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# Effects of Mindfulness Meditation on Degree of Pain Experienced in Chronic Pain Patients

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Effects of Mindfulness Meditation on Degree of Pain Experienced in  
Chronic Pain Patients

by

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MSW Clinical Research Paper

Presented to the Faculty of the  
School of Social Work  
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St. Paul, Minnesota  
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Master of Social Work

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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 social work 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 the findings of the study. This project is neither a Master's thesis nor a dissertation.

## **Abstract**

Chronic pain affects one-third to one-half of individuals living in the United States. Individuals with chronic pain incur billions of dollars in healthcare costs annually, and as a result of reduced productivity and sick days taken because of pain, companies lose billions of dollars annually. Chronic pain results in a decrease in quality of life, including limited physical functioning, compromised relationships, difficulty sleeping, and psychological issues. Chronic pain is both a physical and psychological issue, and the current biomedical approach falls short in addressing the intricate psychological components. This study investigated the impact of a half-day mindfulness meditation workshop on participants' reported ability to self-manage pain. Eleven individuals voluntarily participated in the study. The researcher administered a pre-test and two post-tests that measured participants' level of dispositional mindfulness, use of adaptive coping strategies, pain severity, and interference in daily life. The findings of the study were inconclusive. While small improvements were measured in all areas, the data could not be considered statistically significant. The findings suggest that more research needs to be conducted in order to better understand the effects mindfulness meditation can have on an individual's perceived ability to self-manage pain.

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### **Effects of Mindfulness Meditation on Degree of Pain in Chronic Pain Patients**

Chronic pain is one of the most prevalent, costly, and difficult-to-treat medical conditions in the United States today (Gatchel & Okifuji, 2006). Recent epidemiologic studies suggest that between one-third to one-half of adults in the United States suffer from some form of persistent or recurring pain (Elliot, Smith, Penny, et. al., 1999). The economic impact of chronic pain is staggering. It is estimated that back pain, migraines, and arthritis alone account for medical costs of \$40 billion annually, and pain is the primary cause of 25% of all sick days taken yearly. The annual total cost of pain from all causes is estimated to be more than \$100 billion (American Chronic Pain Association, 2012). An estimated 61.2 billion dollars per year are a result of lost productive time among active workers, the majority of which has been explained by reduced performance while at work and not work absence due to chronic pain (Stewart, Ricci, & Chee, et. al., 2007).

Those who are afflicted by chronic pain report significant decreases in quality of life (Gatchel & Okifuji, 2006). Due to the constant pain, chronic pain sufferers experience limited physical functioning, role limitations such as parenting or intimate partner relationships, a lack of vitality, and increase in fatigue (Rosenzweig, et. al., 2009). Untreated or mismanaged pain can cause several issues including increased stress and metabolic rate; blood clotting and water retention; delayed healing; hormonal imbalances; impaired immune system and gastrointestinal functioning; decreased mobility; problems with appetite and sleep, and unnecessary suffering (American Chronic Pain Association, 2012). Chronic pain also causes many psychological problems, such as feelings of low self-esteem, powerlessness, hopelessness, and depression (American Chronic Pain

Association, 2012). Due to elevated levels of depression, individuals experiencing chronic pain have a higher incidence of suicidal ideation. A study by Hitchcock, Ferrell, and McCaffery (1994) reported that 50% of chronic pain patients have had suicidal thoughts. It has also been found that rates of completed suicide are higher among chronic pain patients who have reported suicidal intent (Fischer et al., 2001).

Traditional biomedical approaches to treating chronic pain focus on alleviating the symptoms of the pain through medications or surgeries. Even though such medications and invasive procedures may temporarily reduce pain, they often do not produce simultaneous improvements in physical and emotional functioning (Turk, Swanson & Tunk, 2008). Additionally, the use of medications and surgery can cause other complications, side effects, or addictive behavior. Due to the detrimental effects chronic pain can have on an individual's life, it is essential to discover alternative methods that deal with pain in a more holistic, integrative way, considering the connection between mind, body, and spirit. The purpose of this study is to explore the effects mindfulness meditation has on chronic pain patients' perceived ability to self-manage pain.

### **Literature Review**

Chronic pain, in the physical sense, is roughly defined as pain lasting for at least three to six months and is divided into three groupings: somatic, visceral, and neuropathic (Cheatle & Gallagher, 2006; Gatchel & Okifuji, 2006). Somatic pain refers to pain affecting the skin, muscles, tendons, joints, or bones. Examples are musculoskeletal injuries, rheumatoid arthritis, osteoarthritis, and chronic headaches. Visceral pain involves pain affecting 'soft' organs and body tissues such as pelvic pain and renal colic.

Finally, neuropathic pain refers to pain resulting from an injury to the somatosensory system such as phantom limb or multiple sclerosis (Cheatle & Gallagher, 2006). For many years it has been known that there are multiple variables involved with the experience of chronic pain, aside from the physical pain itself (Keefe, Rumble, Scipio, Giordano, & Perri, 2004). This literature review will examine the difficulties involved with treating chronic pain, psychological responses to pain, and the use of mindfulness meditation as a potential treatment for chronic pain.

### **Difficulties in Treating Chronic Pain**

Pain is a perceptual experience regulated through internal physiological and psychological occurrences as well as external, environmental factors (Gatchel & Okifuji, 2006). As a result of this duality, it is extremely difficult to treat because no single treatment is effective for addressing each of these factors (Gatchel & Okifuji, 2006; Weisberg & Clavel, 1999). Certain treatments such as surgery and medication only deal with the physical symptoms, ignoring the intricate psychological responses that accompany the pain experience (Weisberg & Clavel, 1999). Pain patients often become disenchanted with ineffective treatments and as a result, patient expectations and concerns increase while their compliance with self-care regimens declines, only deepening feelings of despair and frustration (Weisberg & Clavel, 1999). Physical pain is just one aspect that must be addressed in the management of patients with chronic pain. Treatments that focus solely on a patients' pain are destined to fail (Ashburn & Staats, 1999). A clear understanding of how pain manifests in a patient's body and mind is essential in treating chronic pain.

Another issue that contributes to the difficulty in treating chronic pain is the

incongruence of physician and patient goals and expectations (Tracy, 2000). A study by Tracy (2000) found that patients and physicians typically report different goals and expectations relating to pain management. Specifically, on one measure, patients and physicians were asked to indicate their goal for treatment on a scale from one to 10 where one signifies “make pain go away” and 10 signifies “live better with what (pain) remains.” The mean score for patients on this measure was 3.14 while the mean score for physicians was 7.34, demonstrating that patient goals were related more to pain cessation, while physician goals for patients related to acceptance, or learning how to live with pain (Tracy, 2000). Overall, this study reports that when patients and physicians have similar goals and expectations, the better they are at attaining these goals, while the opposite is true for conflicting patient and physician goals.

