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Dehn, Jean M. ***Using Mindfulness Meditation to Alleviate Stress and Pain***

Abstract

The origins of mindfulness mediation can be traced back to the eastern hemisphere thousands of years ago. In the last few decades, mindfulness meditation has been brought into the world of western medicine. This study discusses what mindfulness meditation entails, the history of mindfulness, and the development of interventions using mindfulness. This study evaluates an intervention called mindfulness-based stress reduction (MBSR) for its effectiveness to alleviate stress and pain for chronic conditions. Outcomes related to physical health, mental and emotional health, quality of life, and overall well-being are discussed. Overall, positive changes were reported with no negative side effects. Limitations and recommendations for further studies are included in this review. Chronic conditions are associated with a variety of physical and psychological conditions and symptoms. Participation in the MBSR program alleviated a variety of symptoms improving individuals' health and well-being. Mindfulness meditation has the potential for application in various applications and needs further investigation.

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Chapter I: Introduction

Let me not pray to be sheltered from dangers but to be fearless in facing them.

Let me not beg for the stilling of my pain but for the heart to conquer it.

Let me not look for allies in life's battlefield but to my own strength.

Let me not crave in anxious fear to be saved but hope for the patience to win my freedom.

Grant me that I may not be a coward, feeling your mercy in my success alone; but let me find the grasp of your hand in my failure.

Rabindranath Tagore, Fruit-Gathering

As humans we hope to have the strength, patience, and courage to face the challenges of life. People are faced with a multitude of fears and anxieties as they journey through life. We all face stress on different levels and from many different sources. Stress is the response of an individual's mind and body to the pressures and demands of life. Stress is both a natural as well as an unavoidable part of life.

Biopsychosocial theory suggests that an individual's overall health and well-being are affected by interacting biological, psychological, and social factors (Astin, Shapiro, Eisenberg, & Forys, 2003). The health of an individual is also affected by the demands and pressures of life which cause stress. The generalized physiological response that an individual experiences to adapt to these demands and pressures is called the General Adaptation Syndrome (GAS) (Lazarus, 1993). The body and mind are constantly interacting and changing in response to stressors in an effort to maintain well-being. Stressors can be physiological or psychological in nature, both producing the GAS (Lazarus, 1993). To adjust or adapt, the individual can defend externally through some physical action or internally involving the use of psychological

resources. These internal psychological resources provide individuals a sense of control and involvement (Lazarus, 1993) that protects from helplessness and despair (Kabat-Zinn, 1990). Therefore, the stress process consists of an external or internal causal agent (stressor); an evaluation by the mind and body to distinguish the severity of the threat; a process of the mind and body to cope with the stress; and a pattern of effects on the mind and body (Lazarus, 1993). The level or amount of stress one experiences is determined by how an individual perceives and handles the stress (Kabat-Zinn, 1990). Psychological stress is experienced when the demands of the situation are appraised as exceeding available resources, thus endangering an individual's sense of well-being. This stress can have detrimental effects on the health and well-being of an individual.

Statement of the Problem

The stress people encounter in life can have a huge impact on their lives. Stress can lead to anxiety, depression, headaches, asthma, back pain, elevated blood pressure, ulcers, heart attack, and stroke, to name a few. Excessive stress is increasingly recognized as a component of disease and as well as an inherent product of our technological society (Rabkin & Struening, 1976). Stress has been found to be a major factor in such chronic conditions as arthritis, fibromyalgia, heart disease, osteoporosis, obesity, cancer, stroke, and Alzheimer's disease (Karadennas, Karamvakalis, & Zarogiannos, 2009). . Many persons do not possess the skills to cope with the stress and pain inherent with these conditions. Chronic pain is associated with problems affecting appetite, sleep, mood, and overall quality of life (Morone, Greco, & Weiner, 2007). It is estimated that one in three people suffers from chronic pain and almost half of these patients claim their pain is not under control despite conventional medical treatment (Rosenzweig et al., 2010).

In our society, chronic diseases and conditions are a major cause of suffering, disability, and death (Kabat-Zinn, 1990). Many of these chronic conditions are without cures or effective treatment (Kabat-Zinn, Lipworth, & Burney, 1985; Rosenzweig et al., 2010; Sagula & Rice, 2004). The limitations of traditional treatments may reflect the complex factors of the conditions and the contribution of psychosocial factors of pain and suffering (Rosenzweig et al., 2010). The introduction of the Eastern practice of meditation into Western scientific study (Shapiro, Schwartz, & Santerre, 2002) and the growing understanding of the link between social, psychological, and physiological determinants of health have brought about the use of behavioral interventions to assist individuals in practices to alleviate their pain and stress (Speca, Carlson, Goodey, & Angen, 2000).

Within behavioral medicine, one of the most fundamental developments is the idea that health involves the interconnectedness of mind and body (Kabat-Zinn, 1990). In understanding and treating illness, it is important to consider the wholeness and interconnectedness of mind, body, and behavior. Individuals will need to learn to be more mindful or attentive to their mind and body in an effort to be more responsible for their health. In the process of paying attention, individuals need to learn how their thoughts, feelings, and beliefs can have significant effects on their health and their ability to cope with stress and illness (Kabat-Zinn, 1990).

