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Assessing the Self-Compassion Scale as a Measure of Mindfulness

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2012

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An abstract of
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Abstract

Assessing the Self-Compassion Scale as a Measure of Mindfulness

By Grace Hennessy

This thesis examines the Mindfulness Subscale of the Self-Compassion Scale (SCS) as a measure of mindfulness change from pre- to post-intervention. Secondary data analysis was conducted using primary data from the Project UPLIFT Treatment and Prevention studies in order to carry out the appropriate analyses relevant to the research objectives of this thesis. Findings indicated that an increase in mindfulness is associated with a decrease in depressive symptoms, and that an increase in mindfulness is also associated with an increase in knowledge and skills related to mindfulness as a result of mindfulness intervention. However, mindfulness change did not show significant differences between attendance categories (attendance of less than half, more than half but not all, or all sessions). When looking at baseline levels of mindfulness, this finding may have been the result of discrepancies in true mindfulness self-report at pre-intervention measurement. Therefore, the Mindfulness Subscale of the SCS may not be a valid measurement of mindfulness at pre-intervention.

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Chapter 1

Introduction

This chapter will cover the topic of mindfulness and how it can improve mental health outcomes. It will also describe the program from which this thesis obtained data and discuss the purpose and research goals of this thesis.

Mindfulness

Mindfulness is a receptive, non-judgmental state of mind in which individuals inwardly observe their thoughts and feelings as they occur without attempting to change them or get rid of them (Neff, 2003). In shorthand, mindfulness can be thought of as nonattached awareness. It gives one the ability to accept unpleasant thoughts and feelings in a balanced manner (Germer, 2009). Mindfulness techniques and practices, especially Mindfulness Based Stress Reduction (MBSR) and Mindfulness Based Cognitive Therapy (MBCT), have been useful in the treatment of many different mental health disorders and for the benefit of mental health in general.

Mindfulness and Anxiety

Anxiety and stress are particular areas in which mindfulness has been shown to provide benefit. It has been found that mindfulness-based therapy can significantly lower levels of anxiety and stress, in both people who have a clinical form of anxiety, and also people who have healthy but elevated levels of stress (Hofmann, Sawyer, Witt, & Oh, 2010). MBSR interventions have been found to result in reductions in clinical symptoms of anxiety, as well as enhanced well-being post-intervention in both the short term and long term (Jazaieri, Goldin, Werner, Ziv & Gross, 2012).

Mindfulness and PTSD

Similar benefits of the use of mindfulness techniques have been found in the context of Post-Traumatic Stress Disorder (PTSD). MBSR has been found to reduce rates of depression, dizziness, fatigue and tension in veterans with PTSD (Omidi, Mohammadi, Zargar & Akbari, 2013), and MBCT has generally been shown to significantly decrease PTSD symptoms (King et al., 2013).

Mindfulness and Depression

Depression is another condition for which mindfulness has been shown to provide benefit. For example, it has been found that increased mindfulness practice can significantly improve depression outcome when accounting for baseline severity (Krusche, Cyhlarova & Williams, 2013). Similar findings have also been demonstrated for major depressive disorder. MBCT has been found to be helpful in the prevention of relapse for people who are in remission of major depressive disorder (Munshi, Eisendrath & Delucchi, 2013). Through these findings, it is clear that mindfulness practice and intervention can have positive effects on depression.

Self-Compassion Scale

Because mindfulness has been used in numerous interventions aimed at the reduction of maladaptive thinking patterns and negative mental health outcomes, such as depression, several measures of mindfulness have been produced. The Self-Compassion Scale (SCS) is likely the most commonly used scale in terms of measuring constructs related directly and indirectly to mindfulness (Neff, 2003). The process of self-compassion encompasses the recognition of ways in which the experiences of the self and others are related. As a result, it is a process that tends to break the cycle of self-

absorption and over-identification. Because of this, self-compassion can be said to encompass the mental perspective referred to as mindfulness (Neff, 2003). In an effort to capture this mental perspective, the Self-Compassion Scale measures three main components of mental state on separate subscales: 1) self-kindness versus self-judgment, 2) common humanity versus isolation, and 3) mindfulness versus over-identification (Neff, 2003).

The SCS was developed on the grounds that many psychologists and behavioral scientists have come up with numerous theoretical reasons why having self-compassion promotes mental well-being, such as lower anxiety and depression, kindness to self and others, and overall emotional regulation (Neff, 2003). Validity and reliability of the SCS were assessed by piloting potential subscale items and subsequently carrying out two separate studies. It was found that the scale is both reliable and valid, as determined by examining factor loadings and test-retest scores, as well as received feedback on the items. The SCS was also compared to other self-attitude measures in order to determine its ability to stand alone as an independent construct. In sum, the SCS was proven reliable and moderately related to other self-attitude constructs, yet able to function on its own as an independent construct (Neff, 2003).

Mindfulness Subscale

The Mindfulness subscale of the SCS is meant to measure the trait of mindfulness and encompasses nonattached awareness and the ability to accept unpleasant thoughts and feelings in a positive way (Neff, 2003). Its opposing subscale measures overidentification, which is composed of the opposite characteristics of mindfulness. This generally entails losing oneself in emotional reactivity to unpleasant thoughts and

feelings rather than accepting and dealing with those thoughts and feelings in a balanced manner. The Mindfulness subscale of the SCS essentially measures the positive aspects of mindfulness, whereas the Overidentification subscale of the SCS essentially measures the opposite traits (Neff, 2003).

Project UPLIFT

In regards to interventions that utilize the SCS and the concept of self-compassion and mindfulness, Project UPLIFT is an intervention aimed at the use of mindfulness to aid in the reduction of depressive symptoms. It is a home-based depression intervention for people with chronic disease (Thompson et al., 2010) that is based upon Mindfulness-Based Cognitive Therapy for Depression (Segal, Williams, & Teasdale, 2002). More specifically, this intervention delivers eight sessions via Internet or telephone that incorporate mindfulness and cognitive-behavioral therapy (CBT), and targets people who may not otherwise have access to an intervention for their depression.

This intervention targets people with chronic disease because this population has an especially high rate of comorbid depression. More specifically, nearly one-third to about one-half of all people with epilepsy experience depression over the course of their condition (Thompson et al., 2015; Thompson et al., 2010). Thus, two separate studies were conducted to assess the ability of this intervention to reduce depression in people with epilepsy: the first among people who screened positive for depression, and the second among people with symptoms of depression who did not meet criteria for major depressive disorder. Both studies investigated changes in knowledge and skills related to mindfulness, self-efficacy, and satisfaction with and quality of life (Thompson et al., 2015; Thompson et al., 2010). All of these variables, as well as self-compassion using

the SCS, were measured both pre-and post-intervention. Results of both studies indicated that the intervention was successful in reducing depressive symptoms and increasing knowledge and skills related to mindfulness. In fact, the reduction of depressive symptoms was seen to persist for eight weeks post-intervention (Thompson et al., 2010).

Problem Statement

The SCS was used in the Project UPLIFT studies because scores on this measure have been found to be significantly associated with positive mental health outcomes, as mentioned previously. To date, however, no prior studies have assessed the use of the Mindfulness subscale of the SCS as a measure of change in mindfulness as a result of a mindfulness-based intervention. Therefore, there is a need to evaluate the use of the Mindfulness subscale of the SCS as a measure of change in mindfulness.