### **Psychological Responses to Chronic Pain**

The science behind how acute pain becomes chronic pain is still not fully understood by experts, and a full review of the current literature is beyond the scope of this paper. However, a brief explanation of how pain signals work is warranted. The sensation of pain originates in receptors located throughout the body (Sapolsky, 2004). Pain signals are sent to the spinal cord from these pain receptors. Once these messages are sent to the spinal cord they are passed on and interpreted by the brain. What is intriguing about pain perception is how the intensity of a pain signal can be altered by sensations, feelings, and thoughts that coincide with the pain as they reach the brain (Sapolsky, 2004). Sapolsky (2004) postulates that there are two important aspects to understand regarding the emotional ways the brain interprets and responds to pain.

The first aspect is that emotions related to and interpretations of pain can be disconnected from the pain signal that is being sent from the spinal cord to the brain. That being said, the amount of pain an individual feels may differ from how unpleasant the pain feels. The second point is that the more emotive parts of the brain not only alter how an individual responds to pain information, but areas of the brain can alter how the spinal cord responds to pain information (Sapolsky, 2004). Due to disconnected and mismatched pain signals, it is known that there are several psychological factors related to poor adjustment to persistent pain. Three factors that are associated with increased pain, psychological distress, and physical disability are pain-related catastrophizing, pain-related anxiety and fear, and helplessness (Keefe, et al., 2004).

Pain-related catastrophizing is defined as “magnification of the threat of, rumination about, and perceived inability to cope with pain” (Turner, Mancl, & Aaron, 2004, p. 103). Catastrophizing also refers to focusing on the most extreme negative consequence that may occur in a situation (Arnow, et al., 2011). In chronic pain patients, this type of behavior has been associated with higher levels of disability, higher rates of health care usage, longer hospitalizations, and the increased use of pain medications (Martin, et al., 1996; Gil, Abrams, Phillips & Williams, 1992; Gil, et al., 1993; Keefe, et al., 2004). Additionally, catastrophizing has been related to several negative psychological states including higher levels of depression and anxiety, isolation from social activities, lower energy levels, and suicidal ideation (Keefe, et al., 2004). The degree of pain-related catastrophizing and the incidence and degree of depression exhibited by chronic pain patients has been found to be a consistent predictor of suicidal ideation (Edwards, Smith, Kudel, & Haythornthwaite, 2006).

Pain-related anxiety, and fear of pain cause chronic pain sufferers to engage in fear-avoidance behaviors, which include high levels of attention to pain sensations, and over-predicting the amount of pain they will experience (Crombez, Vlaeyen, Heuts, & Lysens, 1999; McCracken, 1997; McCracken, Zayfert, & Gross, 1992; Keefe, et al., 2004). The association between pain-related fears and prolonged disability in chronic pain patients is a well-known concept. A classic study by Hill, Belleville, and Wikler (1955), which explored the effects of morphine on anxiety, contended that pain patients might exacerbate pain intensity through fear of the pain itself, which can lead to avoidance. Other studies have found that individuals with chronic pain score higher on self-report measures of disability and depression, pain behavior and help seeking, and lower on measures of pain coping (McCracken, Gross, Aikens & Carnrike, 1996; McCracken, Gross, 1993; McCracken et al., 1992). Additionally, a study by Vlaeyen, Kole-Snijders, Boeren, and van Eek (1995) showed that when faced with performing physical tasks including lifting an arm weight or stretching exercises, patients scoring high on pain-related anxiety and fear do so much more slowly (Keefe, et al., 2003).

Helplessness is another model used to understand the adjustment to chronic pain, in particular, rheumatic diseases such as rheumatoid arthritis. This model is derived from the theory of learned helplessness (Keefe, et al., 2003; Abramson, Seligman, & Teasdale 1978). This theory suggests that individuals begin to view their pain as unavoidable and as such, they give up on making any attempts to manage their condition (Keefe, et al., 2004). Studies exploring the effects of helplessness have suggested there may be a link to early death in pain patients (Keefe, et al., 2004). Helplessness may affect mortality through maladaptive behaviors including poor self-care habits, delayed identification of

and reaction to symptoms, and neglecting to take medication as prescribed. Additionally, biological responses such as increased stress reactivity or physical exhaustion could contribute to early mortality (Keefe, et al., 2004). Due to the presence of such psychological factors that coincide with chronic pain, it is important to consider alternative methods for addressing these issues. An intervention that encourages individuals to foster awareness of both sensations in the body and the mind is mindfulness meditation.

### **Mindfulness Meditation**

The concept of mindfulness has its roots in Buddhism, where conscious attention and awareness are actively cultivated. Mindfulness meditation has been described as the heart of Buddhist meditation (Kabat-Zinn, 2003; Brown & Ryan, 2003). In his first sermon, the Buddha outlined the Four Noble Truths, which are: all existence is suffering, suffering is caused by craving, suffering can have an end, and the way to end suffering is the Noble Eightfold Path (Keown, 2005). One of the three main divisions of this path is meditation, or *samādi*. Through the practice of meditation, one can end his or her suffering and become an enlightened being (Keown, 1996).

Interest in mindfulness meditation and its use in therapeutic settings has become a popular topic in recent years (Brown, Ryan & Creswell, 2007). In order to create a strong foundation of basic and applied research in this burgeoning area of study, as well as to aid in communication about the concept, there must be a theoretical agreement on the meaning of mindfulness (Brown, et al., 2007). Brown and Ryan (2003) assert that mindfulness is most commonly defined as the state of being attentive to and aware of what is taking place. Similarly, Baer (2003) offers a definition stating, “mindfulness is

the non-judgmental observation of the ongoing stream of internal and external stimuli as they arise.” Marlatt and Kristellar (1999) expand upon the idea of non-judgmental observation and acceptance by describing the experience as simply noticing the phenomena that enter one’s awareness during mindfulness practice, such as feelings, thoughts, and sensory stimuli, and abstaining from labeling these experiences as good or bad, right or wrong, true or false, and so on. Kabat-Zinn (2003) posits an operational working definition of mindfulness as “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). Finally, Bishop, et al. (2004) provided one of the most integrative and theoretically consistent definitions of mindfulness meditation, which is as follows (Van Dam, Earleywine, & Borders, 2010):

The first component involves 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. The second component involves adopting a particular orientation towards one’s experiences in the present moment, an orientation that is characterized by curiosity, openness, and acceptance (p. 232).

Shapiro, Carlson, Astin and Freedman (2006) postulate that there are three components, or axioms, of mindfulness that contribute to its effectiveness, which are intention, attention, and attitude. Intention can be equated with the phrase “on purpose,” while attention can be likened to the phrase “paying attention,” and attitude can be associated with the phrase “in a particular way.” Put together, they form the longer phrase, “paying attention on purpose in a particular way” (Kabat-Zinn, 1994, p. 4). These three axioms are not separate from each other, but rather, occur in an intertwined

and cyclical progression (Shapiro, et al., 2006). Intention is defined as a dynamic and evolving process beginning with self-regulation and ending with self-liberation.