Purpose of the Study

This study will review significant literature involving the use of mindfulness meditation as an intervention for the alleviation of pain and stress. The literature reviewed will focus on the intervention program of mindfulness-based stress reduction (MBSR) and look at its effectiveness relating to the alleviation of pain and stress in persons with chronic conditions. This study will

provide information about alternatives and complements to traditional treatments, with a special focus on individuals with chronic pain and conditions.

Research Questions

The following questions will be addressed in this study to evaluate the efficacy of MBSR as an intervention for the alleviation of pain and stress for persons experiencing chronic conditions.

- What effects does MBSR have on the physical health of participants?
- What effects does MBSR have on the mental and emotional health of participants?
- What effects does MBSR have on participants' overall well-being and quality of life?

These questions will provide a basis for evaluating mindfulness meditation as an alternative to or as additional treatment for chronic pain and illness.

Definition of Terms

Meditation. Meditation refers to techniques or practices that focus on bringing mental processes under voluntary control through training of attention and awareness (Shapiro et al., 2002). These self-regulation practices bring about general well-being and enhance calm, clarity, and concentration (Walsch & Shapiro, 2006). The techniques or practices are commonly divided into three categories or families: concentrative, mindfulness and contemplative meditation.

Concentrative meditation refers to techniques whereby one focuses on a single object, in a non-judgmental non-analytical way, ignoring other stimuli in the environment (Shapiro et al., 2002). Mindfulness meditation, also referred to as opening-up meditation (Shapiro et al., 2002) or insight meditation (Kabat-Zinn, 1982) is the focus of this study and will be discussed below.

Contemplative meditation involves surrendering to a benevolent being and contemplating larger life questions while being open to not knowing (Shapiro et al., 2002). Meditation is realized as a dynamic process during which an individual practicing meditation skills can progress from concentrative to mindfulness to contemplative meditation. One develops and builds meditation skills beginning with focus at the concentrative level, opening-up at the mindfulness level, and asking at the contemplative level. Thus, contemplative meditation requires skill in concentrative and mindfulness meditation (Shapiro et al, 2002).

Mindfulness meditation. Mindfulness has not been defined consistently across investigative studies (Bishop et al., 2004). For the purposes of this study, the general definition of mindfulness is being attentive and aware of what is taking place in the present with a non-judgmental, accepting attitude (Kabat-Zinn, 1982; Brown & Ryan, 2003; Sephton et al., 2007).

Mindfulness meditation as a clinical practice incorporates a number of components involving the conscious regulation of attention in conjunction with nonjudgmental awareness to cultivate a state of physiological hypo-arousal to enhance present-moment awareness and reduce habitual cognitive, behavioral, and physiological reactivity (Salmon et al. 2007). The regulation of attention takes practice and requires an individual to detach from thoughts and just observe all mind events. Nonjudgmental awareness, also described as "choiceless awareness" or "bare attention" (Kabat-Zinn, 1982), involves the ability to observe all mental phenomena with a neutral stance or without its according value or meaning (Bishop, 2002). This is closely related to *acceptance* which is relating to one's experience in an open manner (Salmon et al., 2007). The state of physiological hypo-arousal enhances mindfulness and is achieved through practice of quiet sitting to focus one's awareness in the present and minimize interference from physiological activity (Salmon et al., 2007). Reducing reactivity involves a process of "stepping

back," observing conscious thought, and responding more objectively. Stress reactions are viewed as an automated network of cognitive, physiological, and behavioral reactions (Salmon et al., 2007) which are habitual patterns that are detrimental to the individual.

Even though mindfulness has received considerable attention in the last few decades, there is an absence of an operational definition (Bishop et al., 2004). Bishop et al. (2004) proposed the following as an operational definition consisting of a two-component model. Mindfulness involves: 1) "the self-regulation of attention so that it is maintained on immediate experience, thereby allowing for increased recognition of mental events in the present moment" and 2) "adopting a particular orientation toward one's experience in the present moment, an orientation that is characterized by curiosity, openness, and acceptance" (Bishop et al., 2004, p. 232). This operational definition would suggest that certain skills in the self-regulation of attention and the ability to monitor one's consciousness would need to be acquired (Bishop et al., 2004).

A widely accepted operational definition is necessary to further investigate the mediating role of mindfulness and provide a basis for further investigation and scientific study (Bishop, 2002). At present, many studies are using self-reported data the validity of which is questionable (Garland & Gaylord, 2009) and a variety of measurements. An operational definition would assist the development of instruments to measure and further investigate mindfulness (Garland & Gaylord, 2009). It is important to the future of mindfulness studies to include an investigation of the mechanics of mindfulness and the mediating role of mindfulness (Bishop, 2002, Bishop et al., 2004). The theoretical development and investigation of mindfulness approaches with psychological treatment as well as clinical and scientific research

programs would be furthered by the existence of an operational definition (Bishop et al., 2004, Garland & Gaylord, 2009).