Research Objectives

The purpose of this thesis was to assess the Mindfulness subscale of the SCS as a measure of change in mindfulness in the context of Project UPLIFT. Using data from the two Project UPLIFT studies, the specific objectives of this study are to determine: 1) if changes in scores on the Mindfulness Subscale of the SCS are associated with changes in depression scores from pre- to post-intervention; 2) if changes in scores on the Mindfulness Subscale of the SCS are associated with changes in Knowledge and Skills scores from pre- to post-intervention; and 3) if changes in scores on the Mindfulness Subscale of the SCS vary by the number of mindfulness sessions attended (i.e., 1-4 sessions attended, vs. 5-7 sessions attended, vs. all 8 sessions attended).

Chapter 2

Review of the Literature

The main topics of interest guiding this study are mindfulness, mindfulness interventions (specifically MBCT), self-compassion and the SCS as they relate to mindfulness, as well as the general context of these elements within the Project UPLIFT studies. This chapter will review each of these facets.

Mindfulness

As noted in the introduction, mindfulness is a state of mind in which individuals non-judgmentally observe their thoughts and feelings as they occur without attempting to change or reject them, but also without running away with them (Neff, 2003). Mindfulness practice has been useful in interventions targeting numerous mental health disorders and in the benefit of mental health in general. Mindfulness has been found to benefit and effectively treat many mental disorders, including depression, anxiety, and PTSD (Hofmann et al., 2010; Jazaieri et al., 2012; Krusche et al., 2013; Munshi et al., 2013; Omidi et al., 2013; King et al., 2013).

Mindfulness and Depression

Increased mindfulness practice can significantly improve depression outcomes when taking baseline severity into consideration (Krusche et al., 2013). In addition, use of interventions targeted towards mindfulness practice has been found to aid in the prevention of relapse for people who are in remission of major depressive disorder (Munshi et al., 2013). In those with recurrent depression, MBCT has been found to decrease time in major depressive episodes compared to an active comparison group undergoing alternative treatment within an intervention. In addition to this finding, fewer

people who received MBCT during the intervention had relapses across two years of follow-up (Meadows et al., 2014). Mindfulness practice and MBCT in general have also been shown to improve outcomes in sub-clinical and non-clinical populations, as well. For example, one study found that college students who had sub-clinical depression scores showed a marked increase in quality of life, as well as a decrease in anxiety and depression after completing a MBCT intervention as compared to the alternative treatment comparison group (Kaviani, Hatami, & Javaheri, 2012). Another study found that, when put in the context of a (controlled) stressful situation, even non-clinical college students benefitted from prior MBCT. That is, mindfulness practice helped the students deal with anxiety and depressive feelings before, during, and after the stressful situation, and also helped to mitigate negative thoughts and dysfunctional attitudes as compared to those in a waitlist control group (Kaviani, Javaheri, & Hatami, 2011). Lastly, when mindfulness is continually practiced in the context of one's own home (that is, outside of regular care), the rate of relapse of major depression can be reduced by nearly half as compared to those who do not practice regularly on their own outside of regular care (Crane et al., 2014).

Mindfulness and Anxiety

It has also been found that therapy based on mindfulness can significantly lower anxiety and stress levels in both people who have a clinical form of anxiety, as well as in people who simply have raised levels of stress (Hofmann et al., 2010). The use of mindfulness interventions has also been found to result in reductions in clinical symptoms of anxiety, as well as enhanced well-being, both short term and long term post-intervention (Jazaieri et al., 2012). In addition, mindfulness interventions have been

shown to be effective in the treatment of anxiety in youth who may be at risk for bipolar disorder later in life, as well as reducing symptomatology in patients with social anxiety disorder (Cotton et al., 2015; Norton, Abbott, Norberg, & Hunt, 2014).

Mindfulness and PTSD

Interventions that encompass mindfulness have also been found to reduce depression, dizziness, fatigue, and tension in veterans who have PTSD (Omidi et al., 2013), and have generally shown the ability to significantly decrease PTSD symptoms (King et al., 2013; Niles et al., 2012). Veterans are not the only population that can benefit from mindfulness interventions aimed at reducing PTSD symptoms. Research shows that women who exhibit PTSD symptoms may benefit from yoga interventions that incorporate mindfulness (Dick et al., 2014). Low-income African-American women who have a history of intimate partner violence also have exhibited a decrease in PTSD symptoms upon completion of a mindfulness intervention (Dutton et al., 2013).

Benefits of Mindfulness

Mindfulness is developed by learning the skills needed to step out of habitual patterns of negative thinking. These negative thoughts and feelings are often linked to mental health outcomes such as depression, but the practice of mindfulness can help to keep them from spiraling out of control (Segal et al., 2013). For example, the practice of mindfulness can mitigate the detrimental effects of habitual worrying, which can lead to unconstructive consequences such as anxiety or depression (Verplanken & Fisher, 2014). Therefore, the practice of mindfulness can have drastically positive effects on mental health, specifically, anxiety and depression. Furthermore, the practice of mindfulness within an intervention setting can teach and engrain the principles of mindfulness practice

to individuals that are at risk of negative mental health outcomes. The benefits of mindfulness practice go beyond mental health and illness, however. Research has shown that the practice of mindful meditation can result in higher levels of emotional intelligence, self-efficacy, and lower levels of perceived stress (Charoensukmongkol, 2014). In addition, mindfulness therapies can aid in reducing psychosocial stress and increasing perceived quality of life in women with breast cancer, and decreasing severity of depressive symptoms in older adults (Gallegos et al., 2013; Monti et al., 2013). In sum, mindfulness appears to be beneficial for a broad spectrum of mental health outcomes and populations.

Mindfulness-Based Cognitive Therapy

Mindfulness-Based Cognitive Therapy (MBCT) is a common evidence-based mindfulness intervention strategy used to decrease depression, anxiety, and PTSD symptoms (Segal et al., 2013). MBCT is especially effective for people with current and treatment-resistant depression (Thompson et al., 2010). MBCT focuses on teaching participants to make a simple, yet significant, change in their relationship to the thoughts, feelings, and sensations that contribute to depressive symptoms and relapse (Segal et al., 2002). It includes meditation, mindful movement, and cognitive interventions over the course of structured sessions. Participants of MBCT learn to step out of the habitual patterns of mind and body that arise as they become depressed, and to keep these thoughts and feelings from getting out of control (Segal et al., 2013). While anti-depressants can be effective at mitigating depression in between episodes, they are not universally effective for people with depression. Research shows that the rate of relapse

in major depressive disorder is much lower if cognitive therapy is used during episodes, and specifically within the context of MBCT (Segal et al., 2013).