Attention describes how “one learns to attend to the contents of consciousness, moment by moment” (Shapiro, et al., 2006, p. 376). Finally, attitude refers to how attention is placed as well as to the qualities one brings to attention such as an open and loving mind (Shapiro, et al., 2006).

All of the above descriptions of mindfulness meditation are similar, and for the purposes of this study the definition that will be used is: the nonjudgmental observation of events as they occur moment-by-moment.

### **Mindfulness Meditation as a Treatment for Chronic Pain**

The cultivation of the three axioms of mindfulness can be associated with transformations that are perceived by an individual during mindfulness practice. These changes can be noticed through the regulation of emotion and cognitive attention (Shapiro, et al., 2006; Brown et al., 2007). Mindfulness facilitates feelings of intimacy with events as they occur, where the individual does not associate labels such as ‘good’, ‘bad’, ‘right’, or ‘wrong’ with thoughts or sensory experiences. Therefore, the conscious mind becomes clear, allowing for more flexible, neutral responses to stimuli (Brown, et al., 2007).

Mindfulness meditation alters the experience of discomfort by making physical pain the object of the meditation (Turk, Swanson, & Tunk, 2008). Attention and awareness of discomfort or suffering is a part of the human experience, and rather than being avoided, it should be experienced and explored (Turk, et al., 2008). When an individual turns awareness towards his/her pain, and not away from it, he/she creates an

interest in his/her pain rather than the conditioned response of resistance (Physical Pain and Meditation Workshop, September, 2012). Through this exploration, the individual can begin to notice where pain begins, how it moves and changes, and when it ceases (Physical Pain and Meditation Workshop, September, 2012). The ability to notice these subtle nuances can be a very powerful revelation for the individual (Physical Pain and Meditation Workshop, September, 2012). Studies have found that individuals who have participated in mindfulness-based interventions have decreased pain symptoms, increased healing speed, improved mood, decreased stress, contained healthcare costs, and decreased visits to primary care (Turk, et al., 2008).

Morone, Lynch, Greco, Tindle, and Weiner (2008) conducted a qualitative study of 27 adults aged 65 or higher with chronic low back pain (CLBP) who participated in a trial of mindfulness meditation based on the mindfulness-based stress reduction (MBSR) model. Participants were seen as a group once a week for 90 minutes for a total of eight weeks (Morone, et al., 2008). Three methods of mindfulness were utilized during each session including a body scan meditation, sitting practice, and walking meditation. In addition, participants were asked to supplement the group sessions by meditating at home on a daily basis. Finally, participants were required to submit one journal entry for each week of the treatment.

Researchers based their analytic approach on grounded theory and discovered four strong health outcomes from the journal entries which were “experiencing pain reduction from mindfulness meditation”, “improvement in attention skills resulting from mindfulness meditation”, “improved sleep resulting from meditation”, and “achieving well-being” (Morone, et al., 2008). Overall, the findings showed that mindfulness

meditation had favorable effects on pain, attention, sleep, and well-being in older adults with CLBP.

Kabat-Zinn, Lipworth, & Burney (1985), devised a quantitative study that measured the effects of the clinical use of mindfulness meditation as a method for self-regulating chronic pain. Ninety physician-referred chronic pain patients took part in a Stress Reduction and Relaxation Program (SR&RP) (Kabat-Zinn, et al., 1985). In addition, like the Morone, et al. (2008) study, participants were asked to meditate at home six days per week. A control group of chronic pain patients receiving only traditional medical methods of treatment was utilized in order to compare outcomes (Kabat-Zinn, et al., 1985).

Several pain indices and psychological/behavioral measures were used to assess the different aspects of pain as well as pain-related behaviors. The experimental group showed significant decreases in mean scores on several measures, denoting improvements. Mean scores on a pain-rating index decreased from 23.7 to 15.2, while mean scores measuring day-to-day functioning decreased from 15.4 to 11.2. On a mood disturbance measure, mean scores decreased from 41.4 to 8.4. Conversely, the mean scores of the comparison group on the pain-rating index stayed relatively the same with a mean of 32.5 at pre-test and 32.4 at post-test. Similarly, the scores reflecting day-to-day functioning remained close with a mean of 17.7 at pre-test and 15.0 at post-test. Scores for the comparison group on the mood disturbance measure decreased as well, from 51.1 to 39.3, but this decrease is not nearly as great as the experimental group (Kabat-Zinn, et al., 1985).

A Summary Outcome Questionnaire was used with the SR&RP group post-meditation to produce an overall number representative of the average degree of change in 10 relevant symptom and behavioral factors on a five-point Likert scale where one represented a large negative change and five represented a large positive change (Kabat-Zinn, Lipworth, & Burney, 1985). After the meditation intervention, the mean score of the summary outcome questionnaire was 3.9 out of 5. Of the total number of participants, 76% scored 3.5 or above, and 61% scored 3.8 or above which shows a significant improvement in both pain and behavioral health (Kabat-Zinn, Lipworth, & Burney, 1985). On the whole, the data suggest that mindfulness meditation can be clinically efficacious in reducing self-reports of pain and pain-related behavior, and in the long run, may be more effective than traditional methods (Kabat-Zinn, Lipworth, & Burney, 1985).

To date, there are a limited number of studies that solely explore the effects of mindfulness meditation on chronic pain and therefore more research in this area is justified.

### **Conceptual Framework**

The strengths perspective provides a lens for exploring and exploiting clients' strengths and resources, thus allowing them to achieve their goals and realize their dreams (Saleebey, 2006). This perspective is unique as it does not place focus on clients' problems, but rather the talents, knowledge, and capacities they possess that can help them move past the challenges they face in their lives (Saleebey, 2006). Saleebey (2006) outlines six principles of the strengths perspective that are applicable to the scope of this paper.

The first principle states that every individual or group has strengths. An individual can utilize these strengths to reach goals and ease pain, which can be in the form of both emotional and physical pain. When working with a client experiencing chronic pain, it has been shown that focusing solely on the pain itself is not effective. Rather, a holistic approach that offers methods for proactively dealing with pain are much more successful. One such technique is mindfulness meditation, which allows the individual to explore and understand the pain experience rather than avoid it. The second principle states that trauma and illness can be damaging, but they can also be sources of challenge and opportunity (Saleebey, 2006). Clients who face these challenges and learn to create opportunity in their lives feel a sense of empowerment, which is an essential component of the strengths perspective. Through mindfulness meditation clients can learn skills to cope with, and even control pain sensations. This can create a deep sense of accomplishment as they realize that they are capable of overcoming life's challenges.