Theoretical Background

Mind-body medicine and the western use of mindfulness are only several decades old (Astin et al., 2003). How and why mindfulness meditation works is not fully understood (Bishop et al., 2004, Kabat-Zinn, 2008, Salmon et al., 2004, Shapiro, Carlson, Astin, & Freedman, 2006). The absence of an operational definition has not provided research with the basis to investigate the mediating role of mindfulness or the mechanisms of action of mindfulness (Bishop et al., 2002). Because this study involves the efficacy of mindfulness meditation as an intervention for stress and pain, an explanation of the ideas and theories behind the rationale for using mindfulness in reference to stress and pain will follow.

Cognitive theory. In order to discuss the reasoning of using mindfulness meditation for stress, it is essential to continue our discussion about stress. As discussed in the introduction, the stress process involves an individual's evaluation of and reaction to stressor(s), an appraisal that makes use of the individual's entire self (Kabat-Zinn, 1990). According to cognitive theory, this sense of total self is called the *personal domain* (Fishman, 1992). Ones' personal domain includes knowledge, beliefs, attitudes, self-image, perceptions, abilities, characteristics, and physical representation. Family, friends, material possessions, values, religion, race, and nationality contribute to one's personal domain, as well. The feelings and thoughts, as well as behavior in response to an event, are determined by the unique meaning that event has for an individual due to this personal domain (Fishman, 1992).

Individuals have mental mechanisms that monitor the status of their personal domains. The status of the present is compared to ideal representation of one's personal domain, thus

forming a value judgment. This process of monitoring and appraisal is crucial to the individual's survival along with physical and mental well-being (Fishman, 1992). An immediate threat would trigger fear and escape; a more general threat would trigger anxiety and avoidance. A positive enhancement would trigger joy and pride. Thus, appraisal and perception play a major role in our ability to adapt and respond to threats and pain, as well as accept continual change (Kabat-Zinn, 1990). How effectively we cope with stress depends on understanding the experiences we are going through.

When we are faced with situations that we perceive as a threat to our well-being, a psychological and physiological hyperarousal occurs referred to as the fight or flight reaction. The mind and body systems react to prepare the body for defending itself (fight) or avoiding the threat (flight). This reaction includes a multitude of rapid nervous system firings, a release of stress hormones, heightened sense perceptions, and increased output of the circulatory system for energy needed for appropriate muscles. This activation by the autonomic nervous system prepares the individual for fighting or fleeing. This stress reaction is a survival response when individuals find themselves in a life threatening situation (Kabat-Zinn, 1990).

However, the stress reaction can be detrimental to the body if not used constructively, and it begins to control an individual. In *Full Catastrophe Living*, Kabat-Zinn (1990) explains how individuals can get caught in a stress reactivity cycle. He explains that even a perceived threat can set off the stress reaction. Threats, real or imagined, can cause us to react automatically. Anything that threatens our well-being, such as threats to our social status, ego, strongly held beliefs, the desire to control things, or to have things be a certain way, can trigger the stress response. This state of hyperarousal can become a way of life. Awareness is the key

to changing the way an individual sees, appraises, and evaluates situations, along with how to respond to the situation.

Individuals suppress their thoughts and feelings thus internalizing the heightened state. The chemicals and hormones cause an individual to remain agitated, holding it inside while inhibiting the outward signs of the stress reaction. There is evidence that this leads to long-term physiological disregulation. Resulting problems can include increased blood pressure, cardiac arrhythmias, digestive problems, chronic headaches, backaches, and sleep disorders and psychological distress in the form of chronic anxiety (Kabat-Zinn, 1990).

Some individuals use self-destructive behaviors to cope with their stress. These behaviors include denial, overworking, hyperactivity, overeating, or the abuse of substances such as drugs, alcohol, cigarettes, caffeine, and food. Rather than dealing with the stress, individuals throw themselves into work or busyness to avoid the real problems. Rather than dealing with the stress, individuals find quick fixes in the abuse of substances to make themselves feel better. An individual can go on for a long time through such periods of distress and maladaptive behavior however eventually a breakdown may be experienced due to the accumulated effects of stress overload and the maladaptive coping behavior (Kabat-Zinn, 1990). Mindfulness meditation is a healthy alternative that teaches an individual to respond to stress rather than to react to stress, eliminating being caught in the destructive cycle of stress reactivity and learning healthy coping techniques (Sagula & Rice, 2004).

Mindfulness meditation allows individuals to take control of their mind and body and be aware of sensations and feelings as biofeedback messages. The awareness in the moment teaches individual to be aware of the relationship between their mind-body and the environment. Mindfulness practitioners learn how to reflect before acting rather than reacting automatically.

The nonjudgmental attitude incorporated into mindfulness enhances self-acceptance and a positive outlook. The individual can stand back and evaluate the situation, and respond after reflecting on the situation (Sephton et al, 2007).

It is important to remember that the challenges of life make negative thoughts and stressful emotions necessary for normal coping and adaptation. Sadness, anger, and anxiety are natural expressions of the pain of life situations. Guilt, depression, and panic along with maladaptive behavior such as helplessness, social withdrawal, and phobic avoidance are abnormal (Fishman, 1992). Mindfulness meditation teaches patients how to reflect before acting rather than reacting automatically. This allows them to control their reactions and recognize how stress may influence their lives and well-being.