MBCT has been found to be effective in conjunction with the practice of self-compassion in interventions focused on decreasing stress, anxiety, shame, and guilt. Self-compassion can be a key component of MBCT when used to increase participants' willingness to experience feelings of sadness and anger, rather than avoiding and resenting these feelings (Germer & Neff, 2013). In one study, Mindful Self-Compassion (MSC) was used in an eight-week training program designed to help participants cultivate self-compassion. In this intervention, a variety of meditations and informal practices were taught for use in daily life after the program ended. Participants reported positive thoughts and feelings associated with the practices they had learned. Specifically, those who suffer from shame or self-criticism may benefit most from MSC as they learn how to use self-compassion to mitigate their negative thoughts or feelings (Germer & Neff, 2013). Another study found that MSC can increase self-compassion, mindfulness, compassion for others, as well as other aspects of wellbeing. In addition, the benefits of MSC seem to last at least a year after completion of a MSC program, indicating that these interventions can have long-term positive effects (Neff & Germer, 2013).

A separate study examined the effects of an MBSR intervention in adolescents. At the end of the intervention, participants showed a significant increase in self-compassion (as measured by the SCS) and in mindfulness, as well as a decrease in perceived stress and depression (Edwards, Adams, Waldo, Hadfield, & Biegel, 2014).

Self-Compassion

The process of self-compassion encompasses the recognition of the related experiences of the self and others, which is a process that tends to break the cycle of self-absorption and over-identification. Self-compassion consists of three main components: 1) extending kindness and understanding to oneself rather than harsh self-criticism and judgment (kindness vs. self-judgment); 2) seeing one's experiences as part of the larger human experience rather than as separating and isolating (common humanity vs. isolation); and 3) holding one's painful thoughts and feelings in balanced awareness rather than over-identifying with them (mindfulness vs. over-identification) (Neff, 2003). All components of self-compassion are distinct conceptually, but tend to engender one another at the same time. For example, the accepting stance of mindfulness decreases self-judgment. Although self-compassion indicates that one is not judgmental toward oneself, the mindfulness component suggests that one's shortcomings are seen clearly rather than disregarded. The concept of self-compassion has been compared to the concept of self-esteem, but research has indicated that having high levels of self-compassion is linked to mental well-being without the narcissistic tendencies that self-esteem sometimes entails (Neff, 2003).

Self-compassion can be a useful emotion regulation strategy in which a person does not avoid distressing feelings, but is instead aware with kindness, understanding, and a sense of shared humanity. In turn, negative emotions are transformed into more positive feelings, allowing one to more clearly see the immediate situation and adopt actions that change one's environment in effective, positive ways (Neff, 2003). It is no wonder, then, that self-compassion tactics and components have been used in treatments

for depression and other mental disorders in conjunction with mindfulness intervention (Thompson et al., 2010). In fact, a self-compassionate attitude encompasses a mindful perspective and uses some of the same skills (Neff, 2003). For instance, self-compassion includes skills such as extending kindness and understanding toward oneself, seeing one's experiences as part of the larger human experience, and holding one's painful thoughts and feelings in balanced awareness, as opposed to letting negative thoughts and feelings get out of control. These skills encompass a mindful attitude in the sense that they require acknowledgement and mitigation of negative thoughts and feelings, rather than letting them take over. The practice of self-compassion within an intervention setting, such as one that uses MBCT, can teach the principles and skills of mindfulness to individuals who are at risk of negative mental health outcomes, specifically, depression.

On the other side of self-compassion is self-criticism. Self-criticism, unsurprisingly, is inversely related to self-compassion and also tends to accompany self-isolation and self-absorption (Germer, 2009). Self-criticism can be thought of as an instinctive "fight" stress response to danger, as in fight, flight, or freeze. Physically, this is an evolutionarily advantageous response, but when it is applied to mental processes and functioning, it can take a heavy toll on one's mental health. Self-compassion works oppositely to self-criticism by regulating emotions in a stable way and acknowledging and accepting one's own thought tendencies instead of ruminating on them (Germer, 2009).

Self-Compassion Scale

The Self-Compassion Scale (SCS) is a scale that can be used to measure constructs related directly and indirectly to mindfulness (Neff, 2003).   This scale was

designed to measure the three main components of self-compassion mentioned above, on separate subscales: 1) self-kindness versus self-judgment, 2) common humanity versus isolation, and 3) mindfulness versus over-identification. The intention is to sum all subscale scores to create a total self-compassion score that reflects a person's overall level of self-compassion (Neff, 2003). In the process of validating the SCS, it was found that the positive and negative items in self-report measures loaded on separate factors. Because self-kindness and self-judgment are not mutually exclusive, high levels of self-kindness do not always yield low levels of self-judgment, even though they are paired on the same subscale. As a result, the positive and negative aspects of the three different components formed six separate (but correlated) factors, one of which is mindfulness (Neff, 2003).

The SCS has demonstrated construct, content and convergent validity, as well as test-retest reliability. This indicates that the psychometric properties of the scale are sound and that the measure is valid (Neff, 2003). Validation of the SCS occurred by conducting a pilot test for potential items to put in the scale. Secondly, a study was done in order to assess the reliability and factor loadings of individual items within each subscale and to assess content and convergent validity. It was determined that self-compassion is a valid way to measure healthy attitudes towards the self. Lastly, a second study was done to determine both the reliability of the scale and how this construct differs from self-esteem. The SCS was proven reliable and self-compassion moderately related to self-esteem, yet able to function as an independent construct (Neff, 2003).

Mindfulness Subscale

As noted above, mindfulness vs. over-identification is one of the three components measured by the SCS (Neff, 2003). The SCS breaks this component into two subscales, one for Mindfulness, and one for Overidentification. The Mindfulness subscale of the SCS contains four items that measure one's ability to accept unpleasant thoughts and feelings in a positive manner. The Mindfulness subscale's opposing subscale in the SCS measures Overidentification and contains four items that measure difficulty in distancing the self from situations that draw subjective, and often negative, emotional reactions.

Project UPLIFT

Project UPLIFT is a home-based, distance-delivery depression intervention for people with chronic disease (Thompson et al., 2010). This intervention is based upon Mindfulness-Based Cognitive Therapy for Depression (Segal et al., 2002). Eight sessions are delivered, using Internet or telephone, which incorporate mindfulness and CBT. It targets people who may not otherwise have access to an intervention for their depression, using its distance-delivery method. Two separate studies were conducted to assess the ability of this intervention to reduce depression; increase knowledge, skills, and self-efficacy; and improve satisfaction with and quality of life (Thompson et al., 2010; Thompson, 2014). The first study will be referred to as the Project UPLIFT Treatment Study, as its aim was to evaluate the efficacy of the use of the MBCT intervention in the treatment of depression. The intervention was carried out as specified above, measuring depressive symptoms, knowledge and skills, quality of life, and several other measures at baseline, interim, and post-intervention. Those receiving the intervention as opposed to

Treatment As Usual (TAU) showed a significantly greater decrease in depressive

symptoms, as well as an increase in Knowledge/Skills (explained below) (Thompson et

al., 2010).

The second study will be referred to as the Project UPLIFT Prevention Study, as

its aim was to evaluate the efficacy of the use of the MBCT intervention in the prevention

of depression. The study was carried out in the same way the Treatment Study was

implemented, and results showed that the incidence of depressive symptoms from

baseline to interim was lower for those in the intervention condition as compared to those

in the TAU condition. In addition, knowledge and skills, as well as life satisfaction,

showed a significantly larger increase in the intervention condition. This result indicates

that this intervention is effective in reducing depressive symptoms and increasing

satisfaction with life. Both the Treatment and Prevention studies used people with

epilepsy as their target population, and the success of the results indicates that the

intervention could be modified to fit the needs of people with other chronic diseases as

well (Thompson et al., 2015).

