University of Nevada, Reno

Mindfulness-Based Treatments for Trauma Survivors: Effectiveness for Posttraumatic Stress Disorder

A thesis submitted in partial fulfillment
of the requirements for the degree of

Bachelor of Arts in Psychology and the Honors Program

by

Rachel Willimott

Dr. Holly Hazlett-Stevens, Thesis Advisor

May, 2014

UNIVERSITY

OF NEVADA **THE HONORS PROGRAM**
RENO

We recommend that the thesis
prepared under our supervision by

RACHEL WILLIMOTT

entitled

Mindfulness-Based Treatments for Trauma Survivors: Effectiveness for Posttraumatic Stress Disorder

be accepted in partial fulfillment of the
requirements for the degree of

BACHELOR OF ARTS, PSYCHOLOGY

_____
Holly Hazlett-Stevens, Ph.D., Thesis Advisor

_____
Tamara Valentine, Ph. D., Director, **Honors Program**

May, 2014

Abstract

Posttraumatic stress disorder (PTSD) affects 5% of men and 10% of women in the general population and is associated with a host of mental health problems (Rosenbaum, 2004). Mindfulness is a practice used in successful interventions that teaches nonjudgmental awareness and acceptance of the current moment. These treatments have successfully treated individuals with depression, anxiety, chronic pain, and addiction (Baer, 2003). Therefore, mindfulness can be an excellent tool for those suffering from PTSD. This paper discusses the characteristics of mindfulness, describes several mindfulness-based therapies, and evaluates the efficacy of these treatments. PTSD is addressed as well, including symptoms, available treatments, and the weaknesses of those treatments. Finally, the justification of using mindfulness-based therapies for PTSD, the current research investigating mindfulness for PTSD, and examples of mindfulness-based treatments in use for PTSD is discussed.

Acknowledgements

I would like to first offer my gratitude to the Office of Undergraduate and Interdisciplinary Research for awarding me the Honors Undergraduate Research Award. This award was indispensable in my project. I would also like to thank the Honors Program for the opportunity to write an honors thesis and for the valuable feedback throughout the process. My eternal thanks go to Dr. Holly Hazlett-Stevens for her constant support and feedback. I appreciate your compassion and calm demeanor throughout this process. Finally, I thank my family for supporting me in every way throughout my college career. Without any of you, this could not be possible.

Table of Contents

Introduction

Posttraumatic stress disorder (PTSD) is a mental disorder that arises after someone experiences or witnesses horror (Herman, 1997). It affects 5% of men and 10% of women (Mulick, Landes, & Kanter, 2011). Individuals find memories, thoughts, and emotions pertaining to the trauma intruding, while simultaneously trying to avoid any reminders of the trauma. This cycle of intrusion and avoidance leads to negative moods, emotional numbing, irritability, sleep problems, and lack of concentration ("DSM-5 Criteria for PTSD: National Center for PTSD," 2014). On top of the diagnosis's formal criteria, individuals often experience personality changes, depression, anxiety, sexual problems, physical pain, substance abuse, and suicidal ideation or behavior (Herman, 1997; Schiraldi, 2009). Prolonged exposure treatment has the most empirical support, but is not accessible to every patient (Hembree et al., 2003). Barriers to prolonged exposure include a limited number of therapists offering the treatment, a significant dropout rate, and a moderate non-response rate (Hembree et al., 2003; Schottenbauer, Glass, Arnkoff, Tendick, & Hafter Gray, 2008). Additionally, prolonged exposure is perceived as anxiety producing so patients may refuse treatment or not seek it out (Hembree et al., 2003; Vujanovic, Niles, Pietrefesa, Schmertz, & Potter, 2013). Therefore, there is a need for additional treatment methods.

