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Running Head: MINDFULNESS MEDITATION AND MENTAL HEALTH

The Effects of Mindfulness Meditation on Mental Health

Submitted by Geraldine A. Fedorowicz

May 11, 2011

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

Current research supports the efficacy of mindfulness-based interventions in clinical social work, yet more rigorous research is needed to determine what makes it effective, and through which mechanisms. This study looked at the relationship between meditation experience and self-reported trait mindfulness and emotion regulation, two proposed mechanisms of change in mindfulness, and perceived levels of well-being. Data was collected using a quantitative survey involving 29 adults who currently have a mindfulness meditation practice. People who meditated more frequently each week scored significantly higher on measures of trait mindfulness. In addition, higher levels of trait mindfulness were correlated with less difficulty with emotion regulation and higher levels of well-being. The results of this study support the idea that emotion regulation and trait mindfulness are possible mechanisms of action in mindfulness-based interventions. Although sample size limits generalization of findings, this study suggests that the use of mindfulness meditation in clinical social work is beneficial in improving emotion regulation, which is an important aspect of many mental health challenges.

Keywords: mindfulness, mindfulness-based interventions, emotion regulation, trait mindfulness, mindfulness meditation

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Table of Contents

<u>Section</u>	<u>Page</u>
Introduction and Research Question	1
Literature Review	3
Conceptual Framework	26
Methods	
Sample	31
Research Design	31
Human Subjects	32
Measurement	33
Data Analysis	36
Results	38
Discussion	
Discussion of Findings	53
Strengths and Limitations	58
Implications	60
References	63
Appendices	
Appendix A: Letter of Informed Consent	69
Appendix B: Research Survey	71

List of Tables and Figures

<u>Table</u>	<u>Title</u>	<u>Page</u>
1	Demographics Distribution	38
2	Distribution of Age	38
3	Measures of Central Tendency and Dispersion for Mindfulness Meditation Experience	39
4	Relationship Between Trait Mindfulness (FFMQ) and Mindfulness Meditation Frequency (MMFrequency)	43
5	Relationship Between Trait Mindfulness (FFMQ) and Emotions Regulation (DERS)	46
6	Relationship Between Life Satisfaction (SWLS) and Trait Mindfulness (FFMQ)	49
7.	Relationship between Life Satisfaction (SWLS) and Difficulties in Emotion Regulation (DERS)	51

<u>Figure</u>	<u>Title</u>	<u>Page</u>
1	History of Mindfulness Meditation Experience	41
2	Relationship Between Trait Mindfulness (FFMQ) and Mindfulness Meditation Frequency (MMFrequency)	44
3	Relationship Between Trait Mindfulness (FFMQ) and Emotions Regulation (DERS)	47
4	Relationship Between Life Satisfaction (SWLS) and Trait Mindfulness (FFMQ)	50
5	Relationship between Life Satisfaction (SWLS) and Difficulties in Emotion Regulation (DERS)	52

Although the clinical application of mindfulness is relatively new, the use of mindfulness-based interventions, such as Mindfulness-based Stress Reduction (MBSR), Mindfulness-based Cognitive Therapy (MBCT), and Dialectic Behavioral Therapy (DBT), has become a popular treatment option in current psychotherapy (Baer, 2010; Hayes & Feldman, 2004; Hofmann, Sawyer, Witt, & Oh, 2010; Segal, Williams, & Teasdale, 2002). According to Bishop and colleagues (2004), the use of mindfulness in psychotherapy has become a focus for numerous clinicians, with particular interest in its use to “reduce cognitive vulnerability to stress and emotional distress” (p. 230).

Researchers in mindfulness-based intervention emphasize the critical importance of understanding the clinical application of mindfulness (Baer, 2010; Hick & Chan, 2010; Kabat-Zinn, 2003; Shapiro & Carlson, 2009). A pioneer in the use of mindfulness to address physical pain, Jon Kabat-Zinn (2003) emphasizes that with this increased interest in and professional use of mindfulness-based interventions, it is essential that clinicians recognize mindfulness as a meditative practice, with unique qualities and characteristics, so that it is accurately interpreted and applied.

Research over the past few decades supports the effective use of mindfulness-based interventions in psychotherapy (Baer, 2010; Hick & Chan, 2010; Hoffman et al., 2010). The literature suggests that mindfulness training leads to a reduction in distressing symptoms and an improvement in mental health and functioning (Baer, 2010; Hick & Chan, 2010). However, experts in the field agree that there is still a need for more rigorous research evaluating the efficacy of the successful use of mindfulness as a clinical intervention, and understanding how it works (Christopher, 2007; Dimidjian & Linehan, 2003; Lau & Yu, 2009; Shapiro & Carlson, 2009; Kabat-Zinn, 2003).

The use of evidence-based practice is valued and a necessary ethical obligation in the social work profession (Miley, Melia, & Dubois, 2009). The National Association of Social Workers' Code of Ethics (2011) lists competence in practice as a professional value. This competence requires that social workers understand and research new therapy techniques. In this way, the use of evidence-based practice in social work provides a link between research and practice, which involves maintaining a critical, questioning stance on whether or not particular practices are effective (Monette, Sullivan, & DeJong, 2011). In addition, the Social Work Code of Ethics maintains evaluation and research as an ethical standard by stating, "social workers should critically examine and keep current with emerging knowledge relevant to social work and fully use evaluation and research evidence in their professional practice" (NASW, 2011). With the recent growth of mindfulness in therapy, it is essential that social workers become involved in doing more research on various mindfulness-based interventions. For these reasons, social workers need to become familiar with the use of mindfulness-based interventions, understand what to do, and receive adequate training in its use.

Keeping in mind these professional mandates, it is important to understand that there are few studies to date that examine the processes or mechanisms that make the application of mindfulness in clinical practice successful (Baer, 2010). Research is needed to determine what is effective, for whom, for which symptoms, in what setting, over what time period, and using which mechanisms (Shapiro & Carlson, 2009, p. 73). It is beneficial to understand how a treatment works because it provides information that makes it possible to increase the effectiveness of the treatment by honing the components that are responsible for the improvement in mental health (Bear, 2010). While there has

been a recent increase in research related to understanding what changes in a person with the use of mindfulness-based interventions that in turn cause improvements in mental health, more research is needed.

The purpose of this study was to further understand why mindfulness-based interventions are effective and look at how they work to improve mental health and general feelings of well-being. It examined the role of emotion regulation and trait mindfulness as two possible mechanisms of change involved in the success of mindfulness-based interventions by looking at a sample of adults who maintain a mindfulness meditation practice.

Literature Review

Although a tradition centuries old, mindfulness as a clinical intervention for physical and psychological health is relatively new. Jon Kabat-Zinn first developed the Mindfulness-based Stress Reduction (MBSR) program at the University of Massachusetts Medical Center in 1979 as a method to relieve suffering from physical illness (Kabat-Zinn, 2003). Since then, MBSR has become a model used in hospitals and medical clinics across the country, a range of professional training programs have developed, and it has been successfully applied to relieve the pain of a myriad of physical and emotional conditions. Aspects of the MBSR program and the practice of mindfulness have become integral components of new clinical interventions, including Mindfulness-based Cognitive Therapy (MBCT) for depression, Dialectic Behavior Therapy (DBT), and Acceptance and Commitment Therapy (ACT) (Baer, 2010; Christopher, 2007). Over three decades later, hundreds of research studies have demonstrated the benefits of using mindfulness-based interventions to treat a variety of psychological and physiological

problems across diverse populations in individual and group settings (Christopher, 2007; Lau & Yu, 2009; Dimidjian & Linehan, 2003; Shapiro & Carlson, 2009, Kabat-Zinn, 2003).

Definition of Mindfulness

The need to define mindfulness in a way that is quantifiable and consistent across research projects continues to be an area of investigation in the field of mindfulness-based interventions. However, researchers agree in the multifaceted quality of mindfulness. There are three core components that are consistently mentioned as important to defining mindfulness. This includes (1) an awareness of thoughts, feelings and bodily sensations, (2) an emphasis on staying in the present moment, and (3) an acceptance of this moment by moment experience with a quality of nonjudgment (Baer, 2010; Christopher, 2007; Dimidjian & Linehan, 2003; Kabat-Zinn, 2003; Shapiro & Carlson, 2009). In addition to these components, several researchers have provided nominal definitions. Jon Kabat-Zinn (2003) defines 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).” Carmody (2009) suggests that the most common definition of mindfulness is “intentionally paying attention to the moment by moment experience in a nonjudgmental way, cultivating a stable and nonreactive awareness” (p.271). Shapiro and Carlson (2009) define it as “the process of intentionally attending moment by moment with openness and nonjudgmentalness (p.95)”.

Although experts in the field of mindfulness give the above similar definitions, it remains a challenge for researchers to operationally define mindfulness as a clinical

intervention (Lau & Yu, 2009; Dimidjian & Linehan, 2003; Shapiro & Carlson, 2009). Carmody (2009) advocates using an attention-based model as a starting point for clinical research and as a foundation that clients can understand. In this model, the central skill in mindfulness is being able to focus attention on a neutral object like the breath while maintaining a broader range of awareness. Shapiro and Carlson (2009) emphasize this role of attention in defining mindfulness. In this model, emphasis is placed on the three components: intention, attention, and attitude. According to Shapiro and Carlson (2009), Kabat-Zinn refers to this attitudinal foundation of mindfulness as affectionate attention, equating mindfulness with heartfulness or compassion.

Several researchers have attempted to conceptualize mindfulness by identifying what people do when they practice mindfulness, including the quality with which it is done. For example, mindfulness involves awareness or noticing, describing, and participating, which are all done in the present moment with a quality of nonjudgment and acceptance (Dimidjian & Linehan, 2003). Hofmann and colleagues (2010) describe the stance of mindfulness as “a mental state characterized by nonjudgmental awareness of the present moment experience” (p. 169) while encouraging openness, curiosity, and acceptance. This concept of mindfulness as a mental state is reflected in the work of Bishop and colleagues (2004) who explain that contemporary psychology approaches mindfulness in terms of increasing awareness of and responding skillfully to mental processes that cause emotional distress and maladaptive behavior. In this way mindfulness is a metacognitive skill that teaches people to maintain an attitude of curiosity and a stance of acceptance as they relate to their thoughts, which then expands

to how they relate to all their experiences, including thoughts, feelings and bodily sensations.

While the effort to define mindfulness involves a discussion of techniques, or what people ‘do’ that lead to improvements in mental health, it is important to look at mindfulness in the broader context of Buddhist philosophy. In the Buddhist tradition, the central role of mindfulness is to develop a path that leads to a cessation of all suffering (Bishop et al., 2004; Kabat-Zinn, 2003). According to Buddhist philosophy, life brings us many pleasures and joys, but it also brings pain and suffering, which is an unavoidable part of the human condition (Hanson, 2009; Olendzki, 2005). Pain exists in life and refers to physical pain, injury, illness, aging and death, and psychological distress that comes from unsatisfied desire. Suffering that results from this pain is not necessary, yet it is inherent in the human condition to desire more in life and to want to avoid pain, which in turn causes more suffering (Olendzki, 2005). “Not getting what one wants, having to cope with what one does not want, and confusion about conflicting desires are all encompassed in the word *suffering*” (Hanson, 2009; Olendzki, 2005, p. 290). Mindfulness meditation practice teaches people a new way to relate to their experiences, which can bring relief from their suffering.

In looking at how mindfulness relieves suffering, it is essential to look at the metacognitive aspect of mindfulness. Fulton (2009) captures this metacognitive aspect in the traditional concept of mindfulness by writing:

[M]indfulness is not reducible to a class of interventions or techniques, and must be understood in a much broader context. It originates as a methodological cornerstone of a system of

understanding, focused on the nature of suffering and the nature of happiness. It is an understanding that, with time and practice, we become. (p. 410)

In this definition, mindfulness becomes a way in which a person is in relationship with the world. This is the basis of what researchers refer to as trait mindfulness. Fulton (2009) concludes that the reason it is difficult to arrive at a consistent, concise definition of mindfulness is that “it remains elusive for the breadth of its application” (p.408). Without a clear, operational definition it is difficult to do rigorous research about the efficacy of mindfulness as a clinical intervention, which leads to ambiguity in the field regarding what constitutes mindfulness-based interventions (Baer, 2010; Dimidjian & Linehan, 2003; Kabat-Zinn, 2003).

Measurements of Mindfulness

Much work has been done to develop a reliable and valid self-report measure of mindfulness, however it remains an important research priority in the field of mindfulness-based interventions in clinical social work (Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2006; Bishop et al., 2004; Dimidjian & Linehan, 2003). Over the past decade, researchers have developed several tools to measure mindfulness, mainly as self-report questionnaires (Baer, 2010). The ability to write an effective measure is directly related to the ability to develop a clear operational and conceptual definition of mindfulness (Baer, 2010; Dimidjian & Linehan, 2003; Feldman, et al., 2006). Baer (2010) explains that given the debate about how to define mindfulness, it is no surprise that at least six research teams developed different mindfulness questionnaires. These questionnaires differ both in content and structure (Baer, 2010). Some measures focus on

only one or two components of mindfulness, while other questionnaires look at multiple components of mindfulness resulting in either a single total score or a set of subscales representing each component measured.