Project UPLIFT Findings

Knowledge and skills were assessed using a measure developed specifically for

the Project UPLIFT studies, which measured knowledge of depression as well as

participants' perceived ability to use skills to reduce depressive symptoms. The skills

component of this measure, in particular, measured aspects of mindfulness and included

items such as, "What is your ability to be more attentive to everyday activities in order to

make conscious choices?" with responses ranging from 1 (poor) to 5 (above average)

(Thompson et al., 2010). This portion of the measures was important to examine in

conjunction with the measure of depression symptoms, in order to assess how an increase in mindfulness skills may contribute to a decrease in depression symptoms.

Depression symptoms, knowledge and skills, self-efficacy, satisfaction with and quality of life, and self-compassion were measured both pre-and post-intervention. Results of both Project UPLIFT studies indicated that the intervention was successful in reducing depression symptoms and increasing knowledge and skills related to mindfulness practice, and these effects were seen to persist for eight weeks post-intervention (Thompson et al., 2010, Thompson et al., 2015).

In regards to measurement of self-compassion and mindfulness, however, the results are not as clear. In the Treatment study, the intervention and TAU groups differed on self-compassion at baseline; therefore, the intervention's impact on self-compassion could not be examined, and self-compassion was controlled in all analyses. In addition, one finding of the Prevention study was that mindfulness levels, as measured by the SCS subscale, did not show a significant difference from pre- to post-intervention. Although a change in mindfulness-related knowledge and skills was observed, there was no associated change in mindfulness. This suggests that the mindfulness subscale of the SCS may need further research in regards to its use as a measure of mindfulness change over time as a result of intervention. This is specifically of interest in the context of Project UPLIFT, which has continued to be applied in chronic disease populations including people with cystic fibrosis (Thompson, 2014) as well as with epilepsy.

To conclude, there is much existing research that supports the use and effectiveness of mindfulness interventions in the context of mental health outcomes. The SCS provides a way to measure mindfulness in the context of such interventions;

however, no research has been done in regards to the evaluation of the SCS as a measure

of change in mindfulness. The purpose of this study is to assess the SCS as a measure of

mindfulness change in the context of Project UPLIFT.

Chapter 3

Methodology

This chapter will cover the research methods of this thesis, including information

regarding the sample/participants, all measures utilized throughout the analyses, study

procedure, and analysis descriptions.

Participants

The sample for this study is comprised of the de-identified records of 108 men

and women who participated in the Project UPLIFT Prevention study, as well as the de-

identified records of 40 men and women who participated in the Project UPLIFT

Treatment study. By using Cohen's power analysis table, a sample size of at least 85 was

needed in order to carry out the appropriate analyses at a power of .80 and an alpha level

of .05. This indicates that a sample size of 148 is sufficient. Inclusion criteria for the

parent Project UPLIFT studies were: diagnosis of epilepsy, symptoms of depression,

English-speaking, willingness to be audiotaped, and mentally stable/absence of

prominent cognitive impairment. In the parent studies, after receiving approval from the

IRBs of the university sites involved (Georgia, Michigan, Texas and Washington in the

prevention study, Georgia only in the treatment study), participants were recruited

through each involved university from among the clinical populations to which that

university had access (Thompson et al., 2015). All participants signed a consent form

indicating their willingness to participate, as well as their understanding of being

recorded and that all files would be destroyed after use.

Measures

Quantitative measures were used to address the proposed research questions.

Mindfulness was measured using the 4-item Mindfulness subscale of the valid and

reliable 26-item Self-Compassion Scale (Neff, 2003). SCS reliability and validity were

preliminarily assessed over the course of 3 separate studies and the Mindfulness subscale

itself has been assessed to have a coefficient alpha of .75 (Neff, 2003).   The four

Mindfulness items are as follows: 1) When something upsets me I try to keep my

emotions in balance; 2) When something painful happens I try to take a balanced view of

the situation; 3) When I fail at something important to me I try to keep things in

perspective; and 4) When I'm feeling down I try to approach my feelings with curiosity

and openness. Responses to these items fall on a five point Likert-scale ranging from 1

(Almost never) to 5 (Almost always) (Neff, 2003). The responses across the 4 items

were summed, and then divided by 4. Thus, the minimum Mindfulness subscale score

was 1 and the maximum was 5. Within the Project UPLIFT Treatment study sample, the

SCS demonstrated a coefficient alpha of .911 (Thompson et al., 2010). Change in

mindfulness was calculated by subtracting the pre-intervention Mindfulness subscale

score from the post-intervention Mindfulness subscale score.

Depressive symptoms were measured using the 21-item, modified Beck

Depression Inventory (mBDI; Dori & Overholser, 2000), which is also valid and reliable.

Change in depression was calculated by subtracting the pre-intervention mBDI score

from the post-intervention mBDI score. The mBDI is a measure used to assess severity

of depression during the past two weeks. It uses the original 21 items from the Beck

Depression Inventory (BDI), but additionally adds a positive category for each item.

Each response contains a Likert scale ranging from 0 (positive) to 4 (severe). When the

positive and neutral responses of the mBDI are collapsed, its score is exactly the same as

the BDI score, and the BDI has been shown to be a valid measure for measuring

depressive symptoms in people with epilepsy. Reliability and validity of the mBDI were

preliminarily assessed over the course of 2 separate studies, which assessed the scale to

have a coefficient alpha of .88 (Dori & Overholser, 2000). Within the Project UPLIFT

Treatment study sample, the mBDI, demonstrated a coefficient alpha of .872 (Thompson

et al., 2010).

Knowledge and skills were assessed using a measure developed for the formative

phase of the Project UPLIFT study. The measure is valid and reliable and consists of 18

true-false items and 13 Likert-scaled items (Thompson et al., 2010). Change in

mindfulness Knowledge and Skills was calculated by subtracting the pre-intervention

Knowledge/Skills score from the post-intervention Knowledge/Skills score. The measure

presents the knowledge component as 18 True/False items assessing the participant's

knowledge of depression based on the content of the informational modules of the

intervention. The 13 skills items were based on the content of the intervention modules

in order to assess the participant's perceived ability to utilize skills to reduce depressive

symptoms. The responses for these questions were presented in scale form, ranging from

1 (poor) to 5 (above average). The coefficient alpha for combined Knowledge and Skills

scores in the Project UPLIFT Treatment study was .810 (Thompson et al., 2010).

Attendance was measured by taking attendance before each session over the course of both Project UPLIFT interventions for all eight sessions. Therefore, participants were assigned a number for their attendance ranging from one to eight. For the sake of this thesis, attendance was categorized into three categories: attendance of 1-4 sessions, attendance of 5-7 sessions, and attendance of all 8 sessions.

Procedure

The participants of Project UPLIFT were randomly assigned to one of four different strata. The study used a stratified, randomized, crossover design to achieve this (Figure 1). During the first eight weeks of the study, two strata received the intervention. The first stratum received the intervention by telephone, and the second one received the intervention by Internet. The other two strata received treatment as usual (TAU). During the second eight weeks of the study, the other two strata (previously in the TAU condition) received the intervention: one stratum by telephone and one stratum by Internet (Figure 1).