The third principle states that the clinician should not assume to know the capacities of clients based on their diagnosis (Saleebey, 2006). Too often, clinicians will view a client as a single diagnosis, rather than as a capable human being who is able to change and manage his/her own life. This close-minded approach can make the diagnosis appear as a final verdict or fixed sentence. It is the clinician's responsibility to help clients believe that they can recover and live full and happy lives. The fourth principle states that a collaborative approach is the most effective method for serving clients (Saleebey, 2006). While a clinician may have the education, knowledge, or licensure necessary to help clients, the clients' wisdom and knowledge are just as valuable in a collaborative relationship. The fifth principle speaks to the environment

surrounding individuals and groups. Supportive communities amplify individual resilience, and create opportunities for involvement and to make contributions that can help others (Saleebey, 2006). An individual who becomes part of a mindfulness meditation community, or any other spiritual community, can seek support from peers and reciprocate that help, which creates a feeling of importance and validation.

The sixth and final principle concentrates on the importance of care in the therapeutic relationship. It is the role of social workers and other human service professionals to care for clients' needs and desires. Saleebey (2006) postulates, "caring for each other is the most basic form of civic participation" (p. 20). Social caretaking is integral to the strengths perspective as it involves strengthening social connections, which harkens back to creating relationships in communities (Saleebey, 2006).

The focus of this paper will expand upon the review of the literature and will explore the effects of a physical pain and mindfulness meditation workshop aimed at aiding individuals in dealing with chronic pain.

### **Methods**

The purpose of this study is to gather information on the effectiveness of mindfulness meditation as an intervention for the ability to self-manage pain in chronic pain sufferers. The research question for this study is, "What is the impact of mindfulness meditation on the ability of individuals participating in a physical pain and meditation workshop to self-manage pain?" In order to gather information about the effect meditation had on individuals' perceived ability to self-manage their pain, surveys were administered to participants who attended a physical pain and meditation workshop at a meditation center in Minneapolis, MN. The instrument for this study includes 42

categorical survey questions. The study followed quantitative research methods, utilizing a pretest-posttest design in order to evaluate the effects of the mindfulness meditation workshop on an experimental group who chose to participate in the workshop. This pre-experimental method of measurement was selected because differences between the pretest and posttest measures may be explained by the intervention (Monette, et al.). This form of measurement was also chosen because it demonstrated if there was a difference in participants' perceived ability to self-manage their pain before and after the workshop. A follow-up with the same instrument allowed the researcher to identify if the participants formed a different perception of their ability to manage pain.

### **The Intervention**

The meditation program that was selected is designed to teach mindfulness meditation skills to individuals who suffer from chronic pain. The half-day mindfulness meditation workshop took place at a meditation center in Minneapolis, MN. A trained meditation teacher and a psychiatrist who works with chronic pain patients facilitated the workshop. The program consists of seven parts. The meditation instructor begins the workshop with a body scan meditation. A body scan meditation guides individuals to place attention on every single part of their body, beginning with the top of the head and ending with the toes. The meditation is followed by an explanation of the differences between pain and suffering. Here it is explained how humans have been conditioned to associate pain with suffering and how mindfulness can help partition out pain and resistance to pain, which is explained by creating an interest in the pain itself versus resisting pain (Physical Pain and Meditation Workshop, September, 2012) .

The facilitators draw from Young (2004) offering a description of suffering, which is: suffering is a function of pain and the degree to which the pain is being resisted. This is depicted by the equation:  $\text{pain} \times \text{resistance} = \text{suffering}$  (Young, 2004, p. 40). It is further described that resisting pain causes suffering in two ways. First, resistance to pain in the mind takes the form of judgment, wishes, and fearful projections. Second, resistance to pain in the body takes the form of tension and holding including tightening the jaw, tensing the breath, or tensing the whole body (Young, 2004). In opposition, fostering interest in pain helps individuals become more open to and aware of pain, thus recognizing shifts and changes in pain. Young refers to this process with the equation:  $\text{pain} \times \text{acceptance} = \text{healing}$  (Young, 2004, p. 40). It is important to note that acceptance of pain does not equal indifference, nor does not mean that pain goes away entirely. Skillful acceptance of pain allows individuals to use the energy that was wasted in fighting the pain to fight for recovery and live life happily, despite pain (Young, 2004). In the third part of the workshop, strategies for opening one's emotions to pain are offered. The psychiatrist describes emotions as nebulous feeling states that are entangled with pain. By cultivating awareness of emotional states, an individual becomes able to separate emotions from pain and work towards understanding each independently.

In the fourth part of the workshop, participants are guided through a free-floating awareness in the body meditation (Young, 2004). During this meditation, participants are guided to turn their attention to an area of discomfort, noticing its size and density. Then they are guided to place awareness towards sounds occurring inside and outside of the meditation space. Finally, participants are asked to return attention to either the same area of pain or a new area, and asked to notice how the pain has either changed or stayed

the same. The fifth step in the workshop is dedicated to teaching the participants how to foster mindfulness during everyday activities. The sixth step involves learning how to change one's relationship to pain, and how it is important to believe in one's ability to do so. The workshop ends with a lovingkindness meditation. This type of meditation helps individuals cultivate positive emotional states towards themselves and others so that an individual can become more compassionate, patient, kind, and accepting.

### **Sampling**

Participants were recruited through availability or, convenience sampling due to the fact that the final sample depended on individuals who were interested in attending the meditation workshop (Monette, Sullivan, & DeJong, 2011). This method of sampling was chosen because participants are easily accessible, and due to the low cost to the researcher (Monette, et al., 2011). Individuals who live in the community or already attend the meditation center are invited to participate in the meditation and physical pain workshop on a quarterly basis. Information about the workshop is posted on the center's website. Individuals who are on the center's mailing list receive updates detailing when the workshop is being offered. All programs at the meditation center are offered on a donation basis, and participants were not required to pay any money to attend the workshop.

The ages of participants ranged from 25 to 64 with a mean age of 47. Of the 11 participants, nine were female and two were male. The types of pain that individuals indicated they suffered from were varied and included but were not limited to: arthritis/inflammation, TMJ, spinal and hip tumors, migraines, lung cancer, low back pain, pinched nerves, and shoulder pain due to failed surgery.

**Study Design**

Surveys were dispensed to the participants at the meditation center before the commencement of the workshop. The researcher was present and available to answer any questions the participants had about the survey. The two professionals who facilitate the workshop were also present. After the workshop concluded, the survey was administered one additional time in order to measure any immediate effects the information presented may have had on the participants. Approximately one-and-a-half months after the workshop, participants were asked to complete the survey one additional time in order to gather information regarding whether or not the workshop made an impact on how participants manage pain. The researcher collected these surveys by regular mail.

