internet sites.

Conclusions: MBSR is an effective treatment for reducing stress and anxiety that accompanies daily life and chronic illness. MBSR is also therapeutic for healthcare providers, enhancing their interactions with patients. No negative side effects from MBSR have been documented.

Implications for practice: MBSR is a safe, effective, integrative approach for reducing stress. Patients and healthcare providers experiencing stress or stress-related symptoms benefit from MBSR programs. NPs can safely and effectively use this intervention in a variety of patient populations.

Introduction

The physical and emotional manifestations of stress are taking a toll on the health of the nation. Approximately 47% of Americans reported significant stress in a 2006 American Psychological Association poll (Greenberg & Berktold, 2006). The media regularly report stress-related stories from the threats of terrorism to violence in the workplace, and a growing number of magazines and self-help books aimed at reducing stress exist. In addition to daily life stress, a growing number of Americans suffer from chronic illnesses like diabetes, hypertension, arthritis, depression, and anxiety (Hamilton, Kitzman, & Guyotte, 2006; Tacon, McComb, Caldera, & Randolph, 2003). Managing new medication, exercise, and diet regimens to control these diseases as well as worrying about their complications further stresses patients. In fact, Americans cite health issues as a major source of stress (Greenberg & Berktold). In addition, many healthcare providers experience their own stress, which can alter their interactions with patients and colleagues (Beddoe & Murphy, 2004; Bruce & Davies, 2005; Gazella, 2005).

Mindfulness-based stress reduction (MBSR) is a viable option for patients and providers experiencing stress. Rooted in Theravada Buddhism and westernized by Jon Kabat-Zinn at the University of Massachusetts Medical Center in 1979, MBSR is a structured therapy package. MBSR combines mindfulness-based meditation (MBM) with Hatha yoga (Center for Mindfulness in Medicine, Health Care, and Society, n.d.). The Interest in MBSR has grown over the last two decades. The effectiveness of MBSR has been studied in a variety of populations including people with cancer, depression, and heart disease as well as healthcare providers (Beddoe & Murphy, 2004; Bruce & Davies, 2005; Gazella, 2005; Smith, Richardson, Hoffman, & Pilkington, 2005; Tacon et al., 2003).

Mindfulness-based meditation

MBM is a process of training the mind to function in a nonjudgmental minute-to-minute mode (Gazella, 2005). The mind is operationally defined in this practice as separate from the brain. The mind is a person’s collective thoughts, experiences, expectations, and perceptions.
Mindfulness-based stress reduction

MBSR is a highly structured program teaching MBM and yoga. It consists of an 8-week course in which participants meet once a week for a 2.5-h session and one 8-h day (see Table 1). Participants are given daily homework assignments of meditation, yoga, and inquiry exercises to increase their self-awareness. (Center for Mindfulness in Medicine, Health Care, and Society, n.d.; Hamilton et al., 2006). Participants are taught to perform a body scan. A body scan is performed by first focusing attention on the breath and then on each section of the body. During a body scan, participants methodically think about each body part, observe their sensations, and then intentionally relax each body part. Participants are also taught sitting meditation in which their minds are guided to focus in the present and not think about anything other than the breath. Participants are instructed to incorporate meditation into their daily lives so that routine activities become a meditative practice (Hamilton et al.; Kabat-Zinn, n.d.).

Table 1 MBSR—Quick facts

| MBSR combines MBM and Hatha yoga |
| Classes are generally 8 weeks long and cost approximately $300. |
| Some health insurances will cover this |
| Local classes can be found by the directory at www.umassmed.edu/cfm |
| More information about MBSR and Dr. Kabat-Zinn can be found at www.umassmed.edu/cfm |
| In addition to the classes, MBSR generally requires a commitment of 45 min of practice per day. |
| There are no known harmful side effects of MBSR |

Note. MMSR, mindfulness-based stress reduction; MBR, mindfulness-based meditation.