For example, the Mindful Attention Awareness Scale (MAAS) measures the tendency to pay attention and be aware in daily life (Bear, 2010; Ortner, Kilner, & Zelazo, 2007), while the Freiberg Mindfulness Inventory (FMI) emphasizes measuring nonjudgmental observation of the present moment and the openness to negative experiences (Baer, 2010). Both the MAAS and the FMI result in a single score for just one factor of mindfulness (Lau et al., 2006). Researchers criticize these scales for measuring a single aspect of mindfulness when there is agreement that mindfulness is a multifaceted construct (Bear, 2010; Lau et al., 2006). In an effort to measure two components of mindfulness, Lau and colleagues (2006) developed the Toronto Mindfulness Scale (TMS) based on the conceptualization that mindfulness is “a state of curious, decentered awareness of one’s experience” (p. 1462). The TMS measures both decentering and curiosity as two separate subscales as reliable and valid measures of mindfulness (Lau, et al., 2006).

The Kentucky Inventory of Mindfulness Skills (KIMS), on the other hand, is based on the Dialectic Behavioral Therapy (DBT) conceptualization of mindfulness, and focuses on four mindfulness skills, including observing, describing, acting with awareness, and accepting without judgment (Baer, 2010). This is both similar and different than the Southampton Mindfulness Questionnaire (SMQ), which assesses mindful responding to negative experience by looking at four components of mindfulness, including mindful observation, nonaversion, nonjudgment, and letting go

(Baer, 2010). Besides emphasizing the four components of mindfulness differently, the KIMS provides separate subscales for each of the four components while the SMQ results in one total mindfulness score (Baer, 2010). In a similar way, the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R) measures mindfulness in the four areas of attention, present-focus, awareness, and acceptance/nonjudgment, and offers a single total score (Baer 2010; Feldman, et al., 2006). There is disagreement about the value of a single total score and separate subscales. The advantage of using a total score over four subscales is that a total score has higher internal consistency than the subscales (Feldman, et al., 2006).

However, there are researchers who criticize the SMQ and the CAMS-R for measuring several components of mindfulness without providing subscale scores for each component (Baer, 2010). In an effort to combine the work of multiple research teams and in response to this lack of measures with subscale scores, Baer (2010) developed the Five Facet Mindfulness Questionnaire (FFMQ) that measures five components of mindfulness separately and reliably. The FFMQ was created by analyzing five previously developed measures (the MAAS, FMI, SMQ, KIMS, and CAMS-R), and resulted in five clearly identifiable factors: observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience (Baer, 2010). In this way, the FFMQ measures five components of mindfulness separately and reliably and combines the work of multiple research teams (Baer, 2010).

Origins of Mindfulness

Experts in mindfulness-based interventions agree that the root of mindfulness practice is in the contemplative, meditative practices of the Buddhist traditions (Baer,

2010; Carmody, 2009; Dimidjian & Linehan, 2003; Kabat-Zinn, 2003; Shapiro & Carlson, 2009). In the Buddhist tradition, suffering is caused by ignorance. It is through the practice of mindfulness that a person finds the clarity necessary to gain wisdom, which in turn ends suffering (Carmody, 2009). In this way, Buddha devised a way of living that alleviated psychological suffering (Christopher, 2007). The human condition includes suffering, which has its roots in “what Buddhist would call an unexamined mind” (Kabat-Zinn, 2003, p. 146). It is through the practice of mindfulness that a person can observe their experiences with acceptance, which can “calm and clarify the mind, open the heart, and refine attention and action” (Kabat-Zinn, 2003, p. 146). What is most paradoxical here is that the idea of using mindfulness meditation to fix something or arrive at a different place is contradictory to Buddhist philosophy. Kabat-Zinn (2003) describes mindfulness as “an invitation to allow oneself to be where one already is” (p. 148). In this way the original meaning of mindfulness emphasizes non-attachment to the outcome, which is a difficult concept when a therapist uses mindfulness techniques in hopes that it will cultivate positive qualities and reduce difficult symptoms in a client’s life.

The application of mindfulness to western society, without the cultural context of Buddhism, may change the concept from its original form. Clinicians and practitioners of mindfulness question if by applying mindfulness to the clinical setting some of the original content of mindfulness practice is lost. When mindfulness was integrated in clinical practice it was separated from its spiritual roots into a secularized version of mindfulness (Dimidjian & Linehan, 2003; Lau & Yu, 2009). Dimidjian & Linehan (2003) point out this separation was an effort to make treatment models accessible to as

many clients as possible, however they question whether something is lost when researchers and clinicians do this. However, there are clinicians who argue that the essence of mindfulness can be applied in clinical practice. Christopher (2007) suggests that “to become aware of the present experience with acceptance one obviously need not be a Buddhist” (p. 5). Kabat-Zinn (2003) supports the use of mindfulness-based interventions and agrees that there is a “universal longing in people for happiness, well-being, resilience, and peace of mind, body, and soul” (p.153), however he emphasizes the importance of contextualizing mindfulness in the richness of its origins.

Mindfulness-based Interventions

The use of mindfulness as a treatment intervention has its roots in Mindfulness-based Stress Reduction (MBSR), a program developed by Jon Kabat-Zinn in 1979 at the University of Massachusetts Medical Center as a training vehicle for medical patients for the relief of suffering and as a potential model to be used by other hospitals and medical centers (Kabat-Zinn, 2003). MBSR was taught at The Stress Reduction Clinic, a department of medicine that was a referral service for physicians to send patients who were not responding to traditional treatments (Kabat-Zinn, 2003). It is now taught across the country as an 8-week program that meets once a week to teach intensive mindfulness meditation practice. Research supports the use of MBSR to treat a wide range of physical conditions, including but not limited to cancer, psoriasis, and chronic pain (Kabat-Zinn, 2003; Lau & Yu, 2009).

Two decades later, Mindfulness-based Cognitive Therapy (MBCT) was developed as a relapse prevention program for major depression in recovered patients (Hick & Chan, 2010; Segal et al., 2002). This program combines elements of the MBSR

program developed by Jon Kabat-Zinn with specific principles used in Cognitive Behavioral Therapy (CBT) (Godfrin & van Heeringen, 2010; Hick & Chan, 2010; Segal et al., 2002). MBCT is now an empirically based program used in direct practice to prevent relapse in major depression and is currently being used by social workers and psychologists worldwide (Godfrin & van Heeringen, 2010; Hick & Chan, 2010). It is an eight-week program that educates patients about the nature of depression and uses mindfulness meditation techniques to teach them how to disrupt the maladaptive cycle of negative automatic thoughts and feelings, which can trigger another depressive episode (Segal et al., 2002). The emphasis in MBCT is not on changing the content or meaning of thoughts, a common CBT approach, rather it teaches a person to change the awareness of and relationship to thoughts by focusing attention on the present moment, a core component of mindfulness (Segal et al., 2002; Teasdale et al., 2000). Current research is exploring the use of MBCT for use with chronic depression and active, acute symptoms of depression (Barnhofer et al, 2009; Kenny & Williams, 2007). There is preliminary support for the adaptation of MBCT to use in treating bipolar disorder, generalized anxiety disorder, and binge eating (Baer, 2003).

The development of MBCT paralleled the work of Marsha Linehan, who was developing dialectical behavior therapy (DBT) to treat borderline personality disorder (BPD). It was Linehan's work that introduced the idea of using mindfulness meditation to teach people a new way of relating to their negative thoughts and feelings, rather than addressing the content of the thoughts as practiced in CBT (Segal et al., 2002). DBT uses acceptance and mindfulness skills with traditional cognitive behavioral skills to teach clients to tolerate the immense emotional pain that comes with making behavioral

changes (Bear, 2010). Currently, research supports the use of DBT in treating BPD clients, and there is preliminary evidence that it is successful in treating substance abuse, eating disorders, and self-harm in adolescents (Baer, 2010).

The three established mindfulness-based interventions described above give historical context to the use of mindfulness in psychotherapy. There are a variety of techniques used by therapists to teach mindfulness and different programs focus on specific methods. Mindfulness techniques range from a more formal sitting meditation practice, to mindful yoga, mindful qui gong, walking meditation, to a less formal way of being in every day activities termed 'activities of daily living' (Dimidjian & Linehan, 2003; Shapiro & Carlson, 2009). Mindfulness meditation practice, a more formal mindfulness technique taught in both MBSR and MBCT, is the approach used in the Buddhist tradition to develop mindfulness. It is through the regular, disciplined practice of mindfulness meditation that a person, over time, can develop a quality of living in the present moment with loving-kindness and nonjudgment (Kabat-Zinn, 2003).

Mechanisms of Mindfulness

A more recent focus in mindfulness research is identifying and investigating the mechanisms of change underlying the improvement in psychological well being associated with an increase in mindfulness (Baer, 2010; Carmody, 2009; Christopher, 2007; Lau & Yu, 2009; Shapiro & Carlson, 2009). With the recent development of various self-report measures of mindfulness and a semi-consensual operational definition of mindfulness it is now possible to investigate the mechanisms of change underlying mindfulness-based interventions (Lau & Yu, 2009); and because of this possibility, a wide range of mechanisms of change have been proposed (Christopher, 2007). The

mechanisms of change discussed by researchers are considered outcomes of mindfulness practice themselves and are the mechanisms by which broader outcomes occur, such as the reduction of negative psychological symptoms and improvements in general well being (Shapiro & Carlson, 2009). Essentially, researchers are asking why mindfulness-based interventions work.

There is no consensus regarding what mediates the change associated with mindfulness practice that leads to reduction in psychological distress and improved well being (Orzech, Shapiro, Brown, & McKay, 2009). In her review of the literature, Baer (2010) suggests that the psychological processes identified by various researchers as possible mechanisms of change in the clinical use of mindfulness can be summarized into nine possible mechanisms; these include trait mindfulness, decentering, psychological flexibility, values assessment, emotion regulation, self-compassion, spirituality, neurological changes in the brain, and attention. Researchers appear to agree on some possible mechanisms, have different names for similar mechanisms, and disagree entirely as to the role of other mechanisms.

Shapiro and Carlson (2009) describe what they refer to as “the mechanisms of action involved in the complex process of mindfulness (93)” and list many of the mechanisms identified by Baer (2010) with some additional mechanisms that they identify as leading to a reduction in psychological distress. Possible mechanisms identified by Shapiro and Carlson (2009) include: the concept of re-perceiving (similar to decentering), self-regulation or self-management, values clarification, cognitive/emotional/behavioral flexibility, and exposure. It appears that Shapiro and Carlson (2009) have broken down Baer’s (2010) mechanism of emotion regulation into

self-regulation or self-management and cognitive/emotional/behavioral flexibility. Values clarification is an important element of psychological flexibility and is a focus in Acceptance and Commitment Therapy (ACT), developed by Steven Hayes, in which clients are encouraged to clarify their personal values in an effort to inform behavior choices (Bear, 2010). In reviewing the list of possible mechanisms, it becomes clear that the path to improvement is not linear; each mechanism supports and affects the other, making overlap inevitable (Baer, 2010; Shapiro & Carlson, 2006).

In reviewing the literature, Bear (2010) appears to have combined or renamed some suggested mechanisms, and delegated other identified mechanisms to ‘sub-mechanisms’ or mediators of the actual mechanism of change. Baer (2010) argues that several processes identified in the literature as mechanism of change, such as Shapiro and Carlson’s (2009) mechanism of exposure, are mediators of the actual change that occurs in the mechanisms themselves. For example, rumination is discussed extensively as a mechanism of change in MBCT and mindfulness meditation (Ma & Teasdale, 2004; Ramel, Goldin, Carmona, & McQuaid, 2004). Rumination is described as a form of repetitive thought that involves passively and unproductively thinking about and analyzing unpleasant symptoms and internal experiences, their causes, consequences, and implications. Research suggests that it is the decrease in rumination associated with increased mindfulness that makes MBCT effective in preventing relapse of major depressive disorder (Ma & Teasdale, 2004). Baer (2010) argues that reduced rumination is a mediator of the actual change, which is identified as an improvement in emotion regulation.

It is inherently difficult to take a concept as abstract as mindfulness and break it down into concrete mechanisms that create change in the human experience. This is where it helps to look at the intersection of neuroscience and therapy to see concrete evidence of changes in the brain that appear to be a result of mindfulness meditation practice. At the most basic explanation, suffering and stress produce a primitive ‘fight and flight’ response in the brain through the activity of the sympathetic nervous system. Repeated activation through stress, suffering, and anxiety make the brain more sensitive, and in turn more reactive, to smaller levels of stress. This can eventually alter levels of chemicals in the brain and brain structure, which can make a person more susceptible to symptoms of various mental health conditions. In this way, “suffering has clear causes in your brain and body, so if you change the causes, you’ll suffer less” (Hanson, 2009, p 58). Mindfulness meditation practice activates the parasympathetic nervous system, which is responsible for maintaining internal equilibrium in the body and ‘cools’ the sympathetic nervous system and has far reaching effects on brain structure, areas of activation, and biochemistry, which in turn benefits the entire body and the emotional life. One example of this is shown through research measuring brainwaves of experienced Tibetan practitioners which show that these individuals have the uncommon ability to produce powerful and unified gamma brainwaves, supporting the premise that meditation does produce concrete, physiological effects on our brain (Hanson, 2009).