Gate control theory. Another theory involves the complex phenomenon of pain. There is both physiological and anatomical evidence that there are sensory-discriminative, motivational-affective, and cognitive-interpretative dimensions that interact to produce the pain experience (Kabat-Zinn, 1982). Gate control theory suggests that one can influence the sensory dimension of pain. One can regulate the sensory transmission at the spinal cord entry level through activity in the cognitive and motivational dimensions.

The meditation practitioner through practice would observe feelings of pain as "bare sensation." Bare sensation refers to the detached observation toward sensations in the body with similar detachment to the cognitive process that evaluates and labels the pain sensation. Mindfulness meditation teaches the practitioner to evaluate the sensation nonjudgmentally or without value. Therefore, the individual would have a sensation of pain and through mindfulness observation and reflective response; they would not suffer from the pain.

In dealing with pain, it is important for the individual to understand the difference between pain and suffering (Kabat-Zinn, 1990). Suffering is a response to pain and involves the use of our personal domain to put meaning to the experience. It is not the sensation, but an individual's perception and reaction which determines the degree of suffering they will experience (Kabat-Zinn, 1990). Therefore, using the inner resources of the mind can influence the pain experience. Mindfulness meditation teaches individuals to utilize these inner resources in an effort to control their pain experience.

Chapter II: Literature Review

Origin and History of Mindfulness Meditation

As an attribute of consciousness, mindfulness has long been believed to promote well-being. Mindfulness meditation has its origins in Buddhist traditions. Buddhist meditation practices date back 3,000 years (Garland & Gaylord, 2009; Salmon et al., 2004). Mindfulness meditation is practiced to end mental suffering and allow the practitioner insight into the impermanent nature of the personal self (Carmody, Baer, Lykins, & Olendzki, 2009). Buddhists believe that psychological suffering is due to the judgments of one's mind which decides what should be strived for and what should be avoided. Buddha himself used meditation to explore the nature of suffering and the human condition (Kabat-Zinn, 2003). He gained insight, a view of human nature, and the cause of human suffering. The causes of suffering called the "three poisons" were greed, hatred, and ignorance or delusion (Kabat-Zinn, 2003). The "dis-ease" created by the three poisons lead to levels of frustration, distress, anxiety, and depression (Nyklicek & Kuijpers, 2008). Mindfulness was the path to purification (Bishop, 2002). Thus mindfulness is at the core of a practice allowing practitioners to control mind and heart with a compassionate quality and friendly presence and interest (Kabat-Zinn, 2003).

In the 1960s the western hemisphere experienced a shift in mental health practices that led to the exploration of other traditions, including Eastern traditions of meditation (Shapiro et al., 2002). Initially proponents of Eastern traditions and Western psychology dismissed one another due to misunderstandings and ignorance, but these attitudes gradually changed through mutual exploration and exchange of knowledge (Walsch & Shapiro, 2006). Within research, the meeting of meditation and Western psychological disciplines created research challenges due to these disciplinary differences. However, greater knowledge has brought about increased open-

mindedness and exploration of psychology, psychotherapy, and meditation. Major theoretical and practical implications, along with promising mutual enrichment and integration, have resulted due to this meeting of meditative and western psychological disciplines (Walsch & Shapiro, 2006). We are in the midst of this exploration and integration of Eastern traditions with Western psychology.

Meditation is practiced by some ten million people in the United States, making it one of the most widely practiced and researched disciplines in the world (Walsch & Shapiro, 2006). Secular mindfulness meditation was integrated with psychotherapeutic techniques for studies emphasizing symptom reduction and alleviation. The following paragraphs represent a brief history of integration of mindfulness with psychotherapeutic techniques.

In 1982, mindfulness-based stress reduction (MBSR) was developed as an intervention for alleviating symptoms in individuals suffering from chronic pain (Kabat-Zinn, 1982; Kabat-Zinn, 1985) and later as a treatment for patients of anxiety disorders (Kabat-Zinn et al., 1992). The intention in developing the MBSR program was to serve as an effective training for people struggling with suffering due to illness, pain, and stress and to serve as a model for other medical facilities (Kabat-Zinn, 2003). MBSR is the intervention used within this study and will be discussed in detail later.

The integration of mindfulness meditation with psychotherapeutic techniques resulted in the development of dialectical behavior therapy (DBT) in 1993 (Rizvi, Steffel, & Carson-Wong, 2013). Marsha Linehan developed the intervention for persons with borderline personality disorder where mindfulness training assisted patients in acquiring greater self-awareness, coping skills, and behavioral change (Linehan, Tulek, & Heard, 1994). Mindfulness encompasses a module within a variety of technique modules taught within the intervention program (Rizvi et

al., 2013). The therapy includes principles of mindfulness, acceptance, and validation to improve patients' interpersonal functioning and reduce suicidal events (Linehan et al., 1994).

