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## Impact of MBSR on Symptoms of Anxiety, Stress, and on the Degree of Mindfulness

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Impact of MBSR on Symptoms of Anxiety, Stress, and on the Degree of Mindfulness

Submitted by Maureen Rivord  
May, 2012

MSW Clinical Research Paper

The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present their findings. This project is neither a Master's thesis nor a dissertation.

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## **Abstract**

Anxiety and stress are felt by millions of people in the United States, and when experienced at high levels they can leave a debilitating impact, including both physical and mental health concerns. The purpose of this research project was to explore the impact of a mindfulness course, specifically Mindfulness-Based Stress Reduction, on voluntary participants' reported symptoms of anxiety and stress levels. The 8-week Mindfulness-Based Stress Reduction course took place in a mid-sized Midwestern city. Using quantitative methods the 10 voluntary participants were given a pre- and post-test survey where the participants reported their anxiety, stress, and mindfulness levels before and after the 8-week course. The researcher then compared the anxiety, stress, and mindfulness scores from pre-test to post-test survey administration. The findings indicated that the participants' reported levels of anxiety and stress both significantly decreased at the time of the post-test compared to the pre-test administration. Also, participants reported a significant increase in their mindfulness awareness at the time of the post-test compared to the pre-test administration. These findings suggest that a mindfulness practice may be a successful intervention for mental health practitioners to use with clients in alleviating symptoms of anxiety and stress.

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### **Impact of MBSR on Symptoms of Anxiety, Stress, and Mindfulness**

According to the American Psychological Association (APA), in 2006 approximately 47% of Americans reported experiencing a significant amount of stress in their lives. Like stress, anxiety disorders are also very prevalent, affecting many Americans (National Institute of Mental Health [NIMH], 2010). More than 20 million Americans will suffer from an anxiety disorder during their lifetime making anxiety disorders among the most common mental health conditions in the United States (NIMH, 2010). It is also estimated that 1 in 8 children suffer from an anxiety disorder (NIMH, 2010). With such a high prevalence of stress and anxiety affecting Americans today, it is important to look at interventions that can help alleviate symptoms, which sometimes can be debilitating.

Stress and anxiety are normal parts of the human experience and often serve similar functions under normal levels. When stress and anxiety are experienced at normal levels, they can serve as protective functions. When experienced at manageable levels, stress and anxiety can facilitate and motivate individuals to move towards appropriate action (Kabat-Zinn, 1992). However, because stress and anxiety are experienced on a continuum, they can also be experienced at unmanageable levels. When stress and anxiety are experienced at higher levels, they can be debilitating and destructive of one's everyday life functioning (Kabat-Zinn, 1992). High levels of anxiety can result in excessive worry, which can inhibit motivation and may result in avoidant behaviors. This can affect an individual's ability to perform, relate to others, and experience life satisfaction (Borkovec & Roemer, 1995). Anxiety and stress share similar physical manifestations, such as body aches, sleep difficulties, changes in appetite, as

well as interpersonal challenges. In fact, stress has also been linked to the six leading causes of death in the United States, including heart disease, cancer, and suicide (APA, 2006). Anxiety and stress stem from similar life events, such as demanding jobs, unstable relationships with others, financial stressors and even combat, all of which are prevalent stressors in today's world (Borkovec & Roemer, 1995). It is critical to explore effective treatment options for such serious and prevalent issues such as anxiety and stress because of the mental health implications, and for the alleviation of many physical health concerns.

The treatment of anxiety disorders has primarily consisted of formal psychotherapy. Cognitive behavior therapy, in conjunction with psychopharmacological treatment has been shown to be a relatively successful treatment combination (Roemer & Orsillo, 2002; Borkovec & Roemer, 1995). While cognitive behavior therapy has been relatively successful in treating anxiety disorders, a significant percentage of people continue to struggle with residual symptoms (Evans et al., 2007). The alarming rate of both anxiety and those who experience a significant amount of stress calls for new and innovative ways to help alleviate stress and anxiety symptoms. Health professionals, including social workers, should always be looking for new and innovative ways to treat clients.

An area that is increasing in popularity is the practice of mindfulness in helping to alleviate many mental and physical health concerns and to increase quality of life (Kabat-Zinn, 1982). Mindfulness practice can be used everywhere, and almost everyone is capable of using it if her/she practices it. Mindfulness practice has been used in many settings to address symptoms associated with stress, physical pain and anxiety. A

specific structured mindfulness program, called Mindfulness-based Stress Reduction, was created by Jon Kabat-Zinn in 1979 at the University of Massachusetts Medical Center. Mindfulness-based Stress Reduction (MBSR) combines mindfulness meditation with Hatha yoga. The idea of mindfulness is not new. It originates in Buddhism, but more recently has become incorporated into western practice. Mindfulness is becoming popular in increasing overall quality of life and is also being used as an intervention for decreasing diagnosed physical and mental health disorders and the symptoms that accompany with them (Kabat-Zinn, 1982).