In researching various mechanisms of change associated with mindfulness-based interventions, it is important to recognize that mindfulness is frequently one component in a number of techniques applied in therapy. When researching the possible mechanism involved in the success of mindfulness in psychotherapy, it is necessary to account for

and subsequently rule out the possible effects of competing explanations such as active relaxation or cognitive distractions (Corcoran, Farb, Anderson, & Segal, 2010).

Mindfulness-based interventions use mindfulness as a component of cognitive therapy techniques, psycho-education, and psychotherapy (Dimidjian & Linehan, 2003). The overarching benefits of mindfulness practice include a decrease in negative symptoms, such as depression or anxiety, and an improvement in psychological health, including greater emotion regulation. Improvements in emotion regulation (the mechanism of change), which lead to improved psychological health, are likely associated with an increase in other components of the intervention as well as mindfulness.

Emotional Regulation

Exploration of emotions is fundamental to any clinical work, making a discussion of individual differences in the regulation of emotion a viable topic in research (Corcoran et al., 2010). Theory and research converge here to suggest that emotion dysregulation is central to many forms of psychopathology (Corcoran et al., 2010). Research suggests that poor emotion regulation is an underlying symptom of various psychopathologies; therefore it is important to target emotion regulation strategies for treatment options (Gratz & Tull, 2010). Corcoran and colleagues (2010) even suggest that the manner in which emotions are regulated inform a therapist about the mental health diagnosis. Research supports the use of mindfulness-based interventions to improve emotion regulation (Baer, 2010; Hayes & Feldman, 2004; Kumar, Feldman, & Hayes, 2008; Ortner et al., 2007; Orzech et al., 2009). In fact, emotion regulation is frequently explored as a key mechanism of change in mindfulness (Baer, 2010; Gratz & Tull, 2010; Kumar et al., 2008; Ortner et al., 2007).

There is disagreement in current literature on a clinically relevant definition of emotion regulation (Gratz & Tull, 2010). Corcoran and colleagues (2010) quote Gross (1998) and suggests that emotion regulation is “the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions” (p. 340). It involves both regulating negative emotional experiences (anxiety) and regulating how one experiences and expresses a positive emotional experience (Corcoran et al., 2010). Some researchers define emotion regulation by emphasizing only the control and reduction of negative emotions (Bear, 2010). Baer (2010) suggests that by defining adaptive emotion regulation as an “awareness and acceptance of all emotions as they arise and controlling behavior while experiencing negative emotions by inhibiting maladaptive impulsive behavior and engaging in goal-directed behavior” (p. 9), it is more consistent with mindfulness-based interventions (Bear, 2010). Gratz & Tull (2010) suggest that a viable clinical conceptualization of emotion regulation focuses on the adaptive ways of responding to emotional distress rather than control of emotions or emotional arousal, recognizing that both positive and negative emotions have a function in life and that awareness, understanding and acceptance of all emotions promotes a more adaptive emotion regulation and ultimately higher levels of mental health.

The debate about how to define emotion regulation leads to a discussion of the role of rumination and the issue of avoidance/acceptance of emotions. Avoidance and rumination are generally accepted as aspects of maladaptive emotional regulation strategies (Gratz & Tull, 2010; Hicks & Chan, 2010; Kumar et al., 2008; Ramel et al., 2004). Research supports the theory that avoidance of negative emotion and rumination

about emotions are associated with a maladaptive emotion regulation style (Kumar et al., 2008; Gratz & Tull, 2010; Ozech et al., 2009). In fact, efforts to control negative emotions, such as thought suppression, are not always effective or healthy and can result in an increase in frequency, severity, and availability of negative emotions (Gratz & Tull, 2010). Mindfulness-based interventions teach people to relate to their emotional life in a manner that promotes healthy emotion regulation (Corcoran et al., 2010; Kumar, 2008; Gratz & Tull, 2010). Research suggests that high levels of mindfulness are associated with a decrease in rumination, a decrease in the fear of emotions, and an increase in self-regulation of behavior (Lau & Yu, 2009), all of which are aspects of improved emotion regulation. Corcoran and colleagues (2010) explain that the ability to observe one's experience with acceptance and nonjudgment rather than attempting to control or change one's experience is "central to mindfulness training" (p. 343). This suggests that exposure is partially responsible for the beneficial effects of mindfulness training. Several studies indicate that participation in a mindfulness meditation program is associated with a decrease in avoidance of negative emotions (Kumar et al., 2008; Segal et al., 2002) and a decrease in fear of emotions (Lau & Yu, 2009).

Kumar et al. (2008) studied adults diagnosed with major depressive disorder participating in an exposure-based cognitive therapy program including mindfulness training to determine if changes in mindfulness were associated with a decrease in avoidance and rumination. Participants reported a significant increase in mindfulness over the course of the program. In addition, avoidance and rumination, two maladaptive emotion regulation strategies, decreased from pre- and post-treatment. The study also found that an increase in mindfulness correlated to a greater decrease in avoidance and

rumination. Kumar and colleagues (2008) point out that avoidance and rumination are two maladaptive emotion regulation strategies that are conceptual opposites of mindfulness.

For people with a lifetime of mood disorders, mindfulness meditation works to reduce the ruminative thinking, which alters the depressive symptoms and dysfunctional beliefs (Ramel et al., 2004). Research supports the theory that rumination is a central component of dysfunction in cognitive processing for depressed patients, and is thought to be a central target in MBCT for relapse prevention in major depressive disorder (Sauer & Baer, 2010; Segal et al., 2002). Depressive rumination repeatedly focuses on the negative feelings experienced, cycling back without interruption. Common approaches to treating depression, such as CBT and Behavioral Activation, focus on countering the ruminative thoughts by engaging in problem solving techniques and discussing the content of the dysfunctional thoughts for validity (Martell, Dimidjian, & Herman-Dunn, 2010; Wright et al., 2010), while mindfulness-based interventions, such as MBCT, place greater emphasis on changing one's relationship to experienced emotions and thoughts (Kenny & Williams, 2007; Segal et al., 2002). Mindfulness meditation practice was found to have the greatest effect on rumination, with research showing a decrease in the ruminative thinking in individuals with a lifetime of mood disorders (Ramel et al., 2004). It is believed that this change in rumination accounts for the decrease in negative affective symptoms and the decrease in dysfunctional attitudes (Ramel et al., 2004; Segal et al., 2002).

Research generally supports the claim that high levels of mindfulness are associated with a decrease in rumination (Kumar et al., 2008; Lau & Yu, 2009; Ramel et

al., 2004; Segal et al., 2002), however there is discrepancy among experts as to whether rumination is a mechanism of change in mindfulness-based interventions or if it is a result of improvements in emotional regulation, the actual mechanism of change. Baer (2010) suggests that rumination is a common factor involved in several mechanisms of change, including emotion regulation, and that mindfulness teaches a more adaptive emotion regulation (the mechanism), which in turn contributes to a decrease in rumination (the intermediate outcome), that leads to an improvement in psychological functioning. Baer (2010) explains that the various mechanisms of change work together to cultivate flexibility of attention, observation of thoughts as thoughts rather than rumination, and a willingness to experience unpleasant thoughts, memories, and emotions rather than attempting to avoid or suppress them, which are all aspects of emotion regulation. Mindfulness-based interventions improve mental health by teaching clients a more adaptive emotion regulation style.

Trait Mindfulness

Another mechanism of change essential to measure in any study of mindfulness-based interventions is trait mindfulness. The past decade of research has focused on clarifying the nature of mindfulness, coming to a consensual operational definition, and developing a valid, reliable way to measure it (Baer, 2010). As discussed above, mindfulness is commonly defined as a multifaceted construct that can be taught through a variety of techniques. Participants in mindfulness-based interventions such as MBSR and MBCT are asked to participate in activities that teach mindfulness, spending a considerable amount of time practicing mindfulness meditation and activities of mindfulness in daily living. Baer (2010) suggests that clients who learn mindfulness

techniques adopt various constructs of mindfulness into their lives, which in turn mediate positive changes in mental health. In this way, mindfulness as a treatment technique becomes trait mindfulness and is frequently discussed and measured in research as a possible mechanism of change (Baer, 2010; Orzech et al. 2009; Shapiro, Brown, Thorensen, & Plante, 2011). A proposed nominal definition of trait mindfulness is the integration of mindfulness principles reflecting a quality of living in the present moment with loving-kindness and nonjudgement (Kabat-Zinn, 2003; Baer, 2010). The tools used to measure trait mindfulness in research studies include the various self-report surveys discussed above since these measures were developed based on the multifaceted conceptualization of mindfulness that appear to be internalized as trait mindfulness (Baer, 2010).

In a study done by Orzech and colleagues (2009), trait mindfulness was measured using a non-clinical sample of participants of a 4-week residential mindfulness meditation training. Increases in mindfulness were associated with an increase in mental health, as measured by a decrease in anxiety and an increase in self-reported well-being and self-compassion. Similarly, a study comparing adults who practiced mindfulness meditation an average of seven years to a control group, found that long-term meditation practice is associated with an increase in mindfulness traits (Sauer & Baer, 2010). In the study by Kumar and colleagues (2008) mentioned above, it was found that a decrease in depressive symptoms was associated with an increase in trait mindfulness. Sauer and Baer (2010) suggest that mindfulness practices require one to maintain a nonjudgmental, nonreactive observation of internal experiences that are unpleasant without trying to avoid or escape them. In this way, mindfulness practice is a form of exposure and is

thought to decrease emotional reactivity and avoidance behavior because of the adoption of trait mindfulness, the actual mechanism of change.

This research suggests that cultivating mindfulness through mindfulness practice leads to psychological benefits, however it is still unclear why mindfulness is adaptive. It seems that the practice of mindfulness cultivates a stance in which thoughts are observed and labeled as transitory events rather than aspects of the self or important truths that must dictate behavior (Sauer & Baer, 2010). Shapiro and Carlson (2009) present a theory explaining how mindfulness practice leads to a shift in perspective in which a person develops the capacity to observe the contents of their consciousness in a dispassionate manner. This shift, termed ‘reperceiving’, is considered by Shapiro and Carlson (2009) to be the ‘metamechanism of action’ overarching all other mechanisms that lead to success in treatment. According to Shapiro and Carlson (2009), reperceiving “engenders a deep knowing and intimacy with whatever arises moment by moment (p. 98).” This construct of mindfulness represents a ‘metacognitive aspect’ that is discussed frequently in the literature as a possible mechanism of action associated with trait mindfulness (Hick & Chan, 2010; Sauer & Baer, 2010) and is similar to what Baer (2010) refers to as trait mindfulness.

This metacognitive aspect of mindfulness extends to include thoughts, feelings and bodily sensations. Christopher (2007) explains that thoughts are thoughts, feelings are feelings, and neither are facts. Carmody (2009) explains it as a perceptual shift in which attention is changed from looking at content of thought to viewing thoughts as simply an event in the mind. Essentially, with mindfulness, a person needs to let go of the goal to ‘fix’ a problem since striving to fix a problem encourages rumination and worry

which work to keep the person trapped in the state they are trying to leave. The answers lie in the present and acceptance precedes any change (Christopher, 2007; Kabat-Zinn, 2003). Shapiro and Carlson (2009) quote Buddha, “Yesterday is a memory, Tomorrow is the unknown, And now, is the knowing (p. 3).”

Research Question

Three decades of research suggest that mindfulness-based interventions are beneficial in treating multiple psychological diagnoses across a wide range of populations (Baer, 2010; Christopher, 2007; Hoffman et al., 2010; Lau & Yu, 2009; Shapiro & Carlson, 2009). There is solid evidence that mindfulness is effective in treating anxiety and depression as an addition to psychotherapy or as a component of MBCT and MBSR programs (Kabat-Zinn, 2003; Segal, et al., 2002; Shapiro & Carlson, 2009). Mindfulness-based interventions have been developed and found effective in treating a wide range of other diagnoses, including such therapies as DBT for treating borderline personality disorder, mindfulness-based relapse prevention (MBRP) for substance abuse, acceptance and commitment therapy (ACT) for psychosis, and an integrated behavioral couple therapy (IBCT) (Baer, 2010; Christopher, 2007). These specific programs, unique to each diagnosis, use some form of mindfulness technique. Future research is needed to determine the effectiveness of mindfulness techniques used by therapists and specifically if it is effective as an isolated clinical treatment since it is frequently used in conjunction with cognitive therapy techniques, psycho-education, and psychotherapy (Baer, 2010; Christopher, 2007; Dimidjian & Linehan, 2003).

According to Corcoran et al. (2010), the specific mechanisms and processes that operate to make mindfulness practice beneficial to clients are largely unknown.