For example, most people have experienced thinking about an argument or unpleasant experience after it has occurred. Imagine that person preparing dinner and becoming increasingly angry over an argument she had earlier that day. She could let the anger prevail or she could acknowledge that she was thinking about the argument, let that feeling pass, and focus her attention on her breath and dinner. If she chose the latter, she would eventually become immersed in the task and not think about anything else but breathing and cooking. She would experience a sense of calmness. This is living in the moment and it is what MBSR teaches.

MBSR is sometimes compared to cognitive-behavioral therapy (CBT). Although they share some similar attributes and can be used in conjunction, they are different in some important concepts (Hamilton et al., 2006). Both methods work to achieve results by changing thought patterns. However, CBT assumes an underlying pathology, whereas MBSR does not. CBT also labels negative thoughts and feelings as disruptive and emphasizes replacing them, whereas MBSR encourages the patient to accept the thoughts without dwelling on them (Ford, 2002; Hamilton et al.). CBT can be viewed as an acute treatment option, whereas MBSR not only works as a treatment but also in a preventative way because it provides a new way of thinking and functioning.

Hatha yoga is used in conjunction with MBM in MBSR. The postures are generally gentle and can be performed by individuals of varying fitness levels and disability. The concept behind Hatha yoga is that the mind is focused on the posture so it cannot be occupied with distracting thoughts (Hamilton et al., 2006; Lee, n.d.). Yoga is particularly helpful for people with somatic complaints as most participants experience some immediate increase in flexibility. Yoga has an added benefit of giving people with physical illnesses some degree of control over their bodies (Hamilton et al.). MBSR can be practiced in any quiet setting at any time. Participants are encouraged to set aside approximately 45 min per day to practice MBSR in
addition to the classes. This entails doing MBM, yoga, and journaling to explore their thoughts and feelings. Participants are given CDs or audiotapes to guide them at home in meditation and yoga.

**Learning MBSR**

The Center for Mindfulness in Medicine, Healthcare, and Society outlines teacher qualification but stresses that an integrative, holistic, dynamic process involving MBSR principles and the teacher’s personal attributes occurs. This means that teachers may or may not be certified and are continually assessing and improving their personal and professional MBSR practice. All MBSR teachers must practice MBM, yoga, and have participated in silent meditative retreats. Most teachers hold graduate degrees in related healthcare fields like nursing, medicine, or psychology. The typical path MBSR teachers follow involves completing a 7-day residential MBSR teacher training and a 70-h teacher practicum. Advanced teacher training is encouraged by an 8-day teacher development intensive and one-on-one mentorship with a Center for Mindfulness faculty member. Certification is obtained after MBSR teachers complete the former steps and teach several classes. Therefore, participants should not be alarmed if their MBSR teacher is not yet certified; certification is not achievable until after MBSR teachers begin teaching. However, all MBSR teachers should be actively practicing MBSR and participating in meditative retreats at least annually (Center for Mindfulness in Medicine, Healthcare, and Society [Oasis], n.d.).

**Clinical applications of MBSR**

MBSR has been studied in a variety of clinical settings. Although the majority of results show significant decreases in stress, depression, and anxiety among participants, it should be noted that most of these studies were small and many did not contain control groups. All the studies reported here used the standard MBSR program (Bruce & Davies, 2005; Carlson, Speca, Patel, & Goodey, 2004; Chang et al., 2004; Majumdar, Grossman, Dietz-Waschkowski, Kersig, & Walach, 2002). Several of the studies with control groups used subjects who were wait-listed to enter the MBSR program as the control group (Davidson et al., 2003; Ramel et al., 2004; Tacon et al., 2003). This may naturally cause some bias because these subjects were interested in MBSR and not a true control group as they may have practiced meditation or yoga outside of the study.