This research explores the impact of Mindfulness-Based Stress Reduction on symptoms of anxiety and stress levels in voluntary participants who are enrolled in an 8-week Mindfulness-Based Stress Reduction course in mid-sized Midwestern city. Using quantitative methods the participants were given a pre- and post-test survey that tracked the anxiety and stress levels of the participants over the 8-week course. This study looks at the group trends and compares anxiety and stress scores from pre-test to post-test survey administration.

### **Literature Review**

This literature review focuses on definitions of mindfulness as well as on the brief history of the origin of meditation (Kabat-Zinn, 1982; Baer, 2003; Bishop et al., 2004; Nyanaponika, 1977; Hanh, 1976; Kabat-Zinn, 2003). After a description of The Mindfulness-based Stress Reduction course (Kabat-Zinn, 1982; Kabat-Zinn, Massion, Kristeller, & Peterson, 1992; Baer, 2003), the role of mindfulness in treating anxiety is explained as well as past studies using MBSR as an intervention for various medical and psychological concerns with an emphasis on anxiety and stress (Roemer & Orsillo, 2002;



Borkovec, Hazlett-Stevens, & Diaz, 1999; Borkovec & Roemer, 1995; Semple, Reid, & Miller, 2005; Kabat-Zinn et al., 1992; Miller, Fletcher & Kabat-Zinn, 1995; Kutz, Dorrington, Morrison, Borysenko, & Benson, 1985; Reibel, Greeson, Brainard, & Rosenweig, 2001; Astin, 1997; Oman, Shapiro, Thoreson, Plante, & Flinders, 2008; Shapiro, Schwartz & Bonner, 1998).

### **Brief History and Description of Meditation**

Meditation has its roots in eastern culture; however meditation has been gaining in popularity in western societies for the last forty years (Kabat-Zinn, 2003; Nyanaponika, 1977). Meditation, or specifically mindfulness, is considered to be at the core of Buddhism. While Buddhist practice has an extensive history, which goes beyond the scope of this paper, it is important to know where meditation has its roots. Kabat-Zinn (2003) refers to the Buddha as a scientist or doctor, who explored and used his own mind, body and personal experiences in order to alleviate human suffering (Hanh, 1976). According to the Buddha, freedom from suffering is something all human beings are capable of, and the practice of mindfulness is one of the practices that leads to freedom. Similar to its original purpose in Buddhism, mindfulness has been adopted by modern psychology to increase both awareness and adaptive skills to help alleviate emotional and physical suffering (Bishop et al., 2004).

There are two major classes of meditation practice: concentration meditation and awareness meditation, which is also known as mindfulness meditation. Concentration meditation, which includes Transcendental meditation, is the most studied form of meditation. In transcendental meditation an individual focuses on a single point or object, which is typically the breath, a mantra or visual image (Kabat-Zinn, 1982; Baer,

2003). Anything beyond that is considered a distraction, and attention must be brought back to the focal point (Baer, 2003). Whatever made the mind wander from this point is ignored (Kabat-Zinn, 1982). Unlike Transcendental Meditation, awareness meditation, which in this paper will be called mindfulness, does not consider anything to be a distraction. One focuses the mind on the breath and then observes what draws the attention away from the focal point. Mindfulness also encourages nonjudgmental observation. If a judgmental thought arises, the idea is to just notice it (Kabat-Zinn, 1982). Actually, all thoughts that arise are treated with equal importance and not ignored. Although similar, mindfulness meditation is less restrictive than concentrative meditation in that it includes all of one's experience.

### **Defining Mindfulness**

Because programs and courses that teach mindfulness skills are growing in popularity, there has also been an increase in criticism in the scientific community about the lack of an agreed upon operational definition of the word mindfulness. According to some researchers, the lack of an operational definition makes it difficult for research in mindfulness to withstand the test of scientific rigor (Bishop et al., 2004; Baer, 2003; Kabat-Zinn, 2003). Baer (2003) offers the following definition, "Mindfulness is the nonjudgmental observation of the ongoing stream of internal and external stimuli as they arise" (p. 125). Kabat-Zinn (2003) offers the following definition of mindfulness, "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment" (p. 145).

Although worded differently, the core of mindfulness is nonjudgmental observation of

the present moment. Bishop et al. (2004) proposed a more detailed operational definition of mindfulness:

We propose a two-component model of mindfulness. The first component involves the self-regulation of attention so that it is maintained on immediate experience, thereby allowing for increased recognition of a mental event in the present moment. The second component involves adopting a particular orientation toward one's experiences in the present moment, an orientation that is characterized by curiosity, openness, and acceptance (p. 232).

The more detailed definition from Bishop et al. (2004) makes it easier to be able to measure whether or not someone has increased his or her capacity to practice mindfulness. Fundamental to both Kabat-Zinn's and Bishop et al's definitions is the necessity for attention, acceptance and nonjudgment.