“Mindfulness research to date has primarily focused on outcomes rather than on processes through which mindfulness training may enhance these outcomes” (Orzech et al., 2009, p. 213). As discussed above, the benefits of mindfulness practice are generally accepted as an effective treatment for a range of physical and mental difficulties. The pressing issue is to explore if mindfulness training leads to a change in potential underlying mechanisms of change. In general, it is hypothesized that improvements in mental health and well-being are mediated by changes in specific processes, such as emotion regulation, that occur due to an increase in mindfulness practice (Baer, 2010; Carmody, Baer, Lykins, & Olendzki, 2009; Hamilton, Kitzman, & Guyotte, 2006; Orzech, et al., 2009).

Mindfulness-based interventions are presently used across the disciplines of psychiatry, psychology, and social work. People use mindfulness meditation practice worldwide as a way of coping with the human condition and improving happiness in life. The use of mindfulness in social work practice resonates well with the strengths perspective, a central principle in social work. Mindfulness interventions rely on the inherent strength within people to make change in their lives by teaching them how to have a different relationship with their inner experiences that is less judgmental. This application of mindfulness in clinical social work practice requires the attention of interdisciplinary research to further understand how and why mindfulness-based interventions are effective. A review of the literature pertaining to mindfulness frequently suggests that emotion regulation is a key mechanism of change addressed in a variety of clinical interventions, including mindfulness. This study explored the use of mindfulness as a clinical intervention, with particular investigation into possible mechanisms of

change. Specifically, is mindfulness meditation experience related to higher levels of self-reported trait mindfulness, less difficulties with emotion regulation, and greater life satisfaction in a sample of adult meditators?

Conceptual Framework

The literature pertaining to the use of mindfulness in psychotherapy discusses a variety of theories that parallel mindfulness in some way, including positive psychology, humanistic psychotherapy, relational frame theory, and contextualism (Germer, 2005). In addition, a discussion about mindfulness will inevitably lead to Buddhism and the belief concerning the human condition and what causes suffering, which is often referred to as Buddhist psychology or philosophy. The conceptual framework for this research project draws from positive psychology, Buddhist philosophy, and contextualism. It looks at the effects that mindfulness meditation has on emotion regulation and the incorporation of trait mindfulness into a person's worldview. With this focus, it is important to discuss briefly the similarities between positive psychology and mindfulness. Afterwards, essential principles in Buddhist psychology are presented to give mindfulness meditation and trait mindfulness a context. Then, the ideas of contextualism will be discussed as a relevant theoretical framework for this project. As the researcher, I draw from positive psychology, Buddhist philosophy, and contextualism as a lens to develop and interpret my research.

Positive psychology and mindfulness are frequently mentioned in the literature about mindfulness because both theories focus on the "development and cultivation of human strengths and adaptive characteristics" (Baer & Lykins, 2011, p. 335). Both positive psychology and mindfulness recognize that optimal mental health goes beyond

symptom relief to a broader view of being able to actualize your full potential as a human being (Germer, 2005). It is by living fully in each moment that one experiences a more complete texture of life (Hamilton et al., 2006). I approach this project and psychotherapy from the viewpoint that optimal mental health and well-being is more than being free from the negative symptoms of mental illness. People come to therapy in an effort to move closer to actualizing their full potential as human beings.

Mindfulness lies at the core of Buddhist meditation tradition and is considered an essential part of the teachings of Buddha (Kabat-Zinn, 2003). Contrary to what many people believe, Buddha himself was not a Buddhist, and his teachings are considered by some to be truly universal, rather than an ideology or a philosophy (Kabat-Zinn, 2003). Essentially, teachings about mindfulness describe the human condition, the nature of suffering, and a potential relief from this suffering (Kabat-Zinn, 2003). Olendzki (2005) describes the human condition in the following way: “The nature of the human existence is flawed by the fact that pain is inevitable, lasting pleasure is unobtainable, and humans have a limited ability to see themselves in their world very clearly” (p. 242). The alleviation of this suffering in the human condition comes “through meditative practices that calm and clarify the mind, open the heart, and refine attention and action” (Kabat-Zinn, 2003, p. 146). In this way, mindfulness leads to insight, which can then lead to wisdom (Kabat-Zinn, 2003; Olendzki, 2005). The practice of mindfulness meditation develops the qualities of mindfulness that can alleviate suffering.

The contextual worldview, developed in the early 1940s, attempts to explain the nature of reality, how a person knows what reality is, the causality of the interpretations about reality, and how this works to best describe the concept of personhood (Germer,

2005). With this worldview, George Kelly developed a theory of personal constructs that apply to psychology and align in a number of ways with Buddhist psychology and mindfulness (Germer, 2005). In essence, a contextual worldview defines a person in terms of who they are in the present moment, while recognizing that who a person is in the present moment is a combination of the interpretations of reality internalized by a person as they mature (Germer, 2005). “Personhood is best described as a single moment of awareness or activity embedded in an unlimited field of interpersonal and impersonal events” (Germer, 2005, p. 25). This idea resonates with the focus of mindfulness on the present moment experiences. It is helpful to look at some basic constructs of a contextual worldview in order to understand how these constructs inform the conceptual framework of this project.

A contextual worldview looks at reality as a changing entity. Change and activity are considered part of the human condition and the world is an interconnected “web of activity” (Germer, 2005, p. 25). This is quite similar to the idea of impermanence, a key concept in Buddhist philosophy. The concept of impermanence teaches that change is an inevitable part of the human condition, and this change, although sometimes difficult, can bring relief to human suffering because of the idea that both positive and negative experiences pass and new experiences come (Germer, 2005; Segal et al., 2002). This concept relates well to how this project views emotion regulation and the effective use of mindfulness as an intervention. Emotion regulation involves the ability to tolerate both negative and positive emotion and mindfulness practice teaches by experience the concept that feelings come and go in our inner world. Morgan (2005) explains, “The fact that feelings change can bring great relief to a person ... what is unbearable is the fear

that the state will never change” (p. 137). The power of mindfulness training is that a person learns to change their relationship to negative thoughts and emotions by understanding through practice that change is inevitable (Segal et al., 2002). Specific to this study, mindfulness-based interventions teach clients a more adaptive emotion regulation style (the actual mechanism of change), which decreases avoidance and rumination, which in turn improves psychological health.

According to a contextual worldview, reality is created and recreated by interpretations a person makes within a specific context. In this way, “there is no absolute reality we can know” (Germer, 2005, p. 25). In the Buddhist tradition, suffering is characteristic of the human condition and is used broadly to include more than physical and emotional pain and involves “not getting what one wants, having to cope with what one does not want, and confusion about conflicting desires” (Olendzki, 2005, p. 290). The connection between a contextual worldview of reality and mindfulness lies in how Buddhist philosophy understands suffering. People suffer needlessly because of striving for something they don’t have or wanting to change something that is causing them pain. By not evaluating one’s experience as bad or good there is less suffering, and by recognizing that change is eminent there is less suffering. A person constructs an individual reality that, according to contextualism, is mostly delusional, since past events are used to interpret present experiences. Therefore how we experience our life is not necessarily accurate (Germer, 2005). Being unsatisfied with what we evaluate as bad in our life and striving to change it causes suffering, when truly what we believe is influenced by our interpretation. It is with a mindfulness stance of nonjudgmental, nonstriving observation of our experience that suffering can be relieved and our

constructed reality clarified. Kabat-Zinn (2003) invites people to “simply ‘drop-in’ on the actuality of their lived experience and then to sustain as best they can moment by moment, with intentional openhearted presence and suspension of judgment and distraction” (p. 148). In this way, the delusional perception of reality is diminished. This concept is particularly relevant to how people experience their emotional life. A mindfulness stance towards one’s experiences leads to a greater tolerance of negative experience, which in turn improves emotion regulation (Hamilton et al., 2006).

This idea of a constructed reality has a metacognitive theme to it and relates to how mindfulness is used in a clinical setting. Mindfulness teaches a person to recognize that a thought is a thought, or a feeling is a feeling, and that neither is necessarily a reflection on self-worth or self-concept (Hamilton, et al., 2006). In this way, the interpretation of an experience based on past events is less likely to happen. Mindful attention to the experience of a thought or emotion allows a person to see more clearly and perhaps understand that our reality is not absolute truth, but rather representative of our conceptualized reality, which is in many ways a delusion (Germer, 2005). For example, a college student who is experiencing a recent break-up with a girlfriend may feel quite sad and think, “I will never be happy without her”. This thinking will continue or increase the cycle of sadness. The constructed reality of this student involves a belief that he will never find another girlfriend who will make him so happy. A mindfulness stance is to experience the sadness and interpret it for what it is in the moment. For example: “I am feeling sad right now because I miss my old girlfriend.” And “now I am thinking that I will never be happy without her.” But, “this does not mean that my interpretation of my experiences is necessarily true.” Mindfulness clarifies our experience

of the moment so we are able to better tolerate our negative emotions and not slide down the slippery slope of negative cognitions leading to more negative emotions. Germer (2005) explains that “we learn to hold our constructions more lightly” (p. 26), which leads to a more healthy mental and emotion life.

Methods

Sample

Research participants were adults who are currently practicing mindfulness meditation and use a Buddhist meditation center in Minneapolis, Minnesota. Selection criteria include (a) being at least 18 years old and (b) currently practicing mindfulness meditation a minimum of 20 minutes a week at home or at a meditation center.

Mindfulness meditation practice is defined here as a formal sitting meditation practice in the Buddhist tradition. Practice in this sense is best described as “a commitment to reside as best one can from moment to moment in awareness with an open heart, a spacious, nonjudging, nonreactive mind, and without trying to get anywhere, achieve anything, reject anything, or fall into ... the stream of conceptual thought.” (Kabat-Zinn, 2003).

The sample size included 29 adults.

Research Design

This study was a cross-sectional, quantitative survey and involved an availability sample over a two-month period from two different urban meditation centers. The survey was designed by the researcher and consisted of 44 questions that gather data aimed at accessing the relationship between mindfulness meditation, emotion regulation, and trait mindfulness. The survey was created using a combination of self-report measuring tools available in the literature. There were 38 Likert questions and six demographic questions

including gender, age, ethnicity, education level, history of meditation experience, and frequency of meditation practice. The independent variable is identified as the amount of mindfulness meditation experience, determined by the history of mindfulness meditation practice (MMHistory) and the frequency of mindfulness meditation (MMFrequency). The dependent variables are trait mindfulness with five resulting subscales and a total composite score, emotion regulation with six resulting subscales and a total composite score, and self-reported measures of well-being with a resulting composite score.

Participants were recruited with flyers at two local Buddhist meditation centers in Minneapolis. The flyer asked for participants who were willing to fill out a brief survey that will be used to explore the benefits of mindfulness meditation, specifically how mindfulness affects their mental health. The research survey was available to people who used the meditation center by being placed with a flyer in the common area of the meditation center. A short announcement was made during various group practice times. At one meditation center, a member of the community asked people who came to the center if they would like to fill out a survey. Pens and a sealed box for completed surveys were provided. The flyer and blank surveys remained there for 2 months. The researcher collected completed surveys weekly.

Human Subjects

Permission to collect data in the above manner was requested from the Institutional Review Board of the University of St. Thomas. The confidentiality and anonymity of each respondent was maintained given the voluntary nature of the research design and the absence of their name on the survey form. There was no threat to human subjects due to the specific nature of the survey questions.

Measurement

Demographics. Measures of gender, ethnicity, and education level were asked at the end of the survey as a choice of predetermined categories, making these questions nominal levels of measurement. Measures of age, mindfulness meditation history (MMHistory) and mindfulness meditation frequency (MMFrequency) were asked as open-ended questions and are ratio levels of measurement. For example, “How many months or years have you been practicing meditation with some regularity?”

Trait mindfulness. Mindfulness was measured using components of the Five Facet Mindfulness Questionnaire (FFMQ) and a working definition of mindfulness as “intentionally paying attention to the moment by moment experience in a nonjudgmental way, cultivating a stable and nonreactive awareness” (Carmody, 2009, p. 271). The FFMQ is a 39-item self-report measure developed to assess the multifaceted aspect of mindfulness (Sauer & Bear, 2010; Shapiro & Carlson, 2009). It measures five components of mindfulness and results in five composite subscale scores and a total mindfulness score. In an effort to keep the survey length short, this study used three questions from each of the subscales: (a) observing (b) describing (c) acting with awareness (d) nonjudging of inner experience and (e) nonreactivity to inner experience, totaling 15 Likert-type questions. These subscales in the FFMQ represent the core components used above to define mindfulness. Examples of questions on the FFMQ include “I notice smells and aromas of things” (observing), “I believe some of my thoughts are abnormal or bad and I shouldn’t think that way” (reverse-scored for nonjudging of inner experience), and “When I have distressing thoughts or images, I just notice them and let them go” (nonreactivity to inner experience). Respondents were

asked to rate how much each statement is generally true for them from 1 (*Never or very rarely true*) to 5 (*Very often or always true*). Possible scores for the FFMQ composite range from 15 to 75, with a higher score reflecting a higher level of trait mindfulness. The FFMQ has been found to assess relationships between mindfulness training and improvements in psychological functioning by looking at the specific subscales (Shapiro & Carlson, 2009). Researchers have used the nonjudging, and nonreactivity subscales to look at the relationship between meditation practice and overall psychological well-being (Shapiro & Carlson, 2009), making these subscales particularly relevant to the current study.