Mindfulness-based cognitive therapy (MBCT) combined mindfulness with cognitive behavior therapy (CBT). CBT was considered the "gold standard" of behavioral approaches used to change maladaptive ways of thinking and feeling in response to illness (Zautra et al., 2008). MBCT has been used for patients with acute depression using mindfulness to enhance positive emotion and awareness, which is not typically a part of CBT. Patients became more aware of negative thoughts and feelings while learning skills to prevent the escalation of negative thought patterns. MBCT allowed recovered recurrently depressed patients to disengage from negative thoughts to assist in preventing relapse and reoccurrence (Teasdale et al., 2000).

Acceptance and commitment therapy (ACT) is also an integration of mindfulness with psychotherapeutic techniques. The six principles of ACT, which include defusion, acceptance, present moment, self-as-context, committed action, and values, are centered on mindfulness (Bowden & Bowden, 2012). Mindfulness teaches patients to pay attention with openness, flexibility, and curiosity to see thoughts as just thoughts (Bowden & Bowden, 2012). ACT helped psychotic patients cope with hallucinations and delusions. Patients learned to abandon control strategies and accept difficult feelings and thoughts by focusing on behavior with positive outcomes (Bach & Hayes, 2002). ACT has also been used by school counselors as an approach to helping students deal with issues (Bowden & Bowden, 2012).

The Center for Mindfulness in Medicine, Healthcare, and Society at the University of Massachusetts Medical Center developed a professional training program in MBSR (Bishop, 2002). New mindfulness meditation programs are established each year in addition to approximately 240 existing programs in Europe and the United States (Bishop, 2002).

"Research is beginning to prove what mindfulness practitioners have known for centuries— that greater attention, awareness, acceptance, and compassion can facilitate more flexible, adaptive responses to stress, which, in turn, can help free us from suffering and realize greater health and well-being" (Greeson, 2009, p. 15). Additionally, mindfulness has been shown to benefit people in such professions as customer service (Walach, Nord, Zier, Dietz-Waschkowski, Kersig, & Schupbach, 2007), education (Gold, Smith, Hopper, Herne, Tansy, & Hulland, 2009), health care (Shapiro¸ Astin, Bishop, & Cordova¸ 2005), clinical psychology (Stafford-Brown & Pakenham, 2012), and bereavement care (Cacciatore & Flint, 2012).

The Typical MBSR Program

The intervention used in the reviewed studies was based on MBSR. Participants are given a pre-course orientation and participate in an assessment session. Participants meet for group sessions once a week for eight to ten weeks. Each session is 90 to 120 minutes in length. Although the program is conducted in a group format, the emphasis is on the sharing or communal sense of participating in an inward-focusing practice rather than interaction between group members (Salmon et al., 2004).

Participants are taught self-regulation through the directed attention characteristic of mindfulness meditation (Kabat-Zinn, 1982). Such various meditation practices as mindfulness of breathing, body scan, and hatha yoga are taught. The hatha yoga is introduced as part of the meditative process to address movement issues and reverse atrophy of the musculoskeletal system. Meditation is taught using the activities of walking, sitting, and eating, using a variety of meditation techniques that assist persons to incorporate mindfulness into their daily living. Different techniques allow participants the opportunity to experience and cultivate detached observation as well as revealing that meditation is a tool offering many ways to achieve its goal.

Participants are asked to schedule 45 minutes each day for structured home practice and are given recorded guided meditations for home practice. Educational information is disseminated to participants within mindfulness sessions, such as background information, the physiology of stress, and methods of coping with stress. Around the sixth week the group meets for a six- to eight-hour day of guided mindfulness practice within the structure of a silent retreat.

In the first half of this program participants are learning to pay attention to internal experiences and in the second half, how to apply mindfulness to life's challenges. Programs may differ based on the particular needs and issues of the participants (Crane, 2009). Information for learning is focused on assisting participants with particular problems or issues related to their condition. Many mindfulness-based studies use this core structure for their intervention programs (Crane, 2009; Kabat-Zinn, 1990; Williams & Penman, 2011).

Review of Literature

Physical health. For those with chronic conditions, pain and stress can have debilitating effects. Previous studies have shown that MBSR intervention programs can provide positive outcomes relative to individuals' physical health (Grossman et al., 2004; Merkes¸2010). Reductions in both frequency of pain (Kabat-Zinn, 1982, 1985) and severity of pain (Kabat-Zinn, 1982, 1985; Grossman et al., 2007) were experienced by patients with chronic pain using MBSR. Participants are taught different coping methods and learn to observe the sensation of pain and experience it instead as "bare sensation." without reacting to the affective and cognitive components of pain. Patients reported changes in attitudes toward pain and greater acceptance of pain, along with the acquisition of better coping skills to deal with pain (Grossman et al., 2007; Morone, Greco, & Weiner, 2007). With meditative practice of detached observation, the negative impact of pain may be reduced and may result in a disconnection of the affective and

cognitive aspects of the pain experience. Although there was no concrete evidence of this disconnection, patients reported that they either experienced a vast reduction in their pain or found pain less problematic due to coping differently. One study claimed to be the first to show the possibility of providing an effective treatment for the pain of arthritis (Rosenzweig et al., 2010).