Ramel et al. (2004) found a decrease in depressive and anxiety symptoms in 38 subjects previously diagnosed with a mood disorder after they completed an MBSR program. Affective symptoms were measured using the Beck Depression Inventory (BDI) and the Spielberger State-Trait Anxiety Inventory (STAI). Cognitive functions were measured using the Dysfunctional Attitudes scale (DAS) for approval and perfectionism. Response Style Questionnaire (RSQ) was used to measure rumination, brooding, and reflection. Twenty-three participants completed the MBSR course and 11 on the wait list were used as a control group. BDI, STAI, DAS, and RSQ scores were compared pre- and postintervention for the MBSR group and results between the 11 control subjects were compared to 11 of the intervention group who most closely matched them by age, gender, and initial BDI scores. The researchers found significant reductions in BDI, STAI, and DAS scores among the intervention group after completing the MBSR program. Further analysis revealed a correlation between decreased rumination (dwelling on negative thoughts) and decreased depressive and anxiety symptoms. Regression analyses also revealed a negative correlation between the amount of rumination and MBM practiced. Comparison between the control and the intervention group also showed significant reductions in rumination for the intervention group (Ramel et al.). This study documents MBSR as an effective and empowering tool for people suffering from mood disorders. The researchers used well-accepted, reliable tools to measure outcomes.

MBSR is also effective in reducing anxiety accompanying cardiovascular disease. This has significant implications as cardiovascular disease is now the number one killer of people in the United States (U.S. Department of Health and Human Services, 2000). MBSR was successful in reducing anxiety in a group of 18 women with diagnosed cardiovascular disease (Tacon et al., 2003). Nine of the women completed an MBSR program and the control group of nine was on a wait list to enter the program. Anxiety was measured by the STAI; Courtauld Emotional Control Scale (CECS) was used to measure the degree to which the women suppressed negative emotions like sadness, anger, and anxiety. Higher scores indicate greater suppression, which has been implicated as a contributor to cardiovascular disease (Tacon et al.). The participants’ coping styles were measured using the Problem-Focused Styles of Coping (PF-SOC). The PF-SOC determines whether participants respond to stress in a reactive, reflective, or suppressive style. Last, the Multidimensional Health Locus of Control (MHLC) scale was used to assess how the participants perceived their ability to affect their health outcomes and behaviors. Each group completed these assessments before and after the intervention. STAI and CECS scores statistically improved for the intervention group after the MBSR program; this was not seen in the control group. This indicates that MBSR was effective for reducing anxiety and increasing expression of negative emotions (which is considered a positive outcome; Tacon...
et al.). The PF-SOC revealed that women who had a reactive style of coping before the intervention had decreased their impulsive, habitual reactionary style. Women in the control group experienced a slight increase in their impulsive reaction style. No changes were seen for women who tended to use a reflective or suppressive style. The intervention had no statistically significant effect on the MHLC measure. This study implies that MBSR can reduce anxiety in women with heart disease; however, MBSR was not as effective for women who use reflective or suppressive styles of coping as for women with reactive coping styles. Further research should be conducted to determine why these women responded differently to MBSR. Last, as mentioned earlier, using the wait-list group as the control could potentially bias the data as these are participants who believe that MBSR is of value.

Carlson et al. (2004) studied the effects of MBSR on dehydroepiandrosterone sulfate (DHEAS), melatonin, and cortisol levels along with quality of life, mood states, and stress symptoms among early-stage breast and prostate cancer patients. The 42 patients who completed the MBSR program showed improvements in overall quality of life and stress reduction. DHEAS, cortisol, and melatonin levels were not affected by the intervention. The authors were clear to note that the DHEAS and melatonin measurements in their sample were not consistent with levels from similar populations (Carlson et al.). Perhaps this is why no changes were seen from the MBSR intervention.

Smith et al. (2005) conducted a literature review of 10 clinical trials and found that overall MBSR reduced stress and improved mood and sleep quality in people with cancer. They also found a positive correlation between amount of MBSR practice and improvement of stress and stress-related symptoms. However, only three of the studies were randomized controlled studies. The authors noted that some of the studies used adaptations of the standardized MBSR making comparisons difficult. Nonetheless, MBSR was found to have some positive effects and no negative side effects (Smith et al.). Therefore, MBSR is a worthwhile option for patients living with cancer.