### **Mindfulness-Based Stress Reduction**

Mindfulness-Based Stress Reduction (MBSR) is a course first developed by Jon Kabat-Zinn in 1979 at the Stress Reduction Clinic at the University of Massachusetts Medical Center. The course was originally designed to help patients who were dealing with long-term chronic pain and stress-related disorders by using meditation, specifically mindfulness, as a coping strategy for dealing with pain. The original name for the program was Stress Reduction and Relaxation Program (SR&RP), and was taught in a medical setting (Kabat-Zinn, 1982). It has since been adapted to private practices, university, and other community settings (Baer, 2003). As previously mentioned, although mindfulness is rooted in Buddhism, when it is taught as an intervention in

various settings in western society it is typically taught separately from its religious affiliations (Kabat-Zinn, 1982).

The MBSR program has been adapted to fit specific settings and populations; however the principles of the program have stayed the same (Kabat-Zinn, 1982; Baer, 2003). The program is typically 8-10 weeks long and can have anywhere from 10 to 30 participants. The group meets weekly for approximately 2 to 2.5 hours, and is instructed in mindfulness practice. The practice includes a body scan where attention is focused on designated areas of the body. Sitting meditation is also included where breathing is the focus of the exercise. Postures from Hatha yoga are also taught to teach participants mindfulness of body sensations. Mindfulness is also taught while doing ordinary activities such as eating and walking. As taught at the Center for Mindfulness, participants are expected to practice at least 45-minutes, 5 or 6 days a week outside of the course (Kabat-Zinn, 1982; Baer, 2003). Around the sixth week, there is typically an all-day mindfulness retreat where the skills are practiced more in depth (Kabat-Zinn, 1982).

Although MBSR was originally taught to those suffering from chronic pain, it is taught in a way that it can be generalized to all sorts of pain, illnesses, disorders or everyday stress. Like all mindfulness, the intention of MBSR is for it to be a tool that can be used every day and as a way of living. Mindfulness skills can be used as general coping strategies that are not necessarily used for anything specific (Kabat-Zinn, 1992). This study intends to focus on anxiety symptoms and whether or not they are decreased after the intervention of an 8-week MBSR course. Therefore, this review of the literature will focus primarily on past studies of MBSR and its effects on stress and anxiety. The hope of MBSR is that when a person experiences anxiety symptoms or is faced with a

stressful situation, MBSR will be applied and the mindful coping practices will work in the situations when anxiety or stress symptoms arise (Kabat-Zinn, 1992).

### **The Role of Mindfulness in Treating Anxiety**

Research has indicated that Cognitive Behavior Therapy (CBT) is effective for treating those with anxiety disorders and anxiety related symptoms. However, some researchers have demonstrated that CBT as an intervention does not have the long-lasting effects that clients are seeking. Alternative treatments would ideally be added on to the already successful intervention (Roemer & Orsillo, 2002). MBSR has been one of the alternative treatments studied as a supplement to CBT and has been used with those experiencing difficult to treat anxiety disorders (Roemer & Orsillo, 2002). Some research finds that integrating mindfulness techniques and acceptance perspectives into empirically sound models of intervention, such as CBT, decreases symptoms of anxiety for individuals who experience such symptoms (Roemer & Orsillo, 2002; Borkovec et al., 1999). MBSR already has many similarities to CBT, however there are some aspects of the MBSR model that differ and need further explanation.

Similar to CBT, mindfulness practices cultivate the ability to observe and change maladaptive patterns in one's responses to the way he or she thinks about the thoughts that occur (Borkovec & Roemer, 1995). Instead of habitually responding negatively to automatic thoughts, one cultivates a more flexible and intentional response in the present moment (Borkovec & Roemer, 1995; Roemer & Orsillo, 2002). By paying more attention to present cues and responses, the hope is that one will break maladaptive patterns of thinking and decrease the negative avoidant behaviors that sometimes follow negative thinking patterns (Semple et al., 2005; Roemer & Orsillo, 2002). By practicing

mindfulness an individual will hopefully recognize anxious feelings, notice maladaptive thinking patterns and then apply more effective coping strategies to deal with the anxiety provoking moment (Semple et al., 2005; Roemer & Orsillo, 2002). Because the root of anxiety is a focus on potential events that might or might not happen, the typical behavior is to avoid situations so as to not have to experience these perceived events from occurring. Therefore, people who experience anxiety are often not living in the present moment; rather, they are living in fear of what could happen. By focusing on the moment using mindfulness, a more adaptive and flexible response can occur (Borkovec et al., 1999).