**Limitations**

The final sample size was small, and thus cannot be considered generalizable to the larger population. There are several limitations to the pre-experimental design. First, there was no comparison group or random assignment of participants and as such the researcher was not able to eliminate other factors that may contribute to changes in the participants' perceived ability to self-manage pain (Monette, et al., 2011). Other threats that could affect internal validity of this pre-experimental design are history, maturation, testing affects, and instrument changes (Monette, et al.). These threats were largely avoided due to the fact that the time span from pre-test to post-test is directly before and after the intervention, thus eliminating maturation and history. The threat of maturation and history cannot be eliminated entirely between the pre-test and follow-up post-test.

There were no changes made to the instrument and the threat of testing effects was minimal.

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

Before participating in the study, the participants were presented with, and guided through, a consent form, which was approved by the University of St. Thomas Institutional Review Board (IRB) in order to ensure respondent protection (see Appendix A). The consent form contained information regarding background information about the study, procedures, any risks or benefits in the study, confidentiality, and the right to refuse participation in the study without penalty of any kind. The study had no known risk for the participants. Participants did not receive any direct benefits for participating in the study. The questions asked in the survey were reviewed and approved by the IRB, in order to ensure that they were non-threatening in nature. The identity of the participants has been protected, and consent forms and surveys were kept in a locked file inside the researcher's home.

### **Measurement**

The survey instrument consisted of 42 close-ended questions and scales assessing levels of pain, awareness and mindfulness scales, and coping strategies for pain.

The Brief Pain Inventory (BPI) is an instrument that measures pain by a two-factor structure: pain severity and pain interference (Cleeland, 1991). On a sliding scale from zero to 10 where zero indicates "no pain" and 10 indicates "pain as bad as you can imagine", respondents are asked to rate worst, least, average, and current pain intensity in order to calculate the mean score for pain severity. To calculate the mean score for pain interference respondents indicate on a scale from zero to 10 where zero indicates "does

not interfere” and 10 indicates “completely interferes” how much their pain affects general activity, mood, walking ability, normal work, relationships with other persons, sleep, and enjoyment of life. The BPI has been validated in more than three-dozen languages and used in studies involving patients with pain from chronic diseases or conditions such as cancer, osteoarthritis and low back pain, pain from acute conditions such as postoperative pain, and chronic nonmalignant pain (Cleeland, 1991; Tan, et al., 2004). A study by Tan et al. (2004) also confirms the reliability of the BPI for use with individuals suffering from chronic non-malignant pain. This measure has proven to be extremely useful for understanding the effects of chronic pain treatment on both dimensions of pain assessed by the BPI items, as well as for understanding the variables that affect these two dimensions in persons with chronic pain (Tan, et. al., 2004)

The Mindfulness Attention Awareness Scale (MAAS) assesses individual differences in mindful states over time, and focuses on dispositional mindfulness, which is defined as the presence or absence of attention to and awareness of what is happening in the present moment (Brown & Ryan, 2003). The instrument consists of 15 closed-ended questions with responses falling on a six-point Likert scale. The response options range from one (almost always) to three (somewhat frequently) to four (somewhat infrequently), and to six (almost never). MAAS scores are calculated by taking the mean of the 15 items, with one being the lowest score and six being the highest score. Higher scores reflect higher levels of dispositional mindfulness (Brown & Ryan, 2003). The MAAS is considered one of the most popular self-report measures of mindfulness, as it exhibits promising psychological properties and the notion of consistent relationships to brain activity in mindfulness-based intervention outcomes (Van Dam, et al. 2010). The

scale has been validated through studies involving college students, a general adult sample, and cancer patients.

The Coping Strategies Questionnaire (CSQ) (Rosenstiel & Keefe, 1981) consists of 42 items assessing individual self-rated ability to utilize cognitive and behavioral strategies to cope with pain. The full questionnaire assesses six factors or coping strategies, including ignoring pain, reinterpretation of pain, diverting attention, coping self-statements, catastrophizing, and praying/hoping. For the purposes of this study, the only factors considered were diverting attention, catastrophizing, praying/hoping, and ignoring sensations. In the original questionnaire, each coping strategy subscale consists of six items measured with a numerical rating scale ranging from zero (never do that) to three (sometimes do that) to six (always do that) indicating how frequently the strategy is used to cope with pain. Lower scores indicate that an individual does not employ the particular coping strategy, while higher scores indicate that an individual does employ the coping strategy. This study only includes three of the six items for each subscale in order to keep the overall survey instrument clear and concise for respondents. Therefore, there are 12 items assessing the four indicated factors. There are two additional single item questions each with a scoring range of zero to six which are used as effectiveness ratings of control over pain and ability to decrease pain. Support exists for the construct validity of the CSQ in chronic pain populations where significant correlations have been shown with questionnaires measuring depression, anxiety, self-efficacy, and physical functioning (Abbot, 2010).

### **Data Analysis**

In order to analyze the data a paired sample t-test was used to compare the pre-test data to the post-test data. A second t-test was calculated in order to compare the pre-test data and the post-test data to the follow-up data collected 1.5 months after the workshop. This type of data analysis was selected in order to determine if there was a statistically significant difference in the mean scores of all survey instruments. Overall, 11 individuals completed the pre-test, while only six completed the post-test and three complete the follow-up post-test.

### **Findings**

The first research question examined if there was a difference in participants' pre- and post-test scores on the MAAS. The mean pre-test score for the 11 participants was 3.65. The mean score on the first post-test for the six individuals who completed it was 3.33. The mean score on the follow-up post-test for the three individuals who completed it was 5.49. This reflects an increase in scores, which aligns with the expectations of the researcher. A p-value of .388 represents a comparison of the six individuals who completed both the pre-test and first post-test. This value is not statistically significant and therefore the null hypothesis cannot be rejected. A p-value of .302 represents a comparison of the three individuals who completed both the pre-test and the follow-up post-test. This is not statistically significant and therefore the null hypothesis cannot be rejected.

The next research question examined if there was a difference between participants' pre- and post-test scores on the "diverting attention" factor of the CSQ. The mean pre-test score for the 11 participants was 2.82. The mean score on the first post-test

for the six individuals who completed it was 2.38. The mean score on the follow-up post-test for the three individuals who completed it was 2.89. The expectation here was that scores would decrease, which would reflect a decrease in the use of diverting attention as a coping strategy. There appeared to be a slight decrease in the score of the six individuals who completed the post-test, and a very slight increase in the score of the three individuals who completed the follow-up post-test. The p-value of .884 represents a comparison of the six individuals who completed both the pre-test and first post-test. This value is not statistically significant and therefore the null hypothesis cannot be rejected. The p-value of .184 represents a comparison of the three individuals who completed both the pre-test and the follow-up post-test. This is not statistically significant and therefore the null hypothesis cannot be rejected.