The beneficial effects of MBSR were further confirmed in a study of 21 German patients with a variety of physical and psychological ailments. The participants self-reported a variety of chronic illnesses including hepatitis C, non-Hodgkin’s lymphoma, asthma, chronic back pain, and thyroid disorders. Participants completed pre- and postintervention questionnaires as well as a 3-month follow-up interview (Majumdar, Grossman, Dietz-Waschkowski, Kersig, & Walach, 2002). Participants were found to have increased quality of life and well-being and reductions in stress. The majority of these patients maintained their practice of MBSR over the 3-month period and reported to continue experiencing a positive effect (Majumder et al.). This study was small ($n = 21$); however, it is encouraging that the participants embraced the intervention.

Davidson et al. (2003) found a positive increase in brain function and increased immunity in a study of 25 participants who underwent MBSR training. The participants had electroencephalography (EEG) done before the intervention and immediately afterward and then again 4-months postintervention. The EEGs showed increased left anterior activation, which is associated with increased positive emotions, compared to the control group. All the participants were given influenza vaccines after the intervention. The MBSR group had higher vaccine titers than the control group (Davidson et al.).

Grossman et al.’s 2004 meta-analysis of 20 studies showed MBSR to be an effective method of stress reduction and quality-of-life improvement for people with various diagnoses. The studies in this meta-analysis included patients with cancer, psychiatric diagnosis, cardiovascular diseases, and chronic pain.

**Applications for healthcare providers**

Healthcare professionals are faced with increasing demands and responsibilities. Stress and burnout are common among care providers as they struggle to cope with an increasingly complicated healthcare system and with sicker patients (DiGiacomo & Adamson, 2001). It is essential that providers find productive ways to cope with their stress so that they can deliver care in a meaningful, empathetic manner (Gazella, 2005). Several studies have demonstrated reduced stress, increased coping, and improved empathy among healthcare professionals after completing an MBSR program (Beddoe & Murphy, 2004; Galantino, Baime, Maguire, Szapary, & Farrar, 2005).

A setting where mindfulness is in action is a unique hospice facility that combines Zen Buddhism with western palliative care. Although not all the patients practice meditation, MBM is integrated into the daily routine of the hospice. All staff and volunteers begin and end their shift with meditation. Additionally, most of the staff practice meditation at home (Bruce & Davies, 2005). The staff report that they feel truly present with their patients and therefore provide better care. Staff also reported that learning to exist in the moment helped them better cope with patients’ imminent deaths. It was easier for them to discuss death with their patients because they no longer attached their own feelings regarding death.

These themes of empathy and true attentiveness are reminiscent of the “active listening” techniques taught in many baccalaureate nursing program. Unfortunately, true attentiveness to the patient can be difficult to achieve in today’s harried healthcare system. According to
Kabat-Zinn, it is essential that providers maximize any amount of time they have with patients by being mindful (Gazella, 2005). Therefore, nurse practitioners (NPs) can enhance their practice by taking an MBSR course and practicing MBM.

Conclusion

Patients and healthcare providers face a multitude of stressors. Whether stress stems from daily life, work, or is related to disease states, stress compromises well-being. MBSR is an integrative approach aimed at reducing stress and enhancing quality of life (Bruce & Davies, 2005). The research discussed above has quantitatively and qualitatively shown MBSR effective at reducing stress and anxiety. Although the mechanism by which it effects change is still unknown, MBSR clearly produces positive results.

There are no known adverse side effects to MBSR and it is relatively user friendly as it can be practiced in any quiet setting at any time. After completing the 8-week program, participants can continue meditating on their own. NPs should consider recommending MBSR to their patients who present with chronic illness, anxiety, or depression. MBSR does not replace traditional treatment modalities but enhances the patients’ own abilities to cope productively with their lives. NPs might also consider enrolling in a MBSR program themselves in order to improve their own interactions with patients.

References