Some studies of chronic conditions involve heterogeneous groups and results are reported without consideration of the type of condition of the participants. Rosenzweig et al. (2010) compared effects of mindfulness meditation for different chronic conditions within a heterogeneous group. Patients experiencing chronic back or neck pain and those with two or more conditions experienced the largest improvement in pain and functionality. Patients with fibromyalgia, arthritis, and chronic headaches or migraines had lesser improvements. This may suggest that more studies should be done looking at the effectiveness of MBSR for chronic pain, especially for specific chronic conditions (Rosenzweig et al., 2010; Speca et al., 2000).

Many patients with chronic conditions and pain lose physical functioning and experience atrophy of muscular groups due to disuse. MBSR intervention incorporates yoga and movement meditation to increase patients' physical functioning and improve skeletomuscular health. An improvement in physical activity (Morone, Greco, & Weiner, 2007; Rosenzweig et al., 2010; Young & Baime, 2010) and an increase in vigor were experienced by patients (Kabat-Zinn, 1982, Rosenzweig et al., Speca et al., 2000). Cancer patients encountered declines in fatigue and muscle tension and became more involved in physical exercise (Brown & Ryan, 2003; Speca, Carlson, Goodey, & Angen, 2000). The increase of physical activity is advantageous on many levels. Patients' general health benefits from physical activity, along with improvements in self-esteem and attitude. Some participants reported being involved in physical activities that due to

their condition had been difficult or not possible before mindfulness training. Studies that included older adults found the promotion of activity highly appropriate considering the perceived barriers that older adults may have to engaging in exercise (Morone et al., 2007; Young & Baime, 2010).

People with chronic conditions and pain face the challenges of a myriad of medical symptoms including complaints involving sleep and sleep quality. MBSR participants are to view themselves as having more right than wrong with their body and to view themselves as a whole person separate of their pain and symptoms. Participants reported a decline in the number of medical symptoms (Carlson et al.; 2003, Kabat-Zinn, 1982, 1985; Sephton et al., 2007) such as fatigue, headaches, tension, circulatory, and gastrointestinal complaints. Kabat-Zinn (1982) suggested that symptom reductions suggested that patients were exercising self-regulation and wellness behaviors. Some patients reported using less medication for pain or sleep (Morone, Greco, & Weiner, 2007) and some cancer patients experienced a marked improvement in the quality of sleep (Carlson et al., 2003). Sleep is essential for healing and recovery, as well as, overall well-being.

Some studies have suggested that mindfulness can change the brain and alter the functioning of the immune system (Garland & Gaylord, 2009; Kabat-Zinn, 2008). Previous studies have documented lower levels of cortisol and normalized immune function measured through killer cell activity, increased production of □ □-chemokins, and protection against the loss of "helper" T-cells (Greeson, 2008). One study (Carlson et al., 2003) investigated MBSR in relation to immunological effects. Results of the tests performed represented a shift away from a depressive/carcinogenic cytokine profile, indications of decreases in depressive symptoms, and a shift away from a proinflammatory to an anti-inflammatory environment. These shifts are

consistent with healthy immune functioning (Carlson et al, 2003). The significance of these findings is unknown and further studies are needed to determine a greater understanding in terms of disease and immunological function.

Mental and emotional health. Mindfulness meditation teaches individuals to observe thoughts and feelings nonjudgmentally. This allows them to experience thoughts and feelings more objectively and become reflective rather than reactionary. This process of mindfulness practice helps patients reduce emotional distress. With chronic conditions and pain, the detrimental psychological effects may include anxiety, depression, mood disturbances, anger, negative self-image, and somatization. Meditation techniques to promote relaxation were taught giving participants the ability to self-regulate arousal and reduce distress. Patients experienced notable improvements in their overall psychological distress and mood, as well as significant declines in anxiety and depression (Carlson et al., 2003; Kabat-Zinn et al., 1992; Rosenzweig et al., 2007; Sagula & Rice, 2004; Sephton, et al., 2007; Speca et al., 2000; Young & Baime, 2010). Kabat-Zinn et al. (1992) reported these reductions as measured both with self-ratings and interview ratings.

When studying anxiety, Sagula and Rice (2004) differentiated between state and trait anxiety. State anxiety refers to how the person feels "right now, in this moment" whereas trait anxiety refers to how the person "generally" feels. This study found reductions in state anxiety but no difference in trait anxiety between the MBSR group and the wait list comparison group. This inconsistency may have been due to the aspects of anxiety being measured and the duration of time not being sufficient to change a trait variable.

The body scan technique learned through MBSR allows patients to use an open, compassionate, accepting attitude in experiencing the sensations and thoughts of their body.

Through the use of the body scan, individuals become more aware of reaction patterns and negative thoughts. Participants using mindfulness experienced considerable improvements in somatization as well as positive changes in attitudes and self-image. Some mindfulness participants reported reduced anger and hostility (Brown & Ryan, 2003; Speca et al., 2000) and fear (Kabat-Zinn, 1992). Patient with fibromyalgia, or cancer and older patients may experience such cognitive deficits as confusion and disorganization due to their conditions. These patients reported reductions in cognitive disorganization or confusion after meditation practice (Carlson et al.; 2003, Speca et al., 2000; Young & Baime, 2010). Older participants (mean age of 75 years old) reported experiencing improved concentration after meditation (Morone, Greco, & Weiner, 2007).