While there are similarities between CBT and MBSR techniques, there are some distinct differences as well. Different from CBT, which focuses on identifying maladaptive thoughts, and also changing them into more positive thoughts, mindfulness identifies the maladaptive thoughts yet emphasizes a more accepting relationship with those thoughts (Semple et al., 2005; Roemer & Orsillo, 2002). Rather than changing the thoughts, mindfulness focuses on simply observing one's thoughts. What also sets mindfulness practices apart from CBT is the idea of not putting more or less importance on one thought over another (Kabat-Zinn, 1992). By not evaluating the thoughts, the individual can observe thoughts as just thoughts. The idea of not putting any more importance on one thought over the other allows an individual to look at all of his/her thoughts in the same way. Instead of just focusing on the anxiety or stress provoking thoughts, an individual generalizes the practice of mindfulness across all of his or her thoughts so that when anxiety and stress-provoking situations arise, are considered part of the normal flow of things and are therefore less distressing (Kabat-Zinn, 1992). In both

CBT and mindfulness-based interventions, individuals learn to identify anxious thoughts as not representing reality necessarily; mindfulness allows a more generalized way of viewing thoughts while CBT has a narrower focus on maladaptive thoughts. The following section will review clinical and nonclinical studies using MBSR as an intervention for anxiety.

### **Results of MBSR used as an Intervention**

There have been numerous clinical and non-clinical studies that have looked at the effectiveness of MBSR as a an intervention for various health concerns beginning with chronic pain patients (Kabat-Zinn, 1982) to success in helping treat symptoms of psoriasis (Kabat-Zinn, 1998) and the overall psychological well-being of people who participate in the program (Kabat-Zinn et al., 1992; Miller, Fletcher & Kabat-Zinn, 1995; Kutz et al., 1985; Reibel et al., 2001; Semple et al., 2005; Astin, 1997; Oman et al., 2008; & Shapiro, 1998). This review will focus on the literature related to anxiety and stress using MBSR.

There have been many clinical trials that have looked at MBSR as an intervention for those diagnosed with anxiety disorders as well as individuals with anxiety-related symptoms. The first clinical trial was published after the MBSR program was initiated in 1979 at the University of Massachusetts Medical Center by the founder of the program, Kabat-Zinn (1982). The study analyzed the outcome of pain symptoms for chronic pain patients. Not only did the participants report a decrease in pain, but their state of anxiety reportedly decreased as well (Kabat-Zinn, 1982). In a different clinical study by Kutz et al. (1985), participants with diagnoses of narcissistic and borderline personality disorder coupled mindfulness meditation with their ongoing psychotherapy. The participants

reported a decrease in psychological symptoms, which included anxiety. In a similar study, Reibel et al. (2001) looked at participants with various physical and psychological concerns, such as hypertension and sleep and anxiety disorders. Reibel found that there was a significant reduction in psychological distress, which included anxiety, and that those suffering from anxiety disorders had a significant decrease in symptoms as well. She also found that at the one-year follow-up the participants' reduced levels of anxiety and stress were maintained (Reibel et al., 2001).

Perhaps the most pertinent studies related to MBSR and its effectiveness in treating anxiety were studies performed by Kabat-Zinn et al. (1992) and Miller et al. (1995). Kabat-Zinn et al.'s (1992) study looked at 22 participants with panic disorder, agoraphobia and generalized anxiety disorder participating in a MBSR program. Almost all of the participants showed a decrease in symptoms of anxiety from pre and post-test, which was maintained at the 3 month follow up. In a three-year follow up of Kabat-Zinn et al.'s 1992 study, Miller et al. (1995) contacted 18 of the 22 participants from the original 1992 study and found that the original results of decreased anxiety symptoms had been maintained. Most of the participants reported a continued meditation practice at the one-year follow up as well.

In a more recent study, Semple et al. (2005) looked at a six-week trial of adapted mindfulness training for teacher-referred anxious children. The teachers reported improvements in academic functioning and a decrease in negative behaviors after the mindfulness training. The adapted mindfulness training also showed promise in helping children reduce their symptoms of anxiety according to teacher-reported anxiety measures (Semple et al., 2005). In older student populations there have been similar



successes. In a study by Astin (1997), undergraduate students from an upper-division Behavioral Medicine class volunteered and were randomly assigned to either the MBSR group or a control group. The experimental group showed significant reductions in overall psychological distress and their subscale anxiety scores decreased as well when compared to the control group. Oman et al. (2008) found similar results in college undergraduates who volunteered to be in either a MBSR program or a wait-list control group. Oman et al. (2008) found that compared to the control group, the MBSR group had decreased stress scores and increased forgiveness scores. Shapiro et al. (1998) also found similar results with medical and premedical students who participated in an MBSR course. The 78 participants were randomly assigned to either the experimental group or wait-list control group. The researchers found through the pre and post-test design that the experimental group experienced a decrease in state and trait anxiety as well as a decrease in psychological distress when compared to the control group. Even more promising is that this study reported that when the wait-list control group was administered the MBSR course, they achieved significant results similar to the original experimental group.