Mindfulness-based treatment provides another treatment for many PTSD sufferers. Originating from the Buddhist tradition, mindfulness is part of the Buddhist path to greater mental health and happiness (Grossman & Van Dam, 2011; Hagen, 1998). In 1979, Jon Kabat-Zinn incorporated mindfulness into Western treatment for medical patients who were unsatisfied with their current treatment (Kabat-Zinn, 2003). Since then, more therapies have incorporated mindfulness. Mindfulness has successfully been used to treat chronic pain, psoriasis, depression,

anxiety disorders, borderline personality disorder, substance abuse, and eating disorders (Baer, 2003). These disorders often co-occur in people with PTSD (Herman, 1997; Schiraldi, 2009). Because mindfulness-based treatments have been successful in treating these disorders, mindfulness-based treatments would also be effective for PTSD. Moreover, similar to exposure therapy, mindfulness encourages tolerance of negative experiences (Baer, 2003). Mindfulness is the opposite of avoidance because it teaches one to turn towards internal experiences (Follette, Palm, & Pearson, 2006; Germer, 2005). Avoidance is the core of PTSD and is the hardest symptom to treat (Mulick et al., 2011). These reasons, among others that will be addressed later, justify the use of mindfulness-based treatments for PTSD.

This thesis discusses using mindfulness-based therapies for individuals with PTSD. Mindfulness will be explained, including the common elements of mindfulness, a brief history of the use of mindfulness in Buddhism and in Western psychology, and the research supporting mindfulness-based treatments. In the following sections, the formal diagnostic criteria and range of symptoms of PTSD will be discussed as well as current therapies and their weaknesses. Finally, the use of mindfulness-based treatments will be justified for people with PTSD, and the current research supporting the use of mindfulness-based treatment for PTSD will be discussed.

Introduction to Mindfulness

Mindfulness is a practice that is becoming popular in Western psychology (Davis & Hayes, 2011). In fact, there has been a surge of new studies investigating mindfulness (Kabat-Zinn, 2003). For instance, searching for the term "mindfulness" in the PsycInfo database resulted in 4,469 publications. A recent meta-analysis on mindfulness-based treatments identified 2,876 documents (Khoury et al., 2013). It is clear that mindfulness garners much interest.

Rooted in Buddhist psychology, mindfulness was developed into treatment in 1979 by Jon Kabat-Zinn via mindfulness-based stress reduction (Kabat-Zinn, 2003; Kang & Whittingham, 2010). Another important authority of mindfulness in the psychological context is the clinical psychologist Christopher Germer who began integrating mindfulness into psychotherapy in 1978 and is one of the directors for the Institute for Meditation and Psychotherapy (Germer, 2005). Finally, Jack Kornfield, also a clinical psychologist, has also been integral in bringing Buddhism and mindfulness to the West (Kornfield, 2011). Since mindfulness has been introduced to Western psychology, mindfulness has been incorporated into interventions including mindfulness-based stress reduction (MBSR) as well as mindfulness-based cognitive therapy (MBCT) and dialectic behavioral therapy (DBT) (Kang & Whittingham, 2010). Acceptance and commitment therapy also emphasizes the same tenets of mindfulness, but it was not developed from the Buddhist tradition or mindfulness theoretical framework. Additionally, mindfulness has been used in other therapeutic interventions, such as those for substance abuse, and is used to improve and inform psychotherapy (Baer, 2003; Germer, 2005). In the following sections, I will discuss the elements of mindfulness, the history of its use in psychological treatment, and the investigations of the efficacy of mindfulness-based treatments. This information provides a foundation for arguing for the use of mindfulness-based treatments for PTSD.

Definitions of Mindfulness

Defining mindfulness is difficult for Western psychology scholars. Jon Kabat-Zinn, founder of mindfulness-based stress reduction (MBSR), describes mindfulness as “actively tuning in to each moment in an effort to remain awake and aware from one moment to the next” (Kabat-Zinn, 1990, p. 20). He also defines it as “the awareness that emerges through paying

attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003, p. 145). Germer (2005) explains mindfulness as "awareness of present experience, with acceptance" (p.7). He also adds that mindfulness can describe a theory, a practice of meditation, and a mental process, depending on its use (Germer, 2005).