Figure 1: Project UPLIFT Intervention Structure

	Pretest assessment	Interventio n	Interim assessment	Interventio n	Posttest assessment
Randomize d Stratum 1	X	Telephone	X		X
Randomize d Stratum 2	X	Internet	X		X
Randomize d Stratum 3	X		X	Telephone	X
Randomize d Stratum 4	X		X	Internet	X
Time Frame	*0 weeks*		*8 weeks*		*16 weeks*

Data Analysis

Initially, descriptive statistics and exploratory analyses were conducted. These included score means, standard deviations, frequency distributions, and outlier identification.

A simple regression was conducted in order to calculate whether changes in SCS scores and changes in mBDI scores were significantly associated. Multiple linear regression was also used to control this assessment for potential confounding by age, gender, and pre-intervention mBDI scores. These analyses were appropriate due to the continuous nature of both main variables involved (SCS scores and mBDI scores).

A simple regression was also conducted in order to calculate whether changes in SCS scores and changes in Knowledge and Skills scores are significantly associated. Multiple linear regression was again used to control the assessment for potential confounding by age, gender, and pre-intervention knowledge and skills scores. Again, these analyses were appropriate due to the continuous nature of both variables involved (SCS scores and Knowledge and Skills scores).

An ANOVA was conducted in order to assess whether changes in scores on the SCS varied by the number of mindfulness sessions attended (1-4, 5-7, all 8). The results of this analysis conveyed whether there was a significant dose-response relationship between SCS scores and number of mindfulness sessions attended (1-4, 5-7, all 8). An ANOVA was appropriate here due to a continuous variable, SCS scores, being analyzed in conjunction with a categorical variable, number of sessions attended.

Throughout these analyses, significant associations were signified by low p-values (<.05). Direction and strength of associations are indicated by r and r^2 values.

Data was originally entered into SPSS statistical analysis program (version 22.0), which was subsequently used for all statistical analyses.

Chapter 4

Results

This chapter will review the sample description and descriptive statistics, as well as the results obtained from each individual analysis procedure.

Dataset

The dataset consists of data from both the UPLIFT Treatment and UPLIFT Prevention studies. In total, most Pre-Intervention variables contain N=158 with most Post-Intervention variables contain N=140 due to attrition over the course of the studies. In total, the dataset consisted of data from 40 participants from the Treatment study (25.3%), and 108 from the Prevention study (74.7%). In addition, 73 total participants were in the Intervention condition for the first leg of the study, and 85 in the Treatment As Usual (TAU) condition (46.2% and 53.8% respectively) in the first leg of the study. The dataset consisted of 111 females (70.3%) and 47 males (29.7%). Age ranged from 21 to 70 years and the average age was 39 years old.

In total, 16% of participants were African American, 63% were White, and 7% were categorized as "Other." 47% were married, 41% were single (never married) and 14% were separated/divorced. 31% worked full-time, 13% worked part-time, 9% were students, and 49% were not working or retired. In terms of completed education, 19% had a high school education or less, 32% had completed some college, and 47% had graduated college or more. 20% lived alone, 72% lived with immediate family, and 13%

lived with friends, a roommate, or a partner. Lastly, 34% were currently seeing a psychotherapist or counselor and 53% were currently taking antidepressant medication.

Attendance was categorized into three categories: Attendance of 1-4 sessions, 5-7 sessions, and all 8 sessions of UPLIFT. The first category (1-4 sessions) contained the least participants, at n=29 (18.4%). The category of 5-7 sessions contained 57 participants (36.1%) and 56 participants attended all 8 sessions (56%). In total, 113 participants attended at least 5 sessions.

Descriptive Statistics

Descriptive statistics were carried out second. Scores from Knowledge and Skills (related to mindfulness), Depression (mBDI), and Mindfulness (SCS subscale) were calculated at both pre- and post-intervention. Overall, there were several outliers detected, but none which were outside of the range of the scales, or which skewed respective distribution histograms. Therefore, no scores were removed for statistical analysis. Refer to Table 1 for a summary of the following findings.

Pre-intervention Knowledge and Skills scores (n=158) ranged from 93.56 to 194.44, with a mean of 147.97 and a standard deviation of 21.19. Post-intervention Knowledge and Skills scores (n=140) ranged from 96.11 to 195.44, with a mean of 155.50 and a standard deviation of 20.38. Total Knowledge and Skills change from Pre- to Post-intervention ranged from -42.33 to 60.67, with a mean of 8.83 and a standard deviation of 16.01. A negative change from Pre-to Post-intervention indicates a decrease in score and a positive change indicates an increase in score. Thus, on average, Knowledge and Skills scores increased by 8.83 points (Table 1). No significant skewness

was found in any of the above scores; however, post-intervention Knowledge and Skills scores were slightly negatively skewed. No significant outliers were detected.

Pre-intervention mBDI scores (n=158) ranged from 0.00 to 54.00 with a mean of 22.44 and a standard deviation of 10.83. Post-intervention mBDI scores (n=140) ranged from 0.00 to 53.00 with a mean of 18.83 and a standard deviation of 10.12. Total mBDI change from Pre- to Post- intervention ranged from -24.00 to 19.00, with a mean of -3.82 (Table 1). Thus, on average, depression scores decreased by 3.82 points. No significant skewness was found in any of the above mBDI scores; however, post-intervention mBDI scores were slightly positively skewed. No significant outliers were detected.

Pre-intervention Mindfulness (n=158) ranged from 1.25 to 5.00 with a mean of 3.64 and a standard deviation of 0.87. Post-intervention Mindfulness (n=140) ranged from 2.0 to 5.00 with a mean of 3.71 and a standard deviation of 0.71. Total Mindfulness change from Pre- to Post-intervention ranged from -2.50 to 3.00, with a mean of 0.06 and a standard deviation of 0.89 (Table 1). Thus, on average, mindfulness scores increased by 0.06 of a point. No significant skewness was found in any of the above Mindfulness scores. No significant outliers were detected.

Table 1: Descriptive Statistics

	N	Min	Max	Mean	Std. Dev.
Pre Knowledge/Skills	158	93.56	194.44	147.97	21.19
Post Knowledge/Skills	140	96.11	195.44	150.50	20.38
Total Knowledge/Skills Change	*140*	*-42.33*	*60.67*	*8.83*	*16.01*
Pre Depression	158	0.00	54.00	22.44	10.83
Post Depression	140	0.00	53.00	18.83	10.12
Total Depression Change	*140*	*-24.00*	*19.00*	*-3.82*	*8.43*
Pre Mindfulness	158	1.25	5.00	3.64	0.87
Post Mindfulness	140	2.00	5.00	3.71	0.71
Total Mindfulness Change	*140*	*-2.50*	*3.00*	*0.06*	*0.89*

Mindfulness and Depression

The correlation between Mindfulness Change and Depression Change from Pre-to Post-intervention was moderately weak with a R value of -.290 and a R^2 value of .084. This indicates that 8.4% of the outcome variable (Depression Change) can be explained by the predictor variable (Mindfulness Change). Adjusted R^2 =.077 and Standard Error=0.86. This linear model is a better predictor of Depression Change than simply the mean, as is indicated by its significance (p<.05). The linear equation associated with this model is y= -0.06-0.031x where -0.06 is the y-intercept, and -0.031 is the slope. This equation indicates that for every one-unit increase in Mindfulness Change, participants may expect, on average, a decrease in Depression Change of about .031 of a unit.