The next research question examined if there was a difference between participants' pre- and post-test scores on the "catastrophizing" factor of the CSQ. The mean pre-test score for the 11 participants was 2.35. The mean score on the first post-test for the six individuals who completed it was 2.17. The mean score on the follow-up post-test for the three individuals who completed it was 1.56. The expectation was that scores would decrease as they did, which reflects a slight decrease in the use of catastrophizing as a coping strategy. The p-value of .228 represents a comparison of the six individuals who completed both the pre-test and first post-test. This value is not statistically significant and therefore the null hypothesis cannot be rejected. The p-value of .301 represents a comparison of the three individuals who completed both the pre-test and the follow-up post-test. This is not statistically significant and therefore the null hypothesis cannot be rejected.

The next research question examined if there was a difference between participants' pre- and post-test scores on the "praying/hoping" factor of the CSQ. The mean pre-test score for the 11 participants was 3.67. The mean score on the first post-test for the six individuals who completed it was 3.11. The mean score on the follow-up post-test for the three individuals who completed it was 4.11. The expectation was that scores would decrease, which reflects a slight decrease in the use of praying/hoping as a coping strategy. In this case the mean score of the six individuals who completed the post-test did decrease, however the mean score of the three individuals who completed the follow-up post test increased, demonstrating an increase in the use of praying/hoping as a coping strategy. The p-value of .381 represents a comparison of the six individuals who completed both the pre-test and first post-test. This value is not statistically significant and therefore the null hypothesis cannot be rejected. The p-value of .423 represents a comparison of the three individuals who completed both the pre-test and the follow-up post-test. This is not statistically significant and therefore the null hypothesis cannot be rejected.

The next research question examined if there was a difference between participants' pre and post-test scores on the "ignoring sensations" factor of the CSQ. The mean pre-test score for the 11 participants was 2.47. The mean score on the first post-test for the six individuals who completed it was 2.44. The mean score on the follow-up post-test for the three individuals who completed it was 2.22. The expectation was that scores would decrease as they did, which reflects a slight decrease in the use of ignoring sensations as a coping strategy. The p-value of .279 represents a comparison of the six individuals who completed both the pre-test and first post-test. This value is not

statistically significant and therefore the null hypothesis cannot be rejected. The p-value of .996 represents a comparison of the three individuals who completed both the pre-test and the follow-up post-test. This is not statistically significant and therefore the null hypothesis cannot be rejected.

The next research questions examined if there was a difference between participants' pre and post-test scores on the "pain severity" and "pain interference" domains of the BPI. Unlike the MAAS and the CSQ, this measure was administered only twice: once at the beginning of the meditation workshop, and again at the time of the follow-up post-test. The mean pre-test score for the 11 participants on the pain severity domain was 4.62. The mean score on the post-test for the three individuals who completed it was 2.88. The expectation was that scores would decrease as they did, which reflects a decrease in pain severity. The p-value of .336 represents a comparison of the three individuals who completed both the pre-test and the post-test. This value is not statistically significant and therefore the null hypothesis cannot be rejected. The mean pre-test score for the 11 participants on the pain interference domain was 4.68. The mean post-test score for the three participants who completed it was 1.81. The expectation was that scores would decrease as they did, which reflects a decrease in pain interference. The p-value of .393 represents a comparison of the three individuals who completed both the pre-test and the post-test. This value is not statistically significant and therefore the null hypothesis cannot be rejected.

### **Discussion**

This research study hypothesized that individuals who participated in a mindfulness and physical pain workshop would be able to better manage and live with

their pain symptoms by increasing mindfulness skills, and as such, decreasing negative coping strategies. It was hypothesized that MAAS scores would increase from pre- to post-tests demonstrating a higher level of dispositional mindfulness. It was also hypothesized that CSQ scores would decrease demonstrating a reduction in the reliance on negative coping strategies. Finally, it was hypothesized that BPI scores would decrease demonstrating a diminution of overall pain experienced. Before moving on, it is important to discuss factors that have skewed the data, and consequently, have impacted the ability to make direct comparisons between pre- and post-test scores. Initially, there were 11 individuals who agreed to participate in the study, and all of these individuals completed the pre-test. Of the initial 11 participants, only six individuals were present to complete the post-test at the end of the workshop. Only three individuals completed the follow-up post-test. Of these three individuals, two had completed both the pre-test and the first post-test, and one completed only the pre-test (missing the first post-test).

Overall, the current study found that small improvements were made on the measure of dispositional mindfulness. The decrease in scores from pre-test to post-test indicates a minor reduction in dispositional mindfulness; however, the decrease is so minimal that concrete conclusions cannot be deduced. The mean score for the three individuals who completed the follow-up post-test was 5.49, while the mean of the pre-test scores for these individuals was 4.19, which is higher than the average for the whole group. These individuals made improvements in their dispositional mindfulness compared to the larger group, as well as compared to their mean pre-test scores. Other research has suggested that individuals who establish a mindfulness meditation practice are better able to reframe the experience of pain by becoming aware of discomfort and

accepting it as part of the human experience (Turk, et al., 2008). The small improvements in dispositional mindfulness that were made in this study strengthen the notion that dedication to a mindfulness practice may be beneficial in reframing one's attitude towards pain.

Several factors could have contributed to the improvements made by the three individuals who completed the follow-up post-test. These individuals may have already had a mindfulness practice established in their lives, contributing to their higher level of dispositional mindfulness on the pre-test, and perhaps attended the workshop as a refresher course. Also, the individuals who attended the workshop may have a stronger connection to the community at the meditation center, and therefore are more likely to have an open attitude towards mindfulness practice. It was requested of all participants to mail the follow-up post-test to the researcher. These three individuals may be naturally more disciplined than most and therefore not only complied with the requests of the researcher, but they may also have a more established, routine mindfulness practice.

Participants in the study demonstrated varying degrees in the use of the coping strategies measured by the CSQ. On the diverting attention measure, the scores did not change significantly and were low on the scale suggesting that on average, most individuals fall between "sometimes do that" and "never do that" on the scale. In general, the data suggests that the respondents in this study do not often use diverting attention as a coping mechanism for dealing with pain. The highest individual pre-test score on this scale was 4.33. This particular individual suffers from neck and cervical spine pain. A conclusion that can be drawn from the data is that individuals with

different types of pain employ differing coping strategies. Additionally, differences in personality traits most likely impact coping strategies used.

In general, the data suggests that most individuals who participated in the study also do not frequently use catastrophizing as a coping strategy. When considering the individual pre-test scores, it was found that six individuals scored at a three or higher on this measure, which depicts a higher frequency of individuals who fall between “sometimes do that” and “always do that”. However, the lowest score on this measure was 0.33 which pulled the group average down. This low scoring individual suffers from lung cancer, and also noted in their questionnaire that they use pain medications, which may at least temporarily decrease the likelihood of employing negative coping strategies.