Quality of life and well-being. An individual's physical health, psychological health, social relations, and environment are factors associated with quality of life and well-being. MBSR intervention improved individuals' physical and psychological health by reducing pain, physical symptoms, and psychological symptoms. Participants experienced shifts in their attitudes and self-image. Free statement claims made by patients suggested growth in areas of self-esteem, communication, and coping (Kabat-Zinn, 1982). These changes, along with the participants' willingness to take responsibility for their health, improved their quality of life and well-being. Improved physical functioning improved individuals' ability to engage in activities and feel more involved in life activities. Through mindfulness meditation, individuals experienced an improved self-image and an overall feeling of well-being.

People enduring chronic conditions and pain are affected by losses in their physical, emotional, and social lives. Mindfulness meditation may help patients with awareness and coping with grief. Sagula and Rice (2004) investigated the grief involved with losses, finding

that mindfulness gave patients the ability to cope better with losses. The authors attributed this ability to the nonjudgmental attitude learned through mindfulness and participants' learning that their thoughts and emotions are not who they are (Kabat-Zinn, 1990).

Participants also gained self-regulation by practicing detached observation of thoughts and feelings, allowing themselves to reflect and act, rather than react using habitual behavior patterns. Patients were able to develop positive coping and behavior responses due to a newfound awareness and understanding of stress reactions (Kabat-Zinn, 1982). Levels of anxiety and stress were reduced as patients learned to cope with their pain and conditions resulting in an increased state of well-being. Such benefits of mindfulness were maintained over periods of two months to four years in follow-up studies (Grossman et al., 2007; Kabat-Zinn, 1982; 1985, Kabat-Zinn et al.; 1992, Morone et al., 2007; Sephton et al., 2007). Participants were willing to make mindfulness part of their daily lives suggesting positive benefits through a continued practice of mindfulness meditation. One participant explained the benefits in this way: "Mindfulness meditation has a quieting effect on me. It gives me a peaceful feeling while doing it and I am able to reduce my back and leg pain by deflecting the pain and focusing on other parts of my body" (Morone et al., 2007).

Chapter III: Discussion

Summary

Individuals with chronic conditions and chronic pain experience difficulties due to fear, stress, symptoms, and emotional, mental, and physical losses. Stress and pain can have devastating effects on the body, both physiologically and psychologically. Medical science has found evidence that stress is a large factor in chronic conditions and chronic pain. Mind body medicine focuses on treating the total person with the knowledge that health involves physical, psychological, and social factors. Mindfulness meditation is an intervention that allows individuals to understand and take part in the alleviation of their stress and pain.

The purpose of this study was to evaluate MBSR's efficacy as an intervention for alleviating stress and pain. In evaluating MBSR for pain and stress, we considered the effects of the intervention on individuals' physical health, psychological health, and overall well-being and quality of life. The studies used for the review included individuals with chronic conditions, chronic pain, and anxiety disorders.

Positive outcomes in individuals' physical health included reductions in pain and medical symptoms. Participants experienced changes in attitudes¸ acceptance of their conditions, and better coping skills. Individuals experienced greater physical functioning, fewer problems due to symptoms, and improved sleep quality. Some patients saw reductions in medication use. Patients viewed themselves as having control and as having more right with their bodies than wrong.

Participants using MBSR showed mental and emotional health improvements that included significant reduction of anxiety and depression. This reduction was experienced by teaching the participants the ability to self-regulate arousal and reduce distress. Body scan techniques taught patients to be more aware of reactions to negative thoughts and patterns. Patients experienced positive changes in attitudes, self-image, somatization, as well as reduced anger, hostility, and disorganization. Some older patients reported improved concentration.

The MBSR intervention helped patients improve their quality of life and well-being and increase their self-esteem, communication, and coping. The reductions in pain and stress improved their health and social interactions. Patients felt empowered and in control of how they could react to their condition due to their awareness, coping skills, and positive behavioral responses. Equipped with newfound internal resources to improve their quality of life and overall well-being, patients became more active and engaged in life activities.

Mindfulness meditation in the MBSR program improved individuals' physical health, psychological health, and overall well-being. These positive results were maintained in follow-up periods of two months to four years. Individuals found the benefits worthy of continued practice and reported making the meditation part of their daily routines. Other beneficial factors noted were the ability to observe mental events and relax in daily life situations, deep personal insight, greater patience, successful coping techniques, and living in the present moment. When considering the overall results throughout these studies, mindfulness meditation has shown positive results in a multitude of areas without harmful side effects.

Critical Analysis and Limitations

With these studies, participants were volunteers, and many studies involved persons specifically seeking alternatives to traditional medicine, feeling it was not serving them adequately. One must consider their state of mind and their high expectations of the MBSR program. In development of the MBSR intervention program, key elements were expectation of relief, a non-goal orientation, self-responsibility, high demand of patients, and long-term perspectives (Kabat-Zinn, 1982). These expectations may have affected the results of some of the studies, which should be considered along with the possibility of a placebo effect.

The background and training of the instructor teaching mindfulness meditation can have a significant effect on the outcome of the participants. Kabat-Zinn (2003) stated that for the teaching to be done in an authentic manner, the instructor had to be practicing mindfulness in his or her own life. Most

of the studies reviewed did not mention the instructors' practices. The training and experience of the instructor may have affected the quality of the program.