The correlation changed to R=-.314 and R^2 =.099 when conducting a Multiple Linear Regression to control for age, gender, and Pre-intervention mBDI scores. This

indicates that nearly 10% of Depression Change can be explained by Mindfulness

Change when controlling for these factors. Adjusted R^2 =.072 and Standard Error=.86.

This linear model is a better predictor of Depression Change than simply the mean, as is

indicated by its significance (p<.05). All variables within the model contained p-values

greater than.05 with the exception of mBDI change (from Pre- to Post-intervention). For

this variable, p<.05 indicating that this was the only variable in the model significantly

correlated with Mindfulness change, even while controlling for age, gender, and Pre-

intervention mBDI scores. The linear equation associated with this model is y= 0.171-

0.036X1+0.004X2-0.156X3-0.009X4 where: X1=Depression Change, X2=age,

X3=gender, and X4=Pre-intervention mBDI scores. In regards to Depression Change,

the only significant component of the model, this means that for every one-unit increase

in Mindfulness Change, Depression Change can be expected to decrease, on average, by

.036 of a unit.

Mindfulness and Knowledge/Skills

The correlation between Mindfulness change and Knowledge and Skills change

from Pre- to Post-intervention was moderately weak with a R value of .204 and a R^2

value of .041. This indicates that 4.1% of the outcome variable (Knowledge and Skills

Change) can be explained by the predictor variable (Mindfulness Change). Adjusted R^2

=.035 and Standard Error=.88. This linear model is a better predictor of Knowledge and

Skills Change than simply the mean, as is indicated by its significance (p<.05). The

linear equation associated with this model is y= -0.043-+0.011x with -0.043 being the y-

intercept, and 0.011 being the slope. This model indicates that for every one-unit

increase in Mindfulness Change, Knowledge and Skills Change can be expected to increase, on average, by .011 of a point.

The correlation changed to R=.218 and R^2 =.047 when conducting a Multiple Linear Regression to control for age, gender, and Pre-intervention Knowledge and Skills scores. This indicates that 4.7% of Knowledge and Skills Change can be explained by Mindfulness Change. **A**djusted R^2 =.019 and Standard Error=.88. This linear model is *not* a better predictor of Knowledge and Skills Change than simply the mean, as is indicated by its non-significance (p>.05). All variables within the model contained p>.05 with the exception of Knowledge and Skills change (from Pre- to Post-intervention). For this variable, p<.05, indicating that this was the only variable in the model significantly correlated with Mindfulness change, even while controlling for age, gender, and Pre-intervention Knowledge and Skills scores. The linear equation associated with this model is y= -0.010+0.012X1+0X2-0.140X3-0.002X4 where: X1=Knowledge and Skills Change, X2=age, X3=gender, and X4=Pre-intervention Knowledge and Skills scores. However, the overall model was not significant which is signified by its p-value (>.05). In regards to Knowledge and Skills Change, the only significant component of the model, this means that for every point increase in Mindfulness score, Knowledge and Skills Change increases, on average, by .012 of a point.

Mindfulness and Attendance

A one-way ANOVA was conducted in order to investigate the dose-response relationship between Mindfulness change (from Pre- to Post-intervention) and the number of UPLIFT sessions attended (1-4, 5-7, or all 8). There were no statistically

significant differences between group means as determined by the one-way ANOVA test (F=.84, p=.43). Therefore, post hoc tests were not conducted.

For people who attended 1-4 UPLIFT sessions (n=27), Mindfulness change from Pre- to Post-intervention ranged from -0.75 to 1.75, with a mean of 0.19 and a standard deviation of 0.75. This group showed the lowest maximum value of change in Mindfulness as compared to the other attendance groups.

For people who attended 5-7 UPLIFT sessions (n=57), Mindfulness change from Pre- to Post- intervention ranged from -2.25 to 2.50, with a mean of 0.11 and a standard deviation of 0.80. This group showed a higher maximum value of change in Mindfulness than the group that attended 1-4 sessions, but a lower maximum value of change in Mindfulness than the group who attended all 8 sessions.

For people who attended all 8 UPLIFT sessions (n=56), Mindfulness change from Pre- to Post-intervention ranged from -2.50 to 3.00, with a mean of -0.06 and a standard deviation of 1.04. This was the only group in this case who, on average, showed a decrease in Mindfulness from Pre- to Post-intervention, although this result was non-significant. This group also showed the highest absolute value of change in Mindfulness as compared to the other attendance groups.

Negative change in Mindfulness indicates a decrease in Mindfulness score from Pre- to Post- intervention, whereas positive change in Mindfulness indicates an increase in Mindfulness score from Pre- to Post-intervention.

Individual Mindfulness Items

The Mindfulness subscale of the SCS consists of items 9, 14, 17, and 22. The mean pre-intervention score for item 9, "When something upsets me I try to keep my

emotions in balance," was 3.86, with its mean post-intervention score being 3.91, signifying an average increase in Mindfulness by 0.05 of a point. The mean pre-intervention score for item 14, "When something painful happens I try to take a balanced view of the situation," was 3.58, with the mean post-intervention score being 3.67, signifying an average increase in Mindfulness by 0.09 of a point. The mean pre-intervention score for item 17, "When I fail at something important to me I try to keep things in perspective," was 3.73, with the mean post-intervention score being 3.76, signifying an average increase in Mindfulness by 0.03 of a point. The mean pre-intervention score for item 22, "When I'm feeling down I try to approach my feelings with curiosity and openness," was 3.39, with the mean post-intervention score being 3.50, signifying an average increase in Mindfulness by 0.11 of a point. In sum, all Mindfulness items showed an average increase from Pre- to Post-intervention, even if slight (Table 2).

Table 2: Individual Mindfulness Items

	Mean Pre Score	**Mean Post Score**	**Mean Increase**
Item 9	3.86	3.91	0.05
Item 14	3.58	3.67	0.09
Item 17	3.73	3.76	0.03
Item 22	3.39	3.50	0.11

Chapter 5

Discussion

This chapter will review the purpose and research objectives of this thesis. It will also discuss the meaning of the results, strengths and weaknesses of this thesis, as well as implications and future direction.

Purpose

The research is clear in terms of the benefits of mindfulness, especially in regards to mental health outcomes. Depression is one mental health outcome, in particular, that has been shown to improve with mindfulness practice in the context of an intervention, as illustrated by Project UPLIFT (Thompson et al., 2015; Thompson et al., 2010). Project UPLIFT measured mindfulness using the Mindfulness Subscale of the Self-Compassion Scale, which has not previously been assessed as a measure of mindfulness change as a result of an intervention. Thus, this thesis attempts to do so.

Research Objectives

This thesis had three separate research objectives. The first was to assess whether changes in mindfulness scores (that is, the mindfulness subscale of the SCS) are associated with changes in depression scores from pre- to post-intervention. The second was to assess if changes in mindfulness scores are associated with changes in mindfulness Knowledge and Skills scores from pre- to post-intervention. The third objective was to assess whether changes in mindfulness scores varied by the number of mindfulness sessions attended (i.e., 1-4, 5-7, or all 8).