### **Conceptual Framework**

The strengths perspective focuses on a client's already existing survival skills, abilities, knowledge, resources, motivations and desires. Different from other perspectives, which focus on client problems, the strengths perspective focuses on already existing strengths and helps people utilize them to solve problems (Saleebey, 2006). Mindfulness practice is similar to the strengths perspective in that it relies on a client's innate ability to tap into resources that already exist in order to increase his/her

quality of life, decrease illnesses or pain, or to help alleviate symptoms of diagnosed mental disorders. Kabat-Zinn (1992) states that MBSR is “based on the systematic development of the internal resources of a patient. It provides a welcome alternative for motivated patients” (p. 34). Saleebey (2006) discussed three principles of the strengths-based approach that relate to mindfulness, which will be discussed here.

The first principle is the idea that the helping process focuses on strengths and abilities rather than a client’s diagnoses or weaknesses (Saleebey, 2006). This is similar to mindfulness practice in that instead of focusing on judgmental thoughts, a mindfulness practitioner can notice and observe judgment thoughts, but he or she does not label them as good or bad, but just as thoughts. By practicing mindfulness skills, a client is using his/her innate capacity to just observe when negative thoughts arise. The second principle that relates to mindfulness is that people all have the ability to learn, grow, and change (Saleebey, 2006). Similar to this principle in the strengths perspective, the practice of mindfulness posits that we are all capable of being mindful and that being mindful is part of our inherent human capacity (Kabat-Zinn, 2003). The last principle in the strengths perspective that relates to mindfulness is the idea that the social worker and the client work in collaboration with each other (Saleebey, 2006). Power does not necessarily exist solely with one side or the other. This principle relates to mindfulness in that whoever is teaching mindfulness, empowers the individual to use and refine already existing skills in order to increase positives in his/her life.

Because MBSR and mindfulness practice are tools that can be generalized to many aspects of a person’s life without focusing solely on existing or future problems, it is very closely related to the strengths perspective. No matter what is going on in a

person's life, mindfulness practice can be used to minimize potential stressors in one's life. Mindfulness can be viewed as a way of living that is a useful framework in the realm of social work practice, and in everyday life.

Building on the review of the literature, this paper will look at the effects of an 8-week Mindfulness-Based Stress Reduction course on participants' anxiety and stress levels using a pre and post-test design.

### **Methodology**

The purpose of this study was to gather information on the effectiveness of MBSR as an intervention for anxiety level and stress level outcomes over an eight-week period. The research question for this study was "What is the impact of Mindfulness-Based Stress Reduction on symptoms of anxiety and stress levels in voluntary participants enrolled in an 8-week Mindfulness-Based Stress Reduction course?" The instrument for this study included a 49 categorical question survey along with six open-ended questions. This study used quantitative research methods using a pre and post-test design in order to analyze the effects of the MBSR intervention on an experimental group who voluntarily took the MBSR course. The pre-test-post-test was chosen for this research because it showed if there was a difference from before the MBSR intervention was administered to after. Because of this, it also enabled the researcher to make inferences about causality (Monette, Sullivan, & Dejong, 2011).

### **Sampling**

The MBSR intervention was conducted at a clinic in a mid-sized Midwestern city by a professional who was trained in MBSR by the founder of the program, Jon Kabat-Zinn. The sample was the group of people enrolled in the course. Availability sampling

was chosen because the participants were easily accessible. Availability sampling was also chosen because of the low cost to the researcher (Monette et al., 2011). The participants in the MBSR program were asked to voluntarily participate prior to the first session of the MBSR course. The capacity for the class was ten people, and they were all over the age of 18. In total, there were 10 participants that completed both the pre-test and post-test surveys. Of the participants, seven were female and three were male. The average age of the participants was 54, ranging from the ages of 32 to 73. All of the participants identified as being Caucasian.

### **Limitations**

The small sample size limited the ability of this study to generalize to the general population. This study looked at individuals enrolled in a MBSR course in mid-sized Midwestern city and cannot be generalized to others outside of this group. The lack of a comparison group and random assignment limited the study in that the researcher cannot eliminate other factors that might have contributed to changes in anxiety and stress symptoms (Monette et al., 2011).

### **Risks/Benefits to the Participants**

Before participating in this study, potential participants were informed of the purpose of this study as well as the risks/benefits. This study had no known risk for the participants. There were also no direct benefits for participating in this study. Participants had the choice to enroll in the MBSR course and not participate in this research study. For those that chose to participate, formal consent was obtained. All records of this study were kept confidential and identifying information was not included in any report published related to this study. Consent forms and surveys were kept in a lock-and-key file. Identifying documents were shredded and information saved on

computers was deleted after the research was completed. Identifying information was limited because of the use of the last four digits of social security numbers instead of participant names. This study was also approved by the university's Institutional Review Board to assure safety for the participants. Lastly, the researcher did not know who did and did not complete the survey because the researcher and instructor were not in the room, which further protected the privacy of the participants and the non-participants. Again, participants had the choice to enroll in the MBSR course and not participate in this research study.