The scores on the praying/hoping measure indicate that this coping strategy is used at a slightly higher frequency than those previously mentioned. In an interesting turn, while the three individuals who completed the follow-up post-test were less likely than the group average to use diverting attention and catastrophizing to cope, they are slightly more likely to use praying/hoping. The coping method of praying/hoping for pain to go away does not coincide with the mindfulness attitude of acceptance, however it may indicate that individuals are hopeful that they will be able to experience a life that is not ruled by their pain. This sense of hope may keep them inspired to continue practicing meditation and other forms of treatment in an attempt to work through their pain.

Participants scored similarly on the ignoring sensations measure to the scores for diverting attention. While these measures differ slightly, diverting attention and ignoring sensations may be considered related behaviors. The highest individual score on this measure was 4.83, which is one of the highest scores for an individual on any of the

measures. This individual, who suffers from chronic migraines and neck pain, scored on the higher end of the spectrum for almost all measures on the CSQ. This individual also happens to be the youngest of the group (age 25), and therefore may be less experienced with mindfulness practice.

In summary, participants in this study demonstrated a low level of reliance on the coping strategies measured by the CSQ. Kabat-Zinn, et al. (1985) reported that mindfulness meditation was clinically effective in reducing pain-related behaviors. The current study was unable to draw such a direct cause and effect conclusion between scores on measures of dispositional mindfulness and the use of coping strategies or pain-related behaviors, and therefore it is recommended that future research explore these dimensions further.

The first domain of the BPI measured participant's pain severity score. This score reflects the mean of four items measuring pain at its worst and least in the last 24 hours, level of pain on average, and level of pain right now. Overall, the group score of 4.62 on the pretest suggests that most individuals fell almost exactly in the middle between "no pain" and "pain as bad as you can imagine". In a clinical study measuring the effect of mindfulness meditation practice on participant's pain ratings, Kabat-Zinn, et al., (1985) found that patients rated their level of pain significantly lower after participating in a mindfulness program. In a subsequent qualitative study, Morone, et al. (2008) identified a common theme amongst participants that mindfulness meditation was effective at reducing the experience of pain. Although not statistically significant, the decrease in the pain severity score in this study corroborates previous research.

The pain severity score can be impacted by several factors. In the current study, levels of pain experienced by participants within the last 24 hours and at the present moment is apt to be affected by the respondent's current mood, environmental factors such as weather, or location, sleep quality, and nutrition choices. Therefore, this score may fluctuate each time a respondent completes the measure. Overall the scores were low, and decreased slightly, which indicates that respondents were not in a great deal of pain at either point during the study.

The second domain of the BPI measured the degree to which an individual's pain has interfered with general activity, mood, walking ability, housework and work outside the home, relations with others, and sleep, in the last 24 hours. As with the pain severity measure, the group score of 4.68 fell almost exactly in the middle between "does not interfere" and "completely interferes". It is worth mentioning here that one respondent scored a 5.43 on the pre-test and a 0 on the post-test, which is a substantial reduction that played a role in decreasing the overall post-test mean score by approximately two points. The Kabat-Zinn, et al. (1985) study reported a significant improvement in scores measuring day-to-day functioning, as well as improvements on a mood disturbance measure. Two positive health outcomes reported by Morone, et al. (2008) that relate to the pain interference issues measured in the current study were improvements in sleep resulting from meditation, and a general feeling of well-being. As with the pain severity measure, the degree to which pain interferes with daily activities is prone to be affected by factors such as weather, sleep quality, and nutrition choices, and as such this score is likely to fluctuate each time a respondent completes the measure.

**Limitations**

As has been stated previously, there are several limitations to this study that have affected the data as well as the ability to make any generalizations about the findings. First, the already small sample size of 11 individuals was compromised further as only six individuals completed the post-test, and only three individuals completed the follow-up post-test. This study did not have a comparison group and the participants were not randomly assigned. As such, additional conclusions about influences on the results cannot be made. The individuals who participated in the study most likely found out about the workshop through the meditation center suggesting that they already have some kind of meditation practice established. Future research may consider finding subjects who are new to the experience of mindfulness meditation.

**Conclusion**

While the findings in this study were not found to be statistically significant on any measure, there are still implications for the use of meditation as an intervention for chronic pain that command attention from social workers and strongly encourage future research. Clinical social work is based on using empirical, evidence-based practices, however, clinical social workers should also continuously be considering other burgeoning areas for treating clients. While mindfulness meditation is not a new concept, it is only more recently being incorporated into social work treatment modalities. Future social work practice research should continue to explore the effects and benefits of meditation on individuals suffering not only from chronic pain, but other issues such as serious and persistent mental illness, anger management, chemical dependency, developmental disabilities, and physical disabilities.

Future research may consider exploring the effects of other alternative mindfulness-based meditation programs that are similar to the half-day workshop used in this study. This type of program is easily accessible to individuals from varying socioeconomic classes and does not require the time commitment associated with other programs such as MBSR. That said, this type of mindfulness practice could be offered to different populations across cultural and economic backgrounds and as such, may be generalized to the greater population.

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## Appendix A

### Agency CONSENT FORM

Researcher: Please provide your agency with the information about your project and have your agency contact complete this form.

Agency: Please read this form and ask any questions you may have before agreeing to allow this study to take place at your agency. Please keep a copy of this form for your records.

<b>Project Name</b>	Effects of Mindfulness Meditation on Degree of Pain Experienced in Chronic Pain Patientsion and Chronic Pain	<b>IRB Tracking Number</b>	410043-1
<b>General Information Statement about the study:</b>			
This study has been designed to evaluate the effectiveness of a Physical Pain and Meditation workshop on participants perceived ability to self-manage pain after participating in the workshop.			
Your agency is invited to participate in this research. The agency was selected as a host for this study because: You offer the Physical Pain and Mindfulness Meditation workshop.			
Study is being conducted by:		Melissa Irisarri	
Research Advisor (if applicable):		Kendra Garrett	
Department Affiliation:		School of Social Work	
<b>Background Information</b>			
The purpose of the study is: This study has been designed to evaluate the effectiveness of a Physical Pain and Meditation workshop on participants perceived ability to self-manage pain after participating in the workshop.			
<b>Procedures</b>			
Study participants will be asked to do the following: <i>State specifically what the subjects will be doing, including if they will be performing any tasks. Include any information about assignment to study groups, length of time for participation, frequency of procedures, audio taping, etc.</i>			
Subjects will first fill out an informed consent form explaining the process involved with participating in the study and any perceived risks/benefits for participating in the study. They will then fill out a 42 question survey before the beginning of the workshop. This should require approximately 10-15 minutes. At the end of the workshop, participants will fill out the same questionnaire, requiring the same amount of time. Two weeks later the researcher will follow up with partipants and have them fill out the survey one additional time.			