Emotion regulation. Emotion Regulation was measured using components of the Difficulties in Emotion Regulation Scale (DERS). The DERS is a 36-item self-report measure developed to be a comprehensive measure of difficulties in emotion regulation (Gratz & Tull, 2010), based on the conceptualization of emotion regulation as a multidimensional construct that involves an awareness, understanding, and acceptance of all emotion and the ability to use adaptive ways of responding to the experience of emotions (Gratz & Tull, 2010). In this definition, negative emotions are accepted as a part of a meaningful life and attempts to control or dampen emotional experiences are not considered adaptive emotion regulation (Gratz & Tull, 2010). The DERS measures difficulty in emotion regulation across six dimensions and results in six composite subscale scores and a total score. In an effort to keep the survey length short, this study used three questions from each of the subscales: (a) lack of emotional awareness (b) lack of emotional clarity (c) nonacceptance of emotional responses (d) difficulty engaging in goal directed behavior (e) Impulse control difficulties (f) limited access to emotion

regulation strategies, totaling 18 Likert-type questions. These subscales in the DERS represent the definition of emotion regulation used above. Examples of questions on the DERS include “I pay attention to how I feel” (emotional awareness), “I believe some of my thoughts are abnormal or bad and I shouldn’t think that way” (reverse-scored for acceptance of emotions), and “When I have distressing thoughts or images, I just notice them and let them go” (access to emotion regulation strategies). Respondents were asked to rate how much each statement applies to them from 1 (*Almost never*) to 5 (*Almost always*). The resulting composite scale score ranges from 18 to 90, with a higher score reflecting a greater difficulty in regulating emotion and a lower score suggesting less difficulty regulating emotion. In this study, a low score on the DERS is significant since it suggests that this respondent would have a greater ability to manage their emotional life, which in turn is an important skill for mental health and perhaps results in greater life satisfaction. The DERS is found to have strong internal consistency within both clinical and nonclinical samples and has demonstrated good reliability over time (Gratz & Tull, 2010).

Well-being. The subjective level of satisfaction with life and general feelings of well-being was measured using the Satisfaction With Life Scale (SWLS), consisting of a 5-item self report questionnaire assessing the global evaluation of life satisfaction (Ortner et al., 2007). Questions include statements like “So far I have gotten the important things I want in life.” Respondents are asked to rate how much they agree with each statement from 1 (*Strongly disagree*) to 7 (*strongly agree*). For the purposes of this study, responses will be limited to the 5-point scale similar to the one used in the FFMQ and respondents will be asked to rate how much each statement is generally true for them from 1 (*Strongly*

disagree) to 5 (*Strongly agree*). Possible scores on this measure range from 5 to 25, with a higher total score reflecting greater life satisfaction. The SWLS has been used in multiple studies to assess life satisfaction (Ortner et al., 2007; Orzech et al., 2009; Shapiro et al., 2011).

Data Analysis

This study investigated the increasing use of mindfulness-based interventions in clinical social work settings, specifically exploring how mindfulness works to improve mental health. The overarching research question asks: Is mindfulness meditation experience related to higher levels of self-reported trait mindfulness, less difficulties with emotion regulation, and greater life satisfaction in a sample of adult meditators? The independent variable in this study is the amount of mindfulness meditation experience. This research looks at the relationship between mindfulness meditation experience and the three dependent variables: trait mindfulness, emotion regulation, and well being. Although the adults studied for this project are not specifically participating in a mindfulness-based intervention for a specific mental health diagnosis it is still possible to use the information gathered here to understand possible mechanisms responsible for the benefits of mindfulness meditation practice. By comparing the trait mindfulness and the emotion regulation of adults with more mindfulness meditation experience to those who have less experience, this study investigates the relationship between trait mindfulness and meditation, and the relationship between emotion regulation and mindfulness. The results of this study using a general adult population will then inform further research involving adults who is being taught mindfulness meditation as a clinical intervention.

Demographics. The demographic information concerning age, gender and ethnicity was analyzed using descriptive statistics to answer the general question: Who are the respondents? Tally and histograms were used. The information regarding mindfulness meditation history and mindfulness meditation frequency are interval levels of measurement and were analyzed using descriptive statistics, specifically measures of central tendency and dispersion. Research questions include: (1) What is the distribution of gender, age, ethnicity, and education level for respondents? (2) What is the distribution of mindfulness meditation experience for respondents?

Mindfulness meditation and mental health. This study asked the general research question: What are the effects of mindfulness meditation on mental health? To answer this question, the study asks: Is mindfulness meditation experience related to higher levels of self-reported trait mindfulness, less difficulties with emotion regulation, and greater life satisfaction in a sample of adult meditators? Data was analyzed using inferential statistics to test the hypothesis that higher levels of mindfulness meditation experience are associated with greater mental health, which is measured by fewer difficulties with emotion regulation and greater life satisfaction. The Null hypothesis states that there is no correlation between the level of mindfulness meditation experience and emotion regulation, trait mindfulness, and life satisfaction. To determine if there is a relationship and to reject the Null hypothesis, data was analyzed using Correlation statistics with a p-value of 0.05 or less. A resulting r-value was used to determine the strength and directionality of the correlation between levels of mindfulness meditation experience (the dependent variable) and the three independent variables. Data is presented on a scatterplot graph to demonstrate the nature of the relationship.

Results

Descriptive Statistics

Demographics. The 29 adult volunteers for this study were recruited through availability sampling from two mindfulness meditation centers in an urban area. Table 1 and Table 2 below show the frequency distribution for the four demographic variables: age, gender, ethnicity, and education level.

Table 1

Demographics Distribution

Variable	Options	Frequency	Percent
Gender	Male	12	41.4 %
	Female	17	58.6 %
Ethnicity	White (NonHispanic)	28	96.6 %
	Other	1	3.4 %
Education	High School diploma	2	6.9 %
	Undergraduate degree	12	41.4 %
	Masters degree or equivalent	12	41.4 %
	Ph.D. or equivalent	3	10.3 %

Table 2

Distribution of Age

Variable	Min	Max	Mean	Std Dev	Skewness
Age	24	72	48.4	15.1	-.276

Women were slightly more represented in the sample than men. Of the 29 respondents surveyed, 17 (59%) identified as female and 12 (41%) as male. The majority of the sample (97%) identified as “White (Non-Hispanic)”, with only one respondent (3%) choosing a different category (“Other”), and identified as African/Native

American/European. In terms of education level, the majority of respondents (93%) have a college education or greater, with most respondents (82%) having a Bachelor or Masters degree. Of the 29 respondents, 2 (7%) reported having a high school diploma, 12 (41%) reported having an undergraduate degree, 12 (41%) reported having a Master's degree, and 3 (10%) reported having a Ph.D. The mean age of respondents was 48 years old (s.d.=15.1), with a range from 24 years old to 72 years old. Table 2 above shows the measure of central tendencies and dispersion for the age of respondents. The age of respondents is negatively skewed (-0.246), with more volunteers being represented on the far end of the range. This is significant since it suggests that the majority of respondents were on the older end of the age range, represented largely by respondents who are in their early-50s to mid-60s.

Mindfulness meditation experience. The independent variable for this study is identified as the amount of mindfulness meditation experience (MMExperience) for each respondent. To assess the MMExperience for each respondent, this study looked at how much time respondents currently spend in mindfulness meditation per week (MMFrequency) and the number of years or months each respondent maintained a mindfulness meditation practice (MMHistory). Table 3 below, shows the measures of central tendencies and dispersion for the ratio variables MMFrequency and MMHistory.

Table 3

Measures of Central Tendency and Dispersion for Mindfulness Meditation Experience

Variable	Respondents	Min	Max	Mean	Std Dev	Skewness
MMFrequency (minutes)	29	20.0	480.0	229.48	136.46	.165
MMHistory (months)	28	1.0	240.0	92.8214	79.81	.671

The research question for MMFrequency asks: What is the distribution of minutes respondents currently spend in mindfulness meditation practice? Of the 29 respondents, the mean number of minutes spent in mindfulness meditation was 229.48 minutes (about 3 hours, 45 minutes) per week, with a standard deviation of 136.46. This suggests that there was a wide variation in the amount of time people spent meditating per week. The minimum amount of time was 20 minutes per week up, and the maximum was 480 minutes (8 hours) per week. The data for mindfulness meditation frequency is positively skewed (0.165), suggesting that in this sample of adults, slightly more respondents practice mindfulness meditation a longer time compared to respondents who practice less time.

The research question for MMHistory asks: What is the distribution of months respondents have maintained a mindfulness practice? Of the 29 respondents, one person did not report the number of years and instead circled “years”, insinuating that it had been a long time. Of the remaining 28 respondents, the mean response was 92.8 months (about 7 years), with a standard deviation of 79.807 months (about 6.5 years). The minimum response was 1 month, and the maximum was 240 months (20 years). According to this data, the range of MMHistory covers a large range. The histogram below in Figure 1 depicts the distribution of scores for MMHistory.

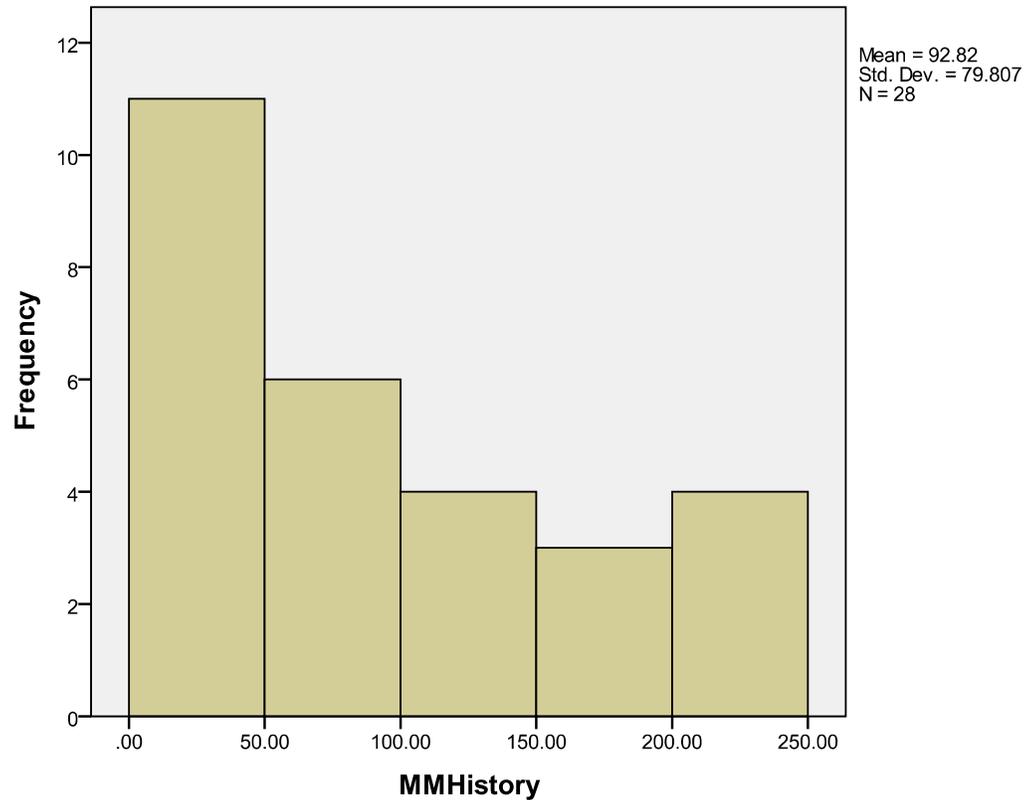


Figure 1. History of Mindfulness Meditation Experience
Minimum = 1 month, Maximum = 240 months (20 years)

Figure 1 demonstrates that the responses are positively skewed (0.671) with more responses on the left end of the histogram and fewer responses on the right end of the histogram. This is significant since it suggests that more respondents have been meditating on the shorter end of the range, between 1-100 months (1 month-8 years). The range between 8-20 years is still well represented, suggesting that overall the sample represents adults who have had an established mindfulness meditation practice for a number of years.

Inferential Statistics

Trait mindfulness. The first dependent variable in this study measures the level of trait mindfulness for each respondent. This interval level variable represents the level in which respondents have incorporated basic mindfulness principle into their life. The research question for this study that involves trait mindfulness asks: What is the relationship between self-reported trait mindfulness and mindfulness meditation experience? Since mindfulness meditation involves both the current amount of time spend in mindfulness meditation practice (MMFrequency) and the number of years someone has maintained a mindfulness meditation practice (MMHistory), this study looked separately at the relationship between FFMQ (trait mindfulness) and MMFrequency, and at the relationship between FFMQ and MMHistory.

The first research question pertaining to trait mindfulness is: What is the relationship between trait mindfulness and mindfulness meditation frequency? The research hypothesis for the study is: There is a relationship between the amount of time respondents currently meditate (MMFrequency) and the self-reported trait mindfulness (FFMQ). The null hypothesis is: There is no relationship between MMFrequency and FFMQ. Table 4 below shows the inferential statistics of the relationship between trait mindfulness and MMFrequency. The calculated correlation ($r = .472$, $p = .010$) indicates a moderate, statistically significant positive correlation. Since the p-value ($p < .01$) is less than .05, we reject the null hypothesis. Therefore, according to this study, there is a relationship between the amount of time respondents currently spend in mindfulness meditation practice and their level of trait mindfulness.