Mindfulness and Depression

In regard to the first research objective, change in mindfulness was negatively associated with change in depression. This provides evidence of the validity of the mindfulness subscale as a measure of change in mindfulness, since other mindfulness measures have been negatively correlated with depression (Neff, 2003). This finding also supports existing research on the effectiveness of mindfulness and MBCT in reducing depressive symptoms (Crane et al., 2014; Kaviani, Hatami, & Javaheri, 2011; Kaviani,

Hatami, & Javaheri, 2012; Krusche et al., 2013; Meadows et al., 2014; Munshi et al.,

2013).

Mindfulness and Knowledge/Skills

Results for the second research objective suggest that an increase in mindfulness

from pre- to post-intervention is associated with an increase in mindfulness-related

Knowledge and Skills scores from pre- to post-intervention. Once again, this provides

evidence of the validity of the mindfulness subscale as a measure of change in

mindfulness. One would expect an increased level of mindfulness knowledge and skills

to yield an increased level of mindfulness, and the findings from the Project UPLIFT

studies support this (Thompson et al., 2015; Thompson et al., 2010).

Mindfulness and Attendance

In regard to the third research objective, the different attendance groups (i.e.,

those who attended 1-4 sessions, those who attended 5-7 sessions, and those who

attended all 8 sessions) did not differ significantly from each other in terms of

mindfulness change from pre- to post-intervention. While it was expected that those who

attended 8 sessions would show the greatest increase in mindfulness, and those who

attended 1-4 sessions would show the least increase in mindfulness, there were no

statistically significant differences among the three groups. This finding does not support

the validity of the mindfulness subscale as a measure of change in mindfulness. In fact,

the group that attended all 8 sessions actually showed an average *decrease* in mindfulness

from pre- to post-intervention, although this finding was not significant.

When these results were further analyzed by baseline level of mindfulness, there

are some possible explanations for these findings. Among those with low mindfulness

scores at baseline, those who attended more than half (5 or more) of the sessions of the Project UPLIFT intervention showed a decrease in mindfulness. It is possible that once this group learned what mindfulness really was (via the intervention), they realized by the end that they did not practice mindfulness as much as they had initially thought. In contrast, those who were initially low in mindfulness and did not attend many sessions increased in mindfulness more than any other group, suggesting the possibility of social desirability bias or a continued lack of understanding of mindfulness due to the attendance of less sessions.

Those who were initially high in mindfulness would be expected to have a better understanding of what mindfulness actually is and to report their mindfulness levels more accurately than those with lower baseline mindfulness scores. Within this group, those who managed to attend all 8 sessions showed the least improvement in mindfulness. This is not surprising, as it would be expected that those who have high mindfulness levels to begin with, and who report it accurately, would have less room for improvement, and would therefore show less *change* in mindfulness. Furthermore, the fact that this group managed to attend all 8 sessions would suggest that their cognitive skills and support for attendance were strong. In addition, those who had a high level of mindfulness at baseline and who attended most, but not all, of the sessions had a higher positive change in mindfulness. Their imperfect attendance may reflect poorer cognitive skills or support for the program, leaving them room for improvement. Thus, it is encouraging that this group increased in mindfulness.

Summary of Findings

   To summarize, findings of this thesis and its analyses regarding the value of the

mindfulness subscale of the SCS as a measure of mindfulness change as a result of

intervention are mixed. While the change on this measure is associated with change in

depression and mindfulness knowledge and skills, it is not associated with intervention

attendance. More particularly, the findings suggest that baseline mindfulness levels on

this measure may be confounded by a lack of understanding of what mindfulness is.

Thus, when knowledge about mindfulness increases, reported mindfulness may become

more accurate. This may be further complicated by the fact that high levels of

attendance, in and of themselves, require mindfulness. As a result, individuals with high

mindfulness levels at baseline and perfect attendance may show little *change* in

mindfulness scores. Nonetheless, their mindfulness levels can remain high and

significantly reduce their depressive symptoms. Additionally, the inclination toward

social desirability bias may influence the way people respond to the mindfulness

measurement items at post-test.

Limitations

   This thesis had several limitations. First, mindfulness was measured with the

mindfulness subscale of the SCS, which contained only four items. In addition, per the

findings discussed above, it is possible that people who have never studied mindfulness

may think they are being mindful until they learn more about it. This may have skewed

the baseline levels of mindfulness, and there was no way to validate how mindful

participants really were at baseline. Second, the Project UPLIFT Treatment study

recruited participants form just one referring clinic in one state (as it was a pilot study),

and the Project UPLIFT Prevention study recruited participants from four referring clinics, each in different states. Thus, the results may not be generalizable to people with epilepsy in all states. Third, this thesis only assessed the SCS as a measure of mindfulness change among people with epilepsy. Therefore, the findings are not generalizable to other populations. Fourth, other factors, such as referring clinic, could have influenced the degree of social desirability response but were not controlled for in the analyses. Fifth, this thesis utilized secondary data analysis. The data were originally collected as part of an intervention study and not for the purpose of validating the SCS as a measure of mindfulness change.

Strengths

While this thesis was limited in certain aspects, it contained some strengths as well. First, the dataset used was the combined dataset of both the Project UPLIFT Treatment and Prevention studies, so the sample size was relatively large (n=140). A Cohen's power analysis indicated that a sample size of 85 was needed in order to carry out the appropriate analyses at a power of .80 and an alpha level of .05, so a sample size of 140 exceeds this. In addition, this thesis begins the research and discussion surrounding the assessment of the SCS as a measure of mindfulness change due to intervention. While the SCS has been used as a measure of mindfulness in previous studies, its usefulness as a measure of mindfulness change in the context of interventions is an uncovered research topic area.

Implications

In conclusion, the findings of this thesis have several implications. Overall, research indicates that mindfulness interventions are effective in treating negative

psychological outcomes. This thesis strengthens this notion by specifically linking mindfulness to decreased depression, particularly for people with chronic illness (in this context, people with epilepsy). It also raises awareness of the fact that the SCS mindfulness subscale may need to be validated at baseline assessments of mindfulness in order to get an accurate measurement of baseline levels of mindfulness. Because the Project UPLIFT intervention was an MBCT targeted toward decreasing depressive symptoms, it makes sense that those who attended the intervention had lower depressive symptoms at post-test. It also makes sense that those who had higher mindfulness levels had lower depressive symptoms within the context of the intervention. However, the relationship between attendance and mindfulness remains cloudy, which is perhaps due to the lack of validity of the subscale as a true measurement of mindfulness at pre-intervention.

The next steps in related research would be to solve this problem. Perhaps it would be more useful to utilize a mindfulness scale with more items, such as the 15-item Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), in order to gain a more accurate measurement of pre-intervention mindfulness. It would be interesting to compare measurements using both scales in order highlight differences and guide future research.

References

Brown, K.W. & Ryan, R.M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*(4), 822-48.

Charoensukmongkol, P. (2014). Benefits of Mindfulness Meditation on Emotional Intelligence, General Self-Efficacy, and Perceived Stress: Evidence from Thailand. *Journal of Spirituality in Mental Health, 16,* 171-92.