<b>Risks and Benefits of being in the study</b>	
The risks involved for subjects participating in the study are:	
None.	
The direct benefits the agency will receive for allowing the study are:	
None.	
<b>Compensation</b>	
Details of compensation (if and when disbursement will occur and conditions of compensation) include:	
N/A	
<b>Confidentiality</b>	
The records of this study will be kept confidential. The types of records, who will have access to records and when they will be destroyed as a result of this study include:	
Surveys and consent forms will be kept in a lock and key file in the researchers home and will be destroyed once data has been collected and analyzed.	
<b>Voluntary Nature</b>	
Allowing the study to be conducted at your agency is entirely voluntary. By agreeing to allow the study, you confirm that you understand the nature of the study and who the participants will be and their roles. You understand the study methods and that the researcher will not proceed with the study until receiving approval from the UST Institutional Review Board. If this study is intended to be published, you agree to that. You understand the risks and benefits to your organization.	
Should you decide to withdraw, data collected about you	
will NOT be used in the study	
<b>Contacts and Questions</b>	
You may contact any of the resources listed below with questions or concerns about the study.	
Researcher name	Melissa Irisarri
Researcher email	melissa.irisarri@gmail.com
Researcher phone	612-747-4095
Research Advisor name	Kendra Garrett, Ph.D.
Research Advisor email	kjgarrett@stthomas.edu
Research Advisor phone	651-962-5808
UST IRB Office	651.962.5341
<b>Statement of Consent</b>	
I have read the above information. My questions have been answered to my satisfaction and I consent to allow the study to be conducted at the agency I represent. By checking the electronic signature box, I am stating that I understand what is being asked of me and I give my full consent.	
Signature of Agency	Date

Representative <input checked="" type="checkbox"/> <i>Electronic signature</i>			
Print Name of Agency Representative			
Signature of Researcher <input checked="" type="checkbox"/> <i>Electronic signature*</i>		Date	
Print Name of Researcher	Melissa Irisarri 1/10/2013		

\*Electronic signatures certify that::

The signatory agrees that he or she is aware of the polities on research involving participants of the University of St. Thomas and will safeguard the rights, dignity and privacy of all participants.

- The information provided in this form is true and accurate.
- The principal investigator will seek and obtain prior approval from the UST IRB office for any substantive modification in the proposal, including but not limited to changes in cooperating investigators/agencies as well as changes in procedures.
- Unexpected or otherwise significant adverse events in the course of this study which may affect the risks and benefits to participation will be reported in writing to the UST IRB office and to the subjects.
- The research will not be initiated and subjects cannot be recruited until final approval is granted.

## Appendix B

### CONSENT FORM

Please read this form and ask any questions you may have before agreeing to participate in the study.

Please keep a copy of this form for your records.

<b>Project Name</b>	Effects of Mindfulness Meditation on Degree of Pain Experienced in Chronic Pain Patients	<b>IRB Tracking Number</b>	410043-1
<b>General Information Statement about the study:</b>			
This study will explore the effects of a physical pain and mindfulness meditation on individuals' perceived ability to self-manage pain. Participants will complete a survey prior to the commencement of the workshop, after the workshop has ended and 2 weeks after the workshop.			
You are invited to participate in this research. You were selected as a possible participant for this study because:			
You signed up to attend the workshop.			
Study is being conducted by:		Melissa Irisarri	
Research Advisor (if applicable):		Kendra Garrett, Ph.D.	
Department Affiliation:		Universtiy of St. Thomas School of Social Work	
<b>Background Information</b>			
The purpose of the study is:			
To explore the effects of a physical pain and minduflness meditation workshop on individuals' perceived ability to self-manage pain.			
<b>Procedures</b>			
If you agree to be in the study, you will be asked to do the following: <i>State specifically what the subjects will be doing, including if they will be performing any tasks. Include any information about assignment to study groups, length of time for participation, frequency of procedures, audio taping, etc.</i>			
Participants will fill out a survey containing 42 categorical questions once before the commencement of the workshop, once right after the workshop finishes, and once 2 weeks after the workshop.			
<b>Risks and Benefits of being in the study</b>			
The risks involved for participating in the study are:			

There are no known risks involved with participating in this study.	
The direct benefits you will receive from participating in the study are:	
There are no direct benefits for participating in this study.	
<b>Compensation</b>	
Details of compensation (if and when disbursement will occur and conditions of compensation) include:	
<i>Note:</i> In the event that this research activity results in an injury, treatment will be available, including first aid, emergency treatment and follow-up care as needed. Payment for any such treatment must be provided by you or your third party payer if any (such as health insurance, Medicare, etc.).	
There is no compensation for participating in the study.	
<b>Confidentiality</b>	
The records of this study will be kept confidential. In any sort of report published, information will not be provided that will make it possible to identify you in any way. The types of records, who will have access to records and when they will be destroyed as a result of this study include:	
All surveys will be kept in a lock and key file inside the researchers home. Only the researcher will have access to the surveys and they will be shredded after all data has been collected and interpreted.	
<b>Voluntary Nature of the Study</b>	
Your participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your current or future relations with any cooperating agencies or institutions or the University of St. Thomas. If you decide to participate, you are free to withdraw at any time up to and until the date\time specified in the study.	
You are also free to skip any questions that may be asked unless there is an exception(s) to this rule listed below with its rationale for the exception(s).	
There are no exceptions to this rule.	
Should you decide to withdraw, data collected about you	will NOT be used in the study
<b>Contacts and Questions</b>	
You may contact any of the resources listed below with questions or concerns about the study.	
Researcher name	Melissa Irisarri
Researcher email	melissa.irisarri@gmail.com
Researcher phone	612-747-4095
Research Advisor name	Kendra J. Garrett, Ph.D.
Research Advisor email	kjgarrett@stthomas.edu
Research Advisor phone	651.962.5808
UST IRB Office	651.962.5341

<b>Statement of Consent</b>			
I have read the above information. My questions have been answered to my satisfaction and I am at least 18 years old. I consent to participate in the study. By checking the electronic signature box, I am stating that I understand what is being asked of me and I give my full consent to participate in the study.			
Signature of Study Participant <input type="checkbox"/> <i>Electronic signature</i>		Date	
Print Name of Study Participant			
<hr/>			
Signature of Parent or Guardian (if applicable) <input type="checkbox"/> <i>Electronic Signature</i>		Date	
Print Name of Parent or Guardian (if applicable)			
<hr/>			
Signature of Researcher <input checked="" type="checkbox"/> <i>Electronic signature*</i>		Date	
Print Name of Researcher	Melissa Irisarri		

\*Electronic signatures certify that::

The signatory agrees that he or she is aware of the polities on research involving participants of the University of St. Thomas and will safeguard the rights, dignity and privacy of all participants.

- The information provided in this form is true and accurate.
- The principal investigator will seek and obtain prior approval from the UST IRB office for any substantive modification in the proposal, including but not limited to changes in cooperating investigators/agencies as well as changes in procedures.
- Unexpected or otherwise significant adverse events in the course of this study which may affect the risks and benefits to participation will be reported in writing to the UST IRB office and to the subjects.
- The research will not be initiated and subjects cannot be recruited until final approval is granted.