Table 4

Relationship Between Trait Mindfulness (FFMQ) and Mindfulness Meditation Frequency

(MMFrequency)

		FFMQ	MMFreq
FFMQ	Pearson	1	.472**
	Correlation		
	Sig. (2-tailed)		.010
	N	29	29
MMFre q	Pearson	.472**	1
	Correlation		
	Sig. (2-tailed)	.010	
	N	29	29

** . Correlation is significant at the 0.01 level (2-tailed).

The scatterplot graph in Figure 9 below shows that there is a positive correlation between the variables, suggesting that as MMFrequency increases, the level of trait mindfulness also increases.

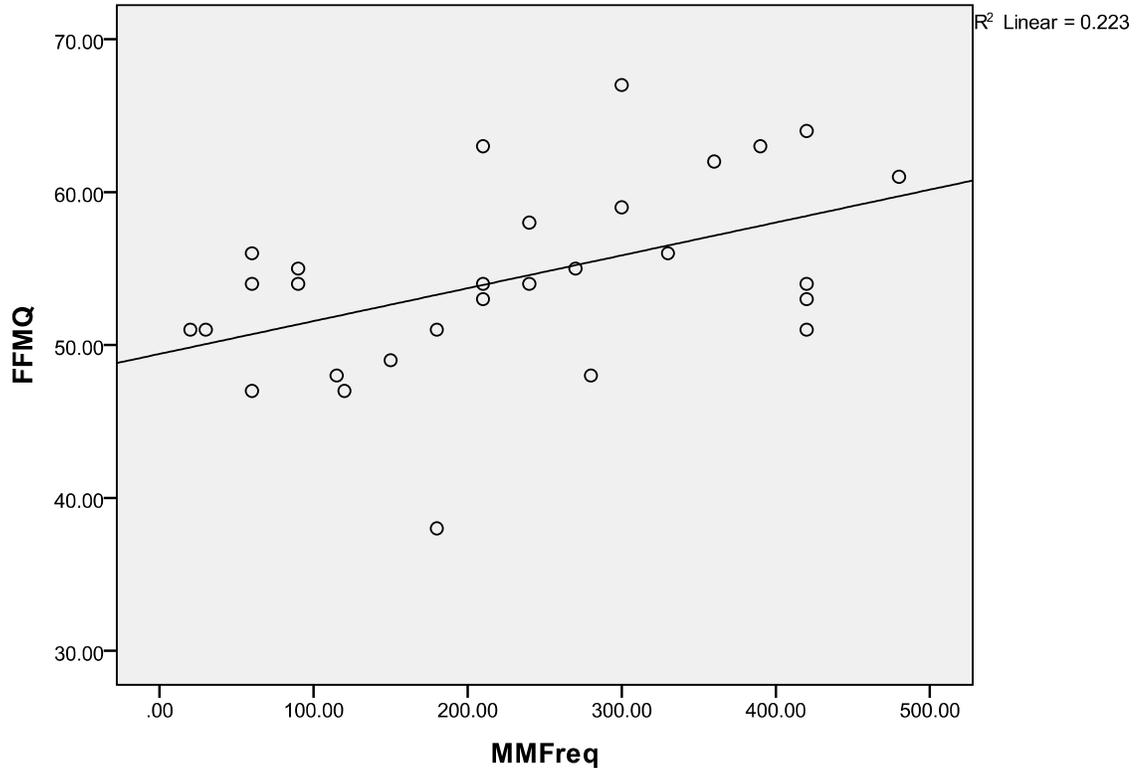


Figure 2. Relationship Between Trait Mindfulness (FFMQ) and Mindfulness Meditation Frequency (MMFrequency)

p-value < .01, r-value = .472

The second research question pertaining to trait mindfulness is: What is the relationship between trait mindfulness and mindfulness meditation history? The research hypothesis for the study is: There is a relationship between the level of MMHistory and the self-reported trait mindfulness (FFMQ). The null hypothesis is: There is no relationship between the level of MMHistory and FFMQ. The inferential statistics for these two variables indicate that the weak relationship between MMHistory and FFMQ is not statistically significant ($r = .283$, $p = .145$). Since the p-value is not less than .05, we fail to reject the null hypothesis. Therefore, according to this study there is no relationship between the number of years respondents have practiced mindfulness meditation and their level of trait mindfulness.

Emotion regulation. The second dependent variable for this study is emotion regulation. The research question pertaining to emotion regulation is: What is the relationship between mindfulness meditation experience and respondent's ability to regulate emotion (DERS)? As with trait mindfulness, this study looked independently at the relationship of DERS to MMFrequency and MMHistory. The calculated correlation between DERS and MMFrequency ($r = -.293$, $p = .122$) indicates that there is a slight negative relationship that is not statistically significant since the p-value is not less than .05. Therefore, according to this study there is no significant relationship between the amount of time a respondent currently spends in mindfulness meditation practice and their level of emotion regulation. The calculated correlation between DERS and MMHistory ($r = -.357$, $p = .063$) indicates that the weak, negative relationship between these variables is not statistically significant. Therefore, according to this study there is not a significant relationship between the number of years a respondent has maintained a mindfulness meditation practice and their level of emotion regulation. In general, this study found that the amount of meditation experience does not significantly correlate to difficulties in emotion regulation.

Relationship between FFMQ and DERS. This study asks the following research question: What is the relationship between respondent's level of trait mindfulness (FFMQ) and their level of emotion regulation (DERS)? The research hypothesis states: There is a relationship between trait mindfulness (FFMQ) and emotion regulation (DERS). The null hypothesis is: There is no relationship between trait mindfulness (FFMQ) and emotion regulation (DERS). Table 5 below shows the inferential statistics of the relationship between the two variables, FFMQ and DERS.

Table 5

Relationship Between Trait Mindfulness (FFMQ) and Emotions Regulation (DERS)

Correlations		
	FFMQ	DERS
FFMQ Pearson Correlation	1	-.673**
Sig. (2-tailed)		.000
N	29	29
DERS Pearson Correlation	-.673**	1
Sig. (2-tailed)	.000	
N	29	29

** . Correlation is significant at the 0.01 level (2-tailed).

For this study, the calculated correlation between FFMQ and DERS ($r = -.673$, $p < .001$) indicates that there is a strong negative correlation. Figure 3 below shows the scatterplot graph for the correlation between FFMQ and DERS. As respondents score for trait mindfulness increased, their score for difficulties in emotions regulation decreased. Since the p-value ($p < .001$) is less than .05, we reject the null hypothesis. Therefore, the results of this study support the hypothesis that there is a relationship between trait mindfulness and emotion regulation. In other words, it appears that respondents with higher scores for trait mindfulness (FFMQ), also have lower scores on the difficulty in emotion regulation score (DERS).

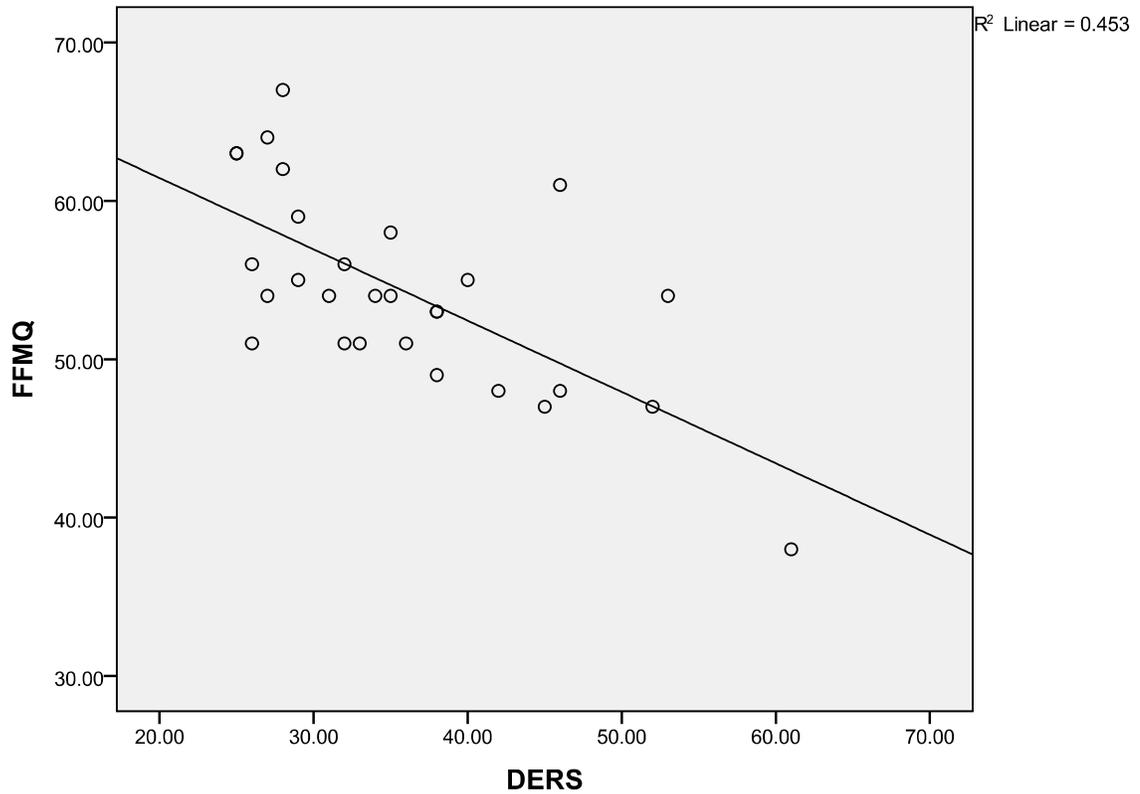


Figure 3. Relationship Between Trait Mindfulness (FFMQ) and Emotions Regulation (DERS)
 p-value < .01, r-value = -.673

Well Being. The third dependent variable for this study is a respondent's self reported level of well-being. As with FFMQ and DERS, this study looks at the correlation between life satisfaction (SWLS) and MMFrequency and MMHistory separately. The first research question pertaining to life satisfaction is: What is the relationship between the amount of time respondents spend practicing mindfulness meditation (MMFrequency) and respondent's feeling of well being (SWLS)? The research hypothesis states: There is a relationship between MMFrequency and SWLS. The null hypothesis is: There is no relationship between MMFrequency and SWLS. The calculated correlation between SWLS and MMFrequency ($r = .306$, $p = .107$) indicates that the weak positive correlation between these two variables is not significant. Since the

p-value is not less than .05, we fail to reject the null hypothesis. Therefore, according to this study there is no significant relationship to the amount of time respondents spend practicing mindfulness meditation and their life satisfaction.

A second research question for life satisfaction is: What is the relationship between the amount of months respondents have maintained a mindfulness meditation practice (MMHistory) and respondent's level of life satisfaction (SWLS)? The research hypothesis states: There is a relationship between MMHistory and SWLS. The null hypothesis is: There is no relationship between MMHistory and SWLS. The calculated correlation between SWLS and MMHistory ($r = .074$, $p = .710$) indicates that there was a weak positive correlation between these two variables. Since the p-value is not less than .05, we fail to reject the null hypothesis. Therefore, according to this study there is not a significant relationship between the length of time respondents have practiced mindfulness meditation and their life satisfaction.

Relationship between FFMQ and SWLS. This study asks the following research question: What is the relationship between respondent's self-reported life satisfaction and their level of trait mindfulness. This question involves two interval level variables, FFMQ and SWLS. The research hypothesis states: There is a relationship between life satisfaction (SWLS) and trait mindfulness (FFMQ). The null hypothesis is: There is no relationship between SWLS and FFMQ. Table 6 and Figure 4 below show the inferential statistics of the relationship between SWLS and FFMQ.