### **Instruments/Design**

Participants in the MBSR course who volunteered to participate in the study, were administered a pre-test questionnaire before the first class of the 8-week intervention began. Participants responded to the questions on their own without the assistance of the interviewer after the questionnaire and consent forms were handed out. If the participants chose to fill out the survey, they were instructed to put their completed survey into a manila envelope. Participants were instructed to write the last four digits of their Social Security number on their survey so that the researcher was able to compare the pre and post-test responses for each individual.

The questionnaire consisted of 49 categorical, closed-ended questions/scales assessing levels of anxiety, stress, and awareness of mindfulness skills. Also included were three open-ended questions related to motivation for taking the MBSR course, hopes for outcomes from the course and their previous experience with meditation. The open-ended questions were included to provide more information about participants' motivations, experience, and hopes for the course that might not otherwise be provided in

the closed-ended questions. The open-ended questions were only asked in the pre-test. There were three demographic questions on gender, age, and ethnicity.

The Perceived Stress Scale (PSS) is a 10-item inventory that is the most widely used psychological instrument for measuring stress perception (Cohen, Kamarck & Mermelstein, 1983). The inventory measures the perceived levels of stress in the previous month (Cohen, et al 1983). The items were ranked using a five-point Likert scale from 0 (never) to 4 (very often). Four of the items on this short-form questionnaire are phrased in a positive direction and were therefore be reverse coded. The lower the score on the stress scale, the lower the participant's stress symptoms. This instrument has demonstrated strong internal consistency and adequate reliability in previous studies (Chang et al, 2004; Oman et al, 2008). Validity is demonstrated by PSS score associated with other measures including stressful life events, social anxiety, and health services use (Oman et al, 2008).

The *Mind over Mood* Anxiety Inventory (MOM-A) worksheet consists of twenty-four closed-ended questions with responses falling on a four-point Likert scale. The response options range from 1 (not at all) to 4 (most of the time). This worksheet was taken from the *Mind over Mood Workbook* (Greenberger & Padesky, 1995). The MOM-A has an overall anxiety score ranging from 0 to 72, and this is arrived at by adding all of the response scores. The lower the scores on the anxiety survey, the lower the participant's anxiety symptoms.

Research has shown that the MOM-A has strong concurrent validity with the Beck Anxiety Inventory (BAI) and the Burns Anxiety Inventory (Burns-A). Both of these instruments are well-established valid instruments, which measure the same

construct the MOM-A attempts to measure. The BAI and Burns-A were chosen as comparisons with the MOM-A because they demonstrate good internal consistency, strong content validity, and excellent concurrent validity (Greenberger & Padesky, 1995; Cox, Beal, & Brittain, 1999).

The Mindful Awareness Attention Scale (MASS) is a 15-item Likert scale designed to assess a core characteristic of dispositional mindfulness, namely open or receptive awareness of and attention to what is taking place in the present. The response options range from 1 (almost always) to 6 (almost never). The scale has been validated with college, community, and cancer patient samples. The higher the score on the MAAS, indicated a greater awareness to the participants' mindfulness (Brown & Ryan, 2003).

The hypothesis of this study was that participants' anxiety and stress scores would decrease between pre and post-test surveys. It was also hypothesized that the mindful awareness scores would increase between pre and post-test surveys.

### Analysis

To run the statistics, the Data Analysis Tool Package from the program, Excel was used. To analyze the data, the researcher used a paired sample t-test. A paired sample t-test was conducted in order to be able to compare the means of the all three of the pre-tests to the post-tests to see if there was a significant difference.

### Findings

**Table 1. Paired Sample T-Test Comparing Differences in Pre-tests and Post-tests**

Variable	Pre-MBSR		Post-MBSR		p-value
	M	SD	M	SD	
Mindful Attention Awareness Scale	46	11	57	11	0.00020
Anxiety Inventory	23	11	14	8	0.00275
Perceived Stress Scale	20	3	14	5	0.00010

The first research question that was addressed asked if there was a difference in pre and post-test levels of mindfulness scores among the MBSR participants. The MAAS scores can range between 15 and 90. The higher the score on the MAAS, the higher the degree of reported mindfulness. The mean pre-test score for the 10 participants in the MBSR program was 46 (standard deviation of 11). The mean post-test score was 57 (standard deviation 11). This comparison shows that there was an increase between the pre-test and post-test scores demonstrating an increase in mindfulness among the participants between the beginning and the end of the 8-week MBSR program. Table 1 shows that there is a statistically significant difference between the pre-test and post-test scores on the reported degree of mindfulness. The p-value was 0.0002 making it  $<0.005$ , which means we can reject the null hypothesis and therefore can support the research hypothesis that there was a statistically significant increase between the pre-test and post-test scores on the participants reported degree of mindfulness.