Sephton et al. (2007) suggested that future studies should separate the effects of social support and attention from the effects of meditation. The quality of the meditation and the specific meditation techniques that participants used were not investigated in these or in follow-up studies. The participants were asked only if they meditated on a regular basis or how much time they meditated. It was noted that those who meditated more experienced better results than those who meditated less. Some of the studies mentioned that patients kept meditation journals, but the information was not discussed in the outcome and findings of the studies. These logs may have included comments explaining data or insights related to understanding findings. One study did include a few comments participants made about the meditation program. The comments included mindfulness as producing "a quieting effect," "a peaceful feeling,", and "deflecting pain" (Morone et al., 2007).

Another factor to consider is that some participants were receiving traditional treatment in addition to being in the MBSR intervention program. Although the traditional treatment was not sufficient to reduce the symptoms of their conditions, it may have had an effect on the outcome for the individual. A research design that provides the separate evaluation of the effects of MBSR on patients concurrently receiving traditional treatment from those using MBSR only would be valuable.

The absence of a universally agreed upon operational definition is a serious limitation in the study of mindfulness meditation. An operational definition would provide a basis for scientific study and be an essential for the development of instruments to measure mindfulness. An operational definition would further the investigation of the therapeutic mechanisms of mindfulness meditation. Future studies into mindfulness would benefit from the development of an operational definition.

Because these investigative studies involved a variety of designs and outcome measures, drawing comparisons is challenging. Self-reported data have concerns of validity. Most measures involved self-reported data that may be subject to bias; some participants may have desires to please, and others may deny certain aspects of their conditions.

Small sample size and lack of control groups are also limitations of these studies. Some studies used comparison groups or peer wait-list groups for comparison purposes. Some investigations that included follow-up studies did not have either control or comparison groups.

These studies did not consider variables of age, gender, ethnicity, or cultural differences. The majority of participants were women. One explanation for the large proportion of female participants is that they tend to seek medical attention more than do men (Young & Baime, 2004). Additionally, fibromyalgia, a health condition that was the focus of several studies, is predominantly experienced by women (Grossman et al., 2007; Sephton et al., 2007).

Recommendations

As previously discussed, an operational definition of mindfulness should be developed. Studies into how mindfulness works and the mechanisms of mindfulness should be investigated. The development of measures and instruments that go beyond the producing of self-reported data would be beneficial and increase validity of the data. One study (Sagula & Rice, 2004) investigated mindfulness in relation to grief, and another investigated mindfulness affecting immune functions (Carlson et al., 2003). These represent relatively newfound ideas and are areas that future studies might fruitfully investigate. Future studies should also specifically investigate which components of mindfulness are most effective. Research might also look into the comparable effectiveness of the various techniques and practices involved in the MBSR program.

Future studies into mindfulness for alleviation of stress and pain are warranted by the positive results of the studies thus far. Future studies should include larger sample sizes as well as randomized controlled studies. Longitudinal studies would be beneficial into the investigation of the use of mindfulness for improved health, sustained benefits in using mindfulness, and changes in levels of mindfulness practiced over time. The studies to date show positive outcomes and clinical significance but mindfulness mediation requires further investigation.

Mindfulness meditation may prove effective for terminal illness and would be an area to be investigated. The numbers of individuals seeking medical care for terminal illnesses are increasing. The challenges faced can often be daunting, not only for the individual but for the family as well. The physiological and psychological challenges faced by terminally ill patients may be alleviated using mindfulness meditation due to some similarities to the problems of chronic conditions.

Chapter IV: Conclusion

Individuals with chronic conditions and pain are faced with challenges that can cause both physiological and psychological symptoms. Without the appropriate inner resources, these challenges can cause undue suffering and difficulty. MBSR intervention can teach individuals coping and positive behavior skills to give them control over how they respond to their conditions. Individuals feel positive about the acquisition of these skills and discover that quality of life is possible, even while dealing with the challenges of their condition.

Studies have shown that MBSR programs assist in managing pain and stress, along with physical and psychological symptoms. The skills learned through mindfulness meditation can help individuals deal with chronic symptoms, cope with losses and grief, improve their health and quality of life. Mindfulness meditation is beneficial in coping with a multitude of challenges associated with chronic conditions. Most of us wish to maintain dignity as we journey through life. MBSR is one method for facilitating learning to accept the challenges of life as they come, viewing even death as part of life. This attitude of acceptance is exemplified in this wise advice written over seven centuries ago by the poet and Sufi mystic Rumi (1995, p. 109).

The Guest House

This being human is a guest house.
Every morning a new arrival.

A joy, a depression, a meanness,
some momentary awareness comes
as an unexpected visitor.

Welcome and entertain them all!
Even if they're a crowd of sorrows,
who violently sweep your house
empty of its furniture,
still, treat each guest honorably.

He may be clearing you out
for some new delight.

The dark thought, the shame, the malice,
meet them at the door laughing,
and invite them in.

Be grateful for whoever comes,
because each has been sent
as a guide from beyond.

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