Table 6

Relationship Between Life Satisfaction (SWLS) and Trait Mindfulness (FFMQ)

Correlations		
	FFMQ	SWLS
FFMQ Pearson Correlation	1	.513**
Sig. (2-tailed)		.004
N	29	29
SWLS Pearson Correlation	.513**	1
Sig. (2-tailed)	.004	
N	29	29

** . Correlation is significant at the 0.01 level (2-tailed).

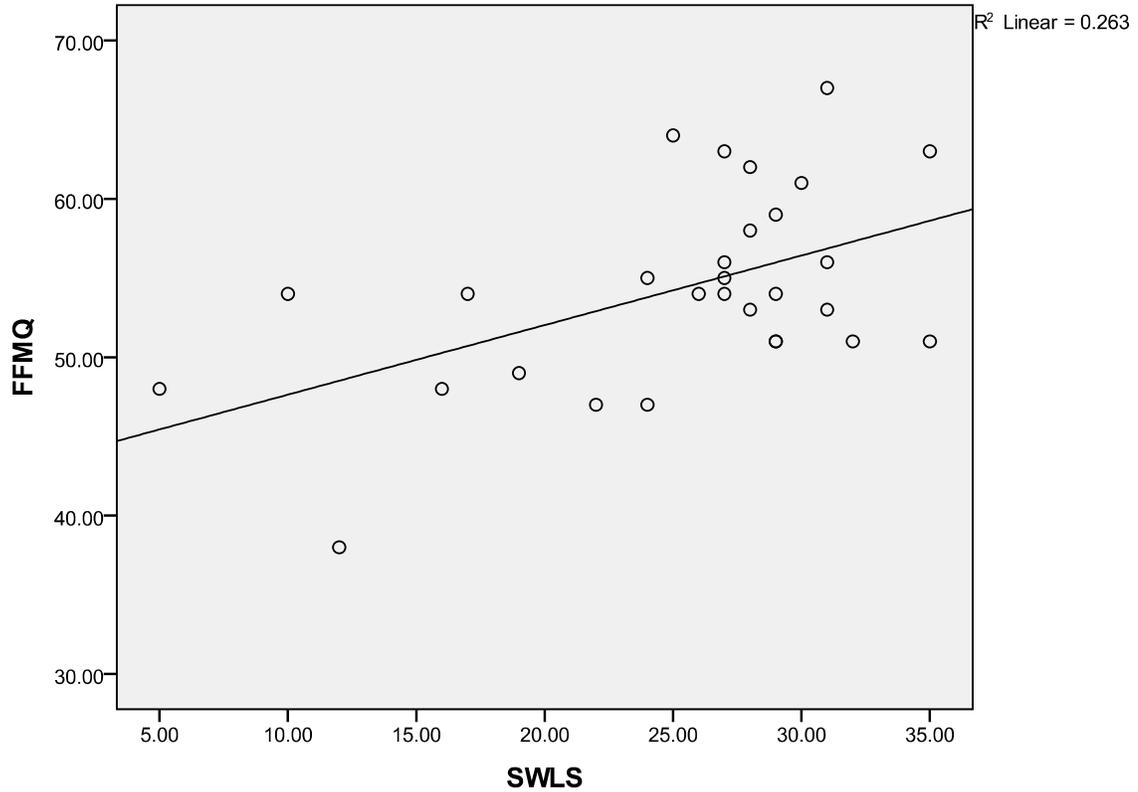


Figure 4. Relationship Between Life Satisfaction (SWLS) and Trait Mindfulness (FFMQ)
 p-value < .01, r-value = .513

For this study, the calculated correlation between SWLS and FFMQ ($r = .513$, $p = .004$) indicates that there is a strong positive correlation. Therefore, as respondents score for trait mindfulness increases, their score for life satisfaction increases. Since the p-value ($p < .01$) is less than .05, we reject the null hypothesis. Therefore, the results of this study support the hypothesis that there is a relationship between trait mindfulness and life satisfaction. In other words, it appears that the respondents who have higher scores for trait mindfulness (FFMQ) also have higher scores for life satisfaction (SWLS).

Relationship between SWLS and DERS. A final research question involving life satisfaction asks: What is the relationship between SWLS and emotion regulation? This question involves two interval level variables, SWLS and DERS. The research

hypothesis states: There is a relationship between life satisfaction (SWLS) and difficulties in emotion regulation (DERS). The null hypothesis is: There is no relationship between SWLS and DERS. Table 7 and Figure 3 below show the correlation analysis of the relationship between SWLS and DERS.

Table 7

Relationship between Life Satisfaction (SWLS) and Difficulties in Emotion Regulation (DERS)

		SWLS	DERS
SWLS	Pearson Correlation	1	-.609**
	Sig. (2-tailed)		.000
	N	29	29
DERS	Pearson Correlation	-.609**	1
	Sig. (2-tailed)	.000	
	N	29	29

** . Correlation is significant at the 0.01 level (2-tailed).

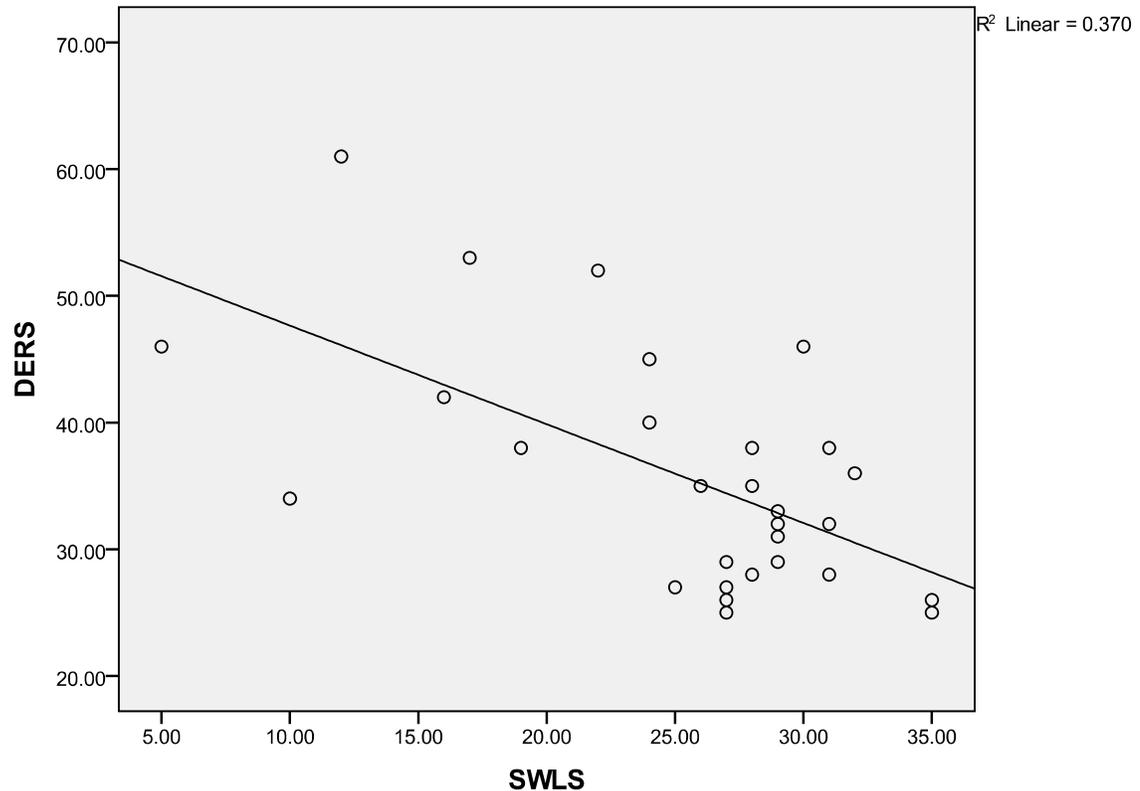


Figure 5. Relationship between Life Satisfaction (SWLS) and Difficulties in Emotion Regulation (DERS)
p-value < .01, r-value = -.609

For this study, the calculated correlation between SWLS and DERS ($r = -.609$, $p < .001$) indicates that there is a strong negative correlation. Therefore, as respondents score on the DERS decrease, their feelings of well being increase. Since the p-value ($p < .001$) is less than .05, we reject the null hypothesis. Therefore, the results of this study support the hypothesis that there is a relationship between difficulties in emotion regulation and life satisfaction. In other words, it appears that the respondents with better emotion regulation skills have higher scores for life satisfaction. These statistics are significant to this study because they suggest that as a person learns mindfulness skills, difficulties with emotion regulation decrease, which is correlated with an increase in feelings of well-being.

Discussion

Discussion of Findings

While current research supports the effective use of mindfulness-based interventions for improving mental health, understanding the specific mechanisms that make mindfulness practice beneficial remains an important research topic (Baer, 2010; Hick & Chan, 2010; Hoffman et al., 2010; Shapiro & Carlson, 2009) and is particularly relevant to clinical social work given the emphasis on evidence-based practice. This research study explored why mindfulness-based interventions are effective in improving mental health and general feelings of well-being, by investigating adults who maintain a mindfulness meditation practice and measuring their level of emotion regulation and trait mindfulness, thus exploring these two possible mechanisms of change involved in learning mindfulness. The general research question asks: Does mindfulness meditation improve self-reported well-being, increase trait mindfulness, and improve emotion regulation in a sample of adult meditators?

The results of this study suggest that people who meditate more frequently have higher self-report levels of trait mindfulness. In addition, people with higher trait mindfulness were found to have significantly less difficulty with emotion regulation and greater life satisfaction. The data supports the hypothesis that mindfulness meditation experience is related to better emotion regulation and greater life satisfaction. In addition, this data clearly supports the hypothesis that as trait mindfulness increases, difficulties with emotion regulation decrease. However, it is unclear if trait mindfulness is the mechanism of change that leads to improved emotion regulation, or if the changes in emotion regulation is also a mechanism along with trait mindfulness. Regardless of the

exact role of emotion regulation, this study found that respondents with higher mindfulness had significantly less difficulty regulating emotion and significantly higher life satisfaction.

Levels of trait mindfulness and meditation experience. This study supports the research that suggests that maintaining a mindfulness meditation practice will significantly increase self-reported levels of mindfulness. Previous research found that greater mindfulness meditation experience is associated with higher levels of mindfulness traits (Orzech et al. 2009; Sauer & Baer, 2010). Experts in mindfulness-based interventions suggest that mindfulness meditation teaches people to adopt mindfulness constructs into their lives, thus increasing self-reported trait mindfulness and making trait mindfulness a frequently discussed mechanism of change in the clinical application of mindfulness (Baer, 2010; Kumar et al., 2008; Orzech et al., 2009; Shapiro, Brown, Thorensen, & Plante, 2011).

It is significant to this study that the frequency of mindfulness meditation had a significant positive correlation with self-reported trait mindfulness, while the respondent's mindfulness meditation history did not have a significant relationship with trait mindfulness. There is a discrepancy between current research findings and this study in terms of mindfulness meditation history. Several previously reported studies found that long-term meditation practice is associated with an increase in mindfulness traits when compared to a control group (Ortner et al., 2007; Sauer & Baer, 2010). One study looked at adults with a variety of meditation experience and found that participants with a longer meditation history reported significantly higher levels of mindfulness (Ortner et al., 2007). These studies are not consistent with the results of this study, which found that

there is no significant relationship between meditation history and trait mindfulness. Perhaps the results of this study are a reflection on the sample used, which consisted of people who have meditated an average of 7 years, which is relatively long. This could suggest that for people with a relatively stable meditation history, the current frequency of meditation practice has a more significant effect on incorporating mindfulness than their meditation history. In other words, for people with a long history of practice, increasing the frequency of meditation, helps to increase mindfulness traits adopted into their lives, with no significant improvement from adding another year of practice history.

Trait mindfulness and DERS. This study supports the research suggesting that mindfulness-based intervention improves emotion regulation. As previously reported, research suggests that as self-reported mindfulness increases, difficulties in emotion regulation decrease (Feldman et al., 2006; Kumar et al., 2008; Ortner et al., 2007; Orzech et al., 2009). This study supports this finding, given the significant negative correlation between self-reported mindfulness and self-reported difficulties with emotion regulation. These results suggest that as a person incorporates mindfulness concepts into their worldview, there will be improvements in emotion regulation. A review of the literature reveals that researchers study various aspects of emotion regulation, such as rumination, avoidance, recentering, and cognitive flexibility, which all contribute to improvements in emotion regulation. It is beyond the scope of this study to specify which aspects of emotion regulation are related to increases in mindfulness.

What is unusual about this study is that there was no significant relationship found between mindfulness meditation experience and emotion regulation. The research is unclear as to exactly which variables are related to each other. Ortner and colleagues

(2007), who studied adults with a wide range of meditation history, report that as meditation experience increased, participant ability to engage in various emotion regulation techniques increased. In contrast, Feldman and colleagues (2006) report that higher trait mindfulness was associated with greater use of various emotion regulation techniques, including cognitive flexibility and problem analysis; a similar finding to this study. What is significant in both these studies, and supports this project, is that emotion regulation increased with mindfulness meditation.

Well-being. This study supports prior research suggesting that increases in mindfulness are related to an increase in self-reported well-being (Orther et al., 2007; Ozech et al., 2009). Results show that as levels of mindfulness increases, feelings of well-being increase as well. In addition, feelings of well-being correlated to less difficulty in emotion regulation, a finding demonstrated in these studies. Once again, it is interesting that in this study, the current frequency of meditation or history of meditation practice did not significantly correlate with the dependent variable, self-reported life satisfaction. The significant positive relationship was between self-reported levels of mindfulness and feelings of well-being.

Possible mechanisms of change for mindfulness-based interventions. Current literature suggests that mindfulness-based interventions teach people mindfulness, which leads to an improvement in mental health and feelings of well-being (Bear, 2010; Hick & Chan, 2010; Kabat-Zinn, 2003). The current literature identifies a variety of possible mechanisms involved in the effectiveness of mindfulness-based interventions, including the two variables used for this study, trait mindfulness and emotion regulation (Baer, 2010; Kumar et al, 2008). Shapiro and Carlson (2009) propose that the mechanisms

responsible for the effectiveness of mindfulness-based interventions are considered the outcome of a mindfulness meditation practice and are themselves the mechanisms. This study supports this idea, suggesting that trait mindfulness and emotion regulation may be key mechanisms involved in the use of mindfulness-based interventions.