The second research question that was addressed asked if there was a difference in pre and post-test levels of anxiety scores among the MBSR participants. The Anxiety Inventory scores can range from 0 to 72. The higher the score on the Anxiety inventory, the higher the degree of reported symptoms of anxiety. The mean pre-test score for the 10 participants in the MBSR program was 23 (standard deviation of 11). The mean post-test score was 14 (standard deviation of 8). This comparison shows that there was a decrease in the pre-test and post-test scores demonstrating a decrease in reported symptoms of anxiety in the participants between the beginning and the end of the 8-week MBSR program. Table 1 shows that there was a statistically significant difference between the pre-test and post-test on the reported symptoms of anxiety. The p-value was



0.003 making it less than 0.005, which means we can reject the null hypothesis and therefore can support the research hypothesis that there was a statistically significant decrease between the pre-test and post-test scores on the participants reported symptoms of anxiety.

The third research question that was addressed asked if there was a difference in pre and post-test levels of stress scores among the MBSR participants. The Perceived Stress Scale scores can range from 0 to 40. The higher the score on the Perceived Stress Scale the higher the degree of reported symptoms of stress. The mean pre-test score for the 10 participants in the MBSR program was 20 (standard deviation of 3). The mean post-test score was 14 (standard deviation of 5). This comparison shows that there was a decrease in the pre-test and post-test scores demonstrating a decrease in reported symptoms of stress in the participants between the beginning and the end of the 8-week MBSR program. Table 1 shows that there was a statistically significant difference between the pre-test and post-test on the reported symptoms of stress. The p-value was 0.0001 making it less than 0.005, which means we can reject the null hypothesis and therefore can support the research hypothesis that there was a statistically significant decrease between the pre-test and post-test scores on the participants reported symptoms of stress.

### **Discussion**

The overall hypothesis for this research study was that participants' anxiety and stress scores would decrease between pre and post-test surveys. It was also hypothesized that the mindful awareness scores would increase between pre and post-test surveys. In the findings of this study, we were able to accept the hypothesis that the participants'

anxiety and stress levels reportedly decreased and mindfulness increased from before the intervention of MBSR was introduced to after the intervention of MBSR was introduced. The participants in the MBSR program showed an increase in reported overall mindfulness characteristics after the 8-week course began. As other researchers have shown, an increase in mindfulness practice may allow individuals to be better equipped to be more cognizant of anxious symptoms and as a result will be more effective in coping with such symptoms (Semple et al., 2005; Roemer & Orsillo, 2002). As mentioned earlier, because anxiety symptoms include excessive worrying about future events and avoidance behaviors, individuals who experience such symptoms are not living in the moment. Mindfulness practice allows individuals to live more flexibly and in the moment, reducing symptoms of anxiety (Borkevec et al., 1999). As evidenced by the participants' scores on the pre-test to post-test comparisons, this study suggests the idea that with an increase in mindfulness practice comes a decrease in anxiety and stress symptoms. These results are consistent with what other researchers have found in the previous studies mentioned.

Participants in this current study demonstrated a significant decrease in anxiety symptoms from pre-test to post-test. Similar to Kabat-Zinn's first and founding clinical trial in 1982 using MBSR as an intervention for patients with chronic pain, the participants' state of anxiety decreased. Kutz et al., (1985) found that when studying people with personality disorders, the participants' anxiety levels decreased with the intervention of MBSR as well. In a subsequent clinical study, Kabat-Zinn (1992) studied participants with a diagnosed anxiety disorder, and found a decrease of symptoms from pre to post-test and even at the three-month follow-up. Reibel et al., (2001) found similar

results in their study of a clinical population of various psychological concerns, including anxiety disorders. This current study did not purposively study participants with diagnosable disorders. However, it does reflect similar results of decreased anxiety and stress symptoms in a non-clinical population further supporting mindfulness practice.

Participants in this study also showed a significant decrease in stress symptoms from pre-test to post-test. These current findings of decreased stress and decreased anxiety reflect what has been found in the literature thus far when looking at non-clinical populations. In one study, researchers looked at undergraduate students before and after an MBSR intervention; the students reported a decrease in stress and anxiety (Astin, 1997). Oman et al. (2008) found that students reported a decrease in stress in their study of undergraduate students. When looking at medical and premedical students, Shapiro et al. (1998) found similar results of decreased anxiety and stress amongst their participants. These non-clinical studies of student populations reflected similar results to the current study. The biggest difference was that the demographic of the participants of this current study was of the general population and the average age was 53.

From the results of this study and from the presented literature, that it may be fair to suggest that MBSR is a useful intervention in increasing mindfulness and decreasing symptoms of anxiety. As mentioned in the literature review, Cognitive Behavioral Therapy has also shown efficacy in treating anxiety disorders. Adding mindfulness practices in this already established intervention has proven to decrease symptoms even more (Roemer & Orsillo, 2002; Borkovec et al., 1999). Regardless of whether mindfulness practices are practiced on their own or supplemental to an established intervention, they can be effective in alleviating unwanted symptoms. This current study

on the impact of MBSR on Symptoms of Anxiety, Stress and Mindfulness contributes to the body of knowledge demonstrating that MBSR can be beneficial to those that complete the course.