Cotton, S., Luberto, C.M., Sears, R.W., Strawn, J.R., Stahl, L., Wasson, R.S., Blom, T.J., & Delbello, M.P. (2015). Mindfulness-based cognitive therapy for youth with anxiety disorders at risk for bipolar disorder: a pilot trial.

Crane, C., Crane, R.S., Eames, C., Fennell, M.J.V., Silverton, S., Williams, M.G., & Barnhofer, T. (2014). The effects of amount of home medication practice in Mindfulness Based Cognitive Therapy on hazard relapse to depression in the Staying Well after Depression

Trial. *Behaviour Research and Therapy, 63,* 17-24.

Dick, A.M., Niles, L.B., Street, A.E., DiMartino, D.M., & Mitchell, K.S. (2014). *Journal of Clinical Psychology, 70*(12), 1170-82.

Dori, G.A., Overholser, J.C. (2000). Evaluating depression severity and remission with a modified Beck Depression Inventory. *Pers Individual Diff, 28,* 1045-61.

Dutton, M.A., Bermudez, D., Matas, A., Majid, H., & Myers, N.L. (2011). *Cognitive and Behavioral Practice, 20,* 23-32.

Edwards, M., Adams, E.M., Waldo, M., Hadfield, O.D., & Biegel, G.M. (2014). Effects of a Mindfulness Group on Latino Adolescent Students: Examining Levels of Perceived Stress, Mindfulness, Self-Compassion, and Psychological Symptoms. *The Journal for Specialists in Group Work, 39*(2), 145-63.

Gallegos, A.M., Hoerger, M., Talbot, N.L., Moynihan, J.A., & Duberstein, P.R. (2013). Emotional benefits of mindfulness-based stress reduction in older adults: the

moderating roles of age and depressive symptom severity. *Aging & Mental Health, 17*(7), 823-29.

Germer, C.K. (2009). *The Mindful Path to Self-Compassion.* New York, NY: The Guilford Press.

Germer, C.K. & Neff, K.D. (2013). Self-Compassion in Clinical Practice. *Journal of Clinical Psychology, 69*(8), 856-67.

Hofmann, S.G., Sawyer, A.T., Witt A.A. & Oh, D. (2010). The Effect of Mindfulness-Based Therapy on Anxiety and Depression: A Meta-Analytic Review. *Journal of Consulting and Clinical Psychology, 78*(2), 169-183.

Jazaieri, H., Goldin, P.R., Werner, K., Ziv, M. & Gross, J.J. (2012). A randomized trial of MBSR versus aerobic exercise for social anxiety disorder. *Journal of Clinical Psychology, 68*(7), 715-731.

Kaviani, H., Javaheri, F., & Hatami, N. (2011). Mindfulness-based Cognitive Therapy (MBCT) Reduces Depression and Anxiety Induced by Real Stressful Setting in Non-clinical Population. *International Journal of Psychology and Psychological Therapy, 11*(2), 285-96.

Kaviani, H., Hatami, N., & Javaheri, F. (2012). The impact of Mindfulness-based Cognitive Therapy (MBCT) on mental health and quality of life in a sub-clinically depressed population. *Archives of Psychiatry and Psychotherapy, 1,* 21-28.

King, A.P., Erickson, T.M., Giardino, N.D., Favorite, T., Rauch, S.A., Robinson, E., Kulkarni, M. & Liberzon, I. (2013). A pilot study of group mindfulness-based cognitive therapy (MBCT) for combat veterans with posttraumatic stress disorder (PTSD). *Depression and Anxiety, 30*(7), 638-645.

Krusche, A., Cyhlarova, E. & Williams, J.M. (2013). Mindfulness online: an evaluation of the feasibility of a web-based mindfulness course for stress, anxiety and depression. *BMJ Open, 3*(11).

Meadows, G.N., Shawyer, F., Enticott, J.C., Graham, A.L., Judd, F., Martin, P.R.,

Piterman, L., & Segal, Z. (2014). Mindfulness-based cognitive therapy for recurrent depression: A translational research study with 2-year follow-up. *Australian & New Zealand Journal of Psychiatry, 48*(8), 743-55.

Monti, D.A., Kash, K.M., Kunkel, E.J., Moss, A., Mathews, M., Brainard, G., Anne, R., Leiby, B.E., Pequinot, E., & Newberg, A.B. (2013). Psychosocial benefits of a novel mindfulness intervention versus standard support in distressed women with breast cancer. *Psycho-Oncology, 22,* 2565-75.

Munshi, K., Eisendrath, S. & Delucchi, K. (2013). Preliminary long-term follow-up of Mindfulness-based cognitive therapy-induced remission of depression. *Mindfulness, 4*(4), 354-361.

Neff, K. (2003). The Development and Validation of a Scale to Measure Self-Compassion. *Self and Identity, 2,* 223-250.

Neff, K.D. & Germer, C.K. (2013). A Pilot Study and Randomized Controlled Trial of the Mindful Self-Compassion Program. *Journal of Clinical Psychology, 69*(1), 28-44.

Niles, B.L., Klunk-Gillis, J., Ryngala, D.J., Silberbogen, A.K., Paysnick, A., & Wolf, E.J. (2012). Comparing Mindfulness and Psychoeducation Treatments for Combat-Related PTSD Using a Telehealth Approach. *Psychological Trauma: Theory, Research, Practice, and Policy, 4*(5), 538-47.

Norton, A.R., Abbott, M.J., Norberg, M.M., & Hunt, C. (2014). A Systematic Review of Mindfulness and Acceptance-Based Treatments for Social Anxiety Disorder. *Journal of Clinical Psychology, 00*(00), 1-19.

Omidi, A., Mohammadi, A., Zargar, F. & Akbari, H. (2013). Efficacy of mindfulness-based stress reduction on mood States of veterans with post-traumatic stress disorder. *Archives of Trauma Research, 1*(4), 151-154.

Segal, Z.V., Williams, J.M.G., & Teasdale, J.D. (2002). *Mindfulness-based cognitive therapy for depression: a new approach to preventing relapse.* New York, NY:

The Guilford Press.

Segal, Z.V., Williams, J.M.G., & Teasdale, J.D. (2013). *Mindfulness-Based Cognitive Therapy for Depression.* New York, NY: The Guilford Press.

Thompson, N.J. *Project UPLIFT CF: A Program to Self-Manage Anxiety and Depression for People with Cystic Fibrosis.* A report to the Center for Clinical Outcomes Research and Public Health. 2014.

Thompson, N.J., Walker, E.R., Obolensky, N., Winning, A., Barmon, C., Diiorio, C. & Compton, M.T. (2010). Distance delivery of mindfulness-based cognitive therapy for depression: project UPLIFT. *Epilepsy and Behavior, 19*(3), 247-254.

Thompson, N.J., Patel, A.H., Selwa, L.M., Stoll, S.C., Begley, C.E., Johnson, E.K., & Fraser, R.T. (2015). The Efficacy of Project UPLIFT for Prevention: Distance Delivery of Mindfulness-based Depression Prevention. *Journal of Consulting and Clinical Psychology, 83*(2), 304-313.

Verplanken, B. & Fisher, N. (2014). Habitual Worrying and Benefits of Mindfulness. *Mindfulness, 5,* 566-73.