It is interesting that both emotion regulation and life satisfaction was not significantly correlated to a person's mindfulness meditation experience. Rather, it was self-reported trait mindfulness that had a significantly positive relationship with both emotion regulation and life satisfaction. What is striking is that according to this study, mindfulness experience is not as important to improving mental health as the level of self-reported mindfulness, since it was trait mindfulness that was significantly correlated with increases in emotion regulation and well-being rather than mindfulness experience. This suggests that what is essential to the effectiveness of mindfulness is the degree to which a person incorporates mindfulness into their life. As Kabat-Zinn (2003) proposed, through regular, disciplined practice of mindfulness meditation a person can develop a quality of living that incorporates mindfulness principles. This study suggests that as the amount of time a person meditates each week increases, the greater degree a person develops this quality of living.

There is discrepancy in the research as to the role emotion regulation plays in the successful clinical application of mindfulness meditation. While research generally suggests that increases in mindfulness correlate to decreases in avoidance and rumination, two maladaptive emotion regulation strategies (Kumar et al., 2008; Lau & Yu, 2009; Ramel et al., 2004; Segal et al., 2002), researchers do not agree whether the mechanism responsible for these improvements in mental health is a change in rumination (Kumar et

al., 2008, Segal et al., 2002, Ramel et al., 2004) or an overall change in emotion regulation, which includes rumination and avoidance (Baer, 2010). As proposed in the literature, this study found that emotion regulation does increase as mindfulness increases. It would be interesting to break down the measure for difficulties with emotion regulation, however, it is beyond the scope of this project to determine which aspects of emotion regulation are more effected by mindfulness-based interventions.

The results of this research study suggest that a person's ability to incorporate mindfulness principles into their daily life significantly impacts their ability to regulate their emotions and live a satisfying life. How one adopts mindfulness principles appears to be related to the amount of time they practice mindfulness mediation. Although meditation history is not significantly related to trait mindfulness the statistics did show a positive correlation between meditation history and trait mindfulness. This is consistent with prior research (Ortner et al., 2007) and the relationship may have been statistically significant with a different, larger sample . The fact that self-reported trait mindfulness increased as the frequency of meditation increased suggests that a person who meditates does incorporate mindfulness principles into their lives, which in turn improves emotion regulation and life satisfaction. Given the demographics of the sample (n = 29) used in this study, these correlations would be particularly true in a population of well-educated, White adults who have an established mindfulness meditation practice, currently averaging about 4 hours/week mediation practice, and are between 50-65 years old.

Strengths and Limitations

The main strength of this research project is that it is based on a review of current literature, which supports the effectiveness of mindfulness-based interventions and

presents possible mechanisms of change responsible for this success. The choice of variables in the current study, emotion regulation, trait mindfulness, and well-being are all found in previous studies concerning mindfulness. The relationship between mindfulness-based interventions and improvements in emotion regulation is frequently studied in current research projects. Trait mindfulness is a common variable used in a variety of studies concerning the use of mindfulness in clinical interventions.

Another strength of this research project is that the survey created for this project is based on current measuring instruments found in the literature to be both reliable and valid. The research instruments were altered in an effort to make the survey shorter. The FFMQ consists of 5 subscales and only 3 questions from each subscale are used in this study and the DERS consists of 6 subscales, and only 3 questions from each subscale are used. The measuring instruments were shortened in this way in an effort to maintain the reliability on the subscales but keep the survey short.

Several limitations of this study are notable. The population used for this study is limiting in a variety of ways. The adults surveyed are not specifically struggling with mental health issues; rather they are people who practice mindfulness meditation. This limits the ability to generalize the research findings to a clinical sample of adults diagnosed with a mental illness. It cannot be assumed that what improves emotion regulation in a nonclinical population will also work for a clinical population. In addition, the small sample size ($n=29$) and the relatively homogeneous demographics greatly limit the ability to generalize these results to the common population. Finally, the nature of convenience sampling makes the population used in this project a non-probability sample, which greatly limits the ability to generalize findings.

There is a limitation due to the uncertainty of how to define mindfulness meditation. Since the research project did not include training the participants about mindfulness meditation, it is impossible to know exactly what each participant reports as mindfulness meditation. The relative meaning of mindfulness meditation is controlled by the fact that the participants were recruited from meditation centers that are affiliated with the Buddhist practice of mindfulness meditation, although the researcher does not know the exact context and core principles of the meditation centers. In this way, there may be a more homogenous view of mindfulness meditation among the participants.

A final limitation is the self-report nature of the survey instrument. Although frequently used in the literature as a way to concretely measure abstract concepts such as mindfulness, emotion regulation, and well-being, the self-report nature of these instruments is limited to individual interpretation of the questions and scales. The method of collecting the surveys resulted in complete anonymity, but it did not allow respondents to ask questions about how to answer the self-report questionnaires.

Implications

The results of this study suggest that it is worthwhile to further investigate the use of mindfulness-based interventions in clinical social work as an effective way to teach mindfulness skills and help people incorporate concepts of mindfulness into their lives. The implication is that by teaching people mindfulness meditation, their level of mindfulness increases, which in turn will improve emotion regulation. For people suffering from a variety of mental health issues, improving emotion regulation skills is a key way to reduce their experience of negative symptoms such as depression and anxiety. Since fewer difficulties in emotion regulation are correlated to higher levels of self-

reported well-being, it suggests that people who learn mindfulness meditation will have a greater sense of life satisfaction. For this reason, it may be beneficial to use mindfulness meditation techniques in clinical practice. As a clinician working in a mental health setting, the results of this study support the recent trend to introduce various mindfulness-based interventions in the treatment of various diagnoses. Although the sample of adults used in this study did not have a known mental health diagnosis, the results do point to strong emotion regulation skills for people who maintain a mindfulness meditation practice. For individuals who are interested in mindfulness, this is a great option for therapists to introduce. For this reason, it seems important that clinical social work programs include a review of various mindfulness-based interventions such as MBSR, DBT, ACT, and MBCT, as well as instruction on simple mindfulness approaches to anxiety and depression.

There are a variety of implications for further study. It was beyond the scope of this project to look at the combined effect of meditation history and current frequency on the dependent variables, emotion regulation, trait mindfulness, and well being. It seems that a person who has a history of meditating for 6 years and currently meditates for 3 hours a week should have a higher level of mindfulness meditation experience than a person with 2 years history currently meditating for 3 hours a week. There was no way to investigate this difference in the current study. In addition, it would be interesting to break down the measure for difficulties with emotion regulation to determine which aspects of emotion regulation are more effected by mindfulness-based interventions. For instance, did the subscale for 'lack of emotional awareness' increase as mindfulness increased, while 'impulse control difficulties' did not? This would inform therapists

which aspects of emotion regulation difficulties are shown to improve with mindfulness-based intervention, which in turn can inform treatment choice.

Although the results of this study confirmed previous research findings that suggest mindfulness meditation correlates with trait mindfulness, emotion regulation skills, and feelings of well-being, it is still unclear what mechanism is responsible for these changes. The results of this project suggest two possible interpretations. It is possible that trait mindfulness is the mechanism that improves emotion regulation or perhaps trait mindfulness and emotion regulation are interacting mechanisms that improve mental health and general feelings of well-being. This is a key area for further social work research.

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Appendix A

Letter of Informed Consent

January 2012

Dear Participant,

Thank you for taking the time to fill out this survey. Please take time to read this consent form before you agree to participate in the study. You are welcome to keep this consent form (top page of the survey) for your records.

I am doing a research project on The Effects of Mindfulness Meditation on Mental Health. This study is being conducted by myself, Geriann Fedorowicz, and my research advisor, Lance Peterson, through the School of Social Work at St. Catherine University and the University of St. Thomas.

Background Information:

This study is a research project for my masters in clinical social work program. It looks at the growing use of mindfulness as a clinical intervention for psychotherapy. Current research suggests that mindfulness techniques are effective in reducing the difficult symptoms associated with mental illness as well as improving general feelings of well-being.

The purpose of this study is to explore mindfulness meditation, emotion regulation, the incorporation of mindfulness principles, and life satisfaction in adults who have some experience with meditation.

You were invited to be a possible participant in this study because you currently have a mindfulness meditation practice and use a meditation center as a part of your practice.

Procedures:

As a participant, you will be asked to fill out a self-report survey that will be used to assess your level of mindfulness, emotion regulation, life satisfaction, and some demographics. The survey consists of various statements that you rate on a scale (1 being 'never or very rarely true' and so on) to best describe your experience. You will fill out the survey once. It will take between 10-15 minutes.

Risk and Benefits:

There are no risks involved in participating in this study. There are no direct benefits or compensation you will receive from participating in this study.

Confidentiality:

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 surveys will be numbered after they are completed for identification purposes. The data will be entered into a data analysis program on a University of St. Thomas computer

and stored on the server secured with a password known only to the researcher. The resulting data analysis will be stored on a flashdrive accessible to the researcher only. The data will be analyzed and used to produce a written report and a public presentation of findings. After completion of the project by May 30, 2012, the data stored in computer files and the paper surveys will be destroyed.

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 any cooperating agencies or institutions, the University of St. Thomas, or St. Catherine University. While the decision whether to participate or not is completely voluntary, it is impossible to withdraw from this study once you complete the survey and turn it in; this is due to the anonymity of the surveys. There would be no way to find your completed survey and delete the data from the compiled data set. For this reason, should you decide to withdraw, the data collected about you will still be used. You are free to skip any questions on the survey, with no exceptions

Statement of Consent:

Completion and return of this survey indicates that you have read this consent letter and agree to participate in this research.

Thank you for your participation,

Gerianne Fedorowicz
Social Work Student Researcher
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Appendix B
Research Survey

Mindfulness Meditation Survey

Thank you for taking the time to fill this survey out.

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes *your own opinion* of what is *generally true for you*.

1	2	3	4	5
Never or very rarely true	Rarely true	Sometimes true	Often true	Very often or always true

- _____ 1. I can easily put my beliefs, opinions and expectations into words.
- _____ 2. I am easily distracted.
- _____ 3. I pay attention to sensations, such as the wind in my hair or sun on my face.
- _____ 4. I think some of my emotions are bad or inappropriate and I shouldn't feel them.
- _____ 5. I watch my feeling without getting lost in them.
- _____ 6. It's hard for me to find the words to describe what I'm thinking.
- _____ 7. In difficult situations, I can pause without immediately reacting.
- _____ 8. I find it difficult to stay focused on what's happening in the present.
- _____ 9. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
- _____ 10. I tell myself that I shouldn't be thinking the way I'm thinking.
- _____ 11. I can usually describe how I feel at the moment in considerable detail.
- _____ 12. When I have distressing thoughts or images, I am able just to notice them without reacting.
- _____ 13. I find myself doing things without paying attention.
- _____ 14. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.
- _____ 15. I disapprove of myself when I have irrational ideas.

Below are some statements about emotions and how you cope with emotional situations. Read each statement and choose a response that indicates how much each one applies to you.

1	2	3	4	5
Almost never	Sometimes	About half the time	Most of the time	Almost always

- _____ 16. I pay attention to how I feel.
- _____ 17. When I'm upset, I feel out of control.
- _____ 18. When I'm upset, I have difficulty concentrating.
- _____ 19. I know exactly how I am feeling.
- _____ 20. When I'm upset, I know I can find a way to eventually feel better.
- _____ 21. When I'm upset, I feel I am weak.
- _____ 22. I have difficulty making sense out of my feelings.
- _____ 23. When I'm upset, I can still get things done.
- _____ 24. When I'm upset, I become embarrassed for feeling that way.
- _____ 25. When I'm upset, my emotions feel overwhelming.
- _____ 26. I care about what I am feeling.
- _____ 27. When I'm upset, I feel like I can remain in control of my behaviors.
- _____ 28. When I'm upset, it takes me a long time to feel better.
- _____ 29. I am clear about my feelings.
- _____ 30. When I'm upset, I become irritated with myself for feeling that way.
- _____ 31. When I'm upset, I have difficulty thinking about anything else.
- _____ 32. When I'm upset, I take time to figure out what I'm really feeling.
- _____ 33. I experience my emotions as overwhelming and out of control

Below are 5 statements with which you may agree or disagree. Using the scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your response.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly agree	Agree	Strongly agree

- _____ 34. In most ways my life is close to my ideal.
- _____ 35. The conditions of my life are excellent.
- _____ 36. I am satisfied with my life.
- _____ 37. So far I have gotten the important things I want in life.
- _____ 38. If I could live my life over, I would change almost nothing.

For the remaining questions, please answer in a manner that best describes you.

- 39. How many months or years have you been practicing mindfulness meditation with some regularity? _____ months OR _____ years
- 40. How many minutes or hour of mindfulness meditation do you currently average per week? _____ minutes OR _____ hours
- 41. How old are you? _____ years old
- 42. Gender: _____ Male _____ Female
- 43. Which ethnic group best describes you?
 - _____ White (Non-Hispanic origin) _____ Hispanic
 - _____ African American _____ Asian
 - _____ Native American _____ Other _____
- 44. What is your education level?
 - _____ High school diploma _____ Ph.D
 - _____ Undergraduate degree _____ Other _____
 - _____ Masters degree