### **Study Limitations**

The following limitations should be considered. The small sample size of 10 participants limits the ability for this study to be generalized to the whole population making the results of the study applicable to only the participants in this study. This study also lacked a comparison group and random assignment limiting the researcher to make further inferences about other factors that may have contributed to the results of this study. Also, this study should be replicated in other locations to be more representative of people so that it could be made more generalizable. Also, participants in this study were voluntarily enrolled in the MBSR course and were able to pay for it, perhaps making them more susceptible to the positive benefits of such a course.

### **Implications for Social Work Practice and Further Research**

Although limited, the findings in this study have many implications for social work practice and research. This study suggests, along with the literature, that MBSR is a useful intervention for alleviating symptoms of anxiety and stress. As clinical social workers, it is important that we use the most effective measures to help treat our clients. As this study suggests, MBSR could be useful in helping clients alleviate debilitating symptoms. While insurance companies or health care providers do not cover MBSR at this time, it may be important for social workers and health care professionals to advocate for it to be covered. By advocating for MBSR to be covered by insurance at a free or

reduced rate, the course would benefit more people who would otherwise not have access to such a practice.

Further research is important in continuing to support the efficacy of mindfulness practices. First of all, another type of mindfulness-based course could be used to compare as another control group in order to compare whether or not the results from this and other studies is limited to Kabat-Zinn's MBSR or mindfulness practices in general. Also, because this study lacked a control group, it is suggested that future research use control groups. Also, more follow-up studies would be helpful in evaluating whether or not MBSR courses have long-term effects even after the course is completed. Lastly, MBSR studies should be considered across cultures so that it can be generalized to other populations. Overall, this study found that MBSR was effective in alleviating anxiety and stress in a non-clinical population of motivated participants. A mindfulness practice in everyday life appears to benefit all those that practice it.

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## **Appendix**

### Consent Form

University of St. Thomas

### **Impact of MBSR on Symptoms of Anxiety, Stress and on the Degree of Mindfulness**

I am conducting a study about the impact of Mindfulness-based Stress Reduction (MBSR) has on levels of anxiety, stress and mindfulness. I invite you to participate in this research. You were selected as a possible participant because of your enrollment status in the Mindfulness-based Stress Reduction course. Please read this form and ask any question you may have before agreeing to be in the study.

This study is being conducted by: Maureen Rivord (primary researcher) under the supervision of Kendra Garrett, Ph.D. (research chair from the Department of Social Work at the University of St. Thomas).

#### **Background Information:**

The purpose of this research is to study the impact of a Mindfulness-based Stress Reduction course and its affects on participants' self-reported levels of anxiety, stress and degree of mindfulness. The research will follow a pre-test/post-test design using the participant's enrolled in a Mindfulness-based Stress Reduction course in a mid-sized Midwestern city. The data will be analyzed looking for changes in anxiety, stress, and degree of mindfulness within individuals in the group as well as the group as a whole.

#### **Procedure:**

If you agree to be in this study, I will ask you to do the following things: read and sign the consent form attached to the survey. If you agree to participate in this study, complete the survey. When completed, turn the survey and consent forms into the manila envelope in the front of the classroom. Participants will be asked to complete the questionnaire and informed consent at the beginning of the first MBSR class. Participants will then be asked to complete only the questionnaire at the end of the last class of the MBSR course.

#### **Risks and Benefits of Being in the Study:**

This study has no known risks or benefits to you as a participant.

#### **Confidentiality:**

The records of this study will be kept confidential. In any sort of report I publish, I will not include information that will make it possible to identify you in any way. The types of records I will create include the returned questionnaires and consent forms. The questionnaires and consent forms will be kept in a locked file at my home. Compiled data will remain on a password secured computer. Information will be destroyed upon completion of the research project. All paper records will be shredded and computer data will be deleted at the end of this project on May 30, 2012.

**Voluntary Nature of the Study:**

Your participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of St. Thomas. If you decide to participate, you are free to withdraw at any time up to and until the end of April 10, 2012. Should you decide to withdraw from the study, data collected about you will still be used, but no further information will be gathered or used in the analysis of this study. You are free to skip any questions asked.

**Contacts and Questions**

My name is Maureen Rivord. You may ask any questions you have now. If you have questions later, you may contact me. You may contact my research chair, Kendra Garrett at (651) 962-XXXX. You may also contact the University of St. Thomas Institutional Review Board at 651-962-5341.

You will be given a copy of this form to keep for you records.

Statement of Consent:

I have read the above information. My questions have been answered to my satisfaction. I consent to participate in the study. I am at least 18 years of age.

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**Signature of Study Participant**

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**Date**

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**Print Name of Study Participant**

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**Signature of Researcher**

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**Date**