The difficulty in a single widespread definition is partially caused by the difference in culture. Mindfulness is at the core of Buddhist psychology, which is written in Pali. Sati is the Pali word that is taken to mean mindfulness. The translation is actually closer to a verb: "to be mindful" (Grossman & Van Dam, 2011, p. 220). The other reason it is difficult to define mindfulness is that mindfulness is a "nonverbal experience" (Germer, 2005, p. 6). Buddhist psychology dictates that mindfulness cannot be analyzed, but only experienced (Germer, 2005; Grossman & Van Dam, 2011). Mindfulness is a process and is not a trait that a few people exhibit. Instead, it is a constant practice to be mindful in any given moment (Grossman & Van Dam, 2011). In this thesis, the definition of mindfulness will be the same as Kabat-Zinn's (2003) definition; that is, a purposeful, nonjudgmental attention on the present moment.

Depending on the clinician, mindfulness has different characteristics. Kabat-Zinn (1990) uses seven attitudes as the principles of mindfulness. Germer (2005) describes eight aspects of mindfulness. Finally, Kornfield (2008) uses four steps to teach mindfulness. These important frameworks will be discussed further because these individuals have been integral in introducing mindfulness to the West.

Kabat-Zinn's (1990) seven attitudes of mindfulness.

Kabat-Zinn (1990) writes that the attitudes of non-judging, patience, beginner's mind, trust, non-striving, acceptance, and letting go are mindfulness foundations. Mindfulness

advocates for an impartial observation of thoughts, including judgments. Patience is integral because mindfulness is a constant process. Whatever occurs in the present moment, including a wandering mind, is that moment's reality. Patience is related to compassion, another common idea associated with mindfulness. In fact, the word for heart and mind is the same in many Asian languages. Therefore, mindfulness also means to be "heartful". Compassion and an open heart are key to mindfulness (Kabat-Zinn, 2003). Buddhist psychology argues that individuals have an inherent good inside of them. Treating people with respect can make a profound difference in interaction. Showing compassion to ourselves can facilitate peace (Kornfield, 2008). Kabat-Zinn (2003) emphasizes compassion in his MBSR programs. A beginner's mind is the idea of seeing everything without expectations – just seeing things for what they are as if for the first time. Kabat-Zinn (1990) also discusses the importance of trust because mindfulness is a personal and experiential process. One should not try mindfulness simply because an authority figure advocates for it; one must simply try it and trust in oneself. Non-striving is also important to mindfulness because there is no need to try to experience a new moment. Instead, mindfulness teaches one to fully experience this moment as it unfolds (Kabat-Zinn, 1990). The next attitude discussed by Kabat-Zinn (1990) is acceptance. Across mindfulness definitions, there is an emphasis on acceptance and on withholding judgment of the present moment (Baer, 2003; Davis & Hayes, 2011; Germer, 2005; Kornfield, 2008). Germer (2005) and Kabat-Zinn (1990) explain that acceptance is not a passive allowance of negative behavior, but willingness for experiences to be as they already are. Lack of acceptance causes suffering. In fact, Buddhist psychology says that suffering is caused by greed, aversion, and unawareness (Kabat-Zinn, 2003; Kornfield, 2008). Grasping and aversion both speak to the common desire for life to be different. However, wanting things to be different is not acceptance. Only with acceptance comes the ability to

change. As psychologist Carl Rogers (1995) once wrote, "the curious paradox is that when I accept myself as I am, then I change" (p. 17). Finally, letting go is the last attitude of mindfulness. Mindfulness teaches one to let moments and experiences come and go, without holding on to some and rejecting others.

Germer's (2005) eight mindful moments.

Germer (2005) describes mindfulness in eight terms: non-conceptual, present-centered, nonjudgmental, intentional, participant observation, nonverbal, exploratory, and liberating. Mindfulness is non-conceptual because it is an awareness of thought processes without being swept up in thoughts. It is also present-centered because being mindful means experiencing life firsthand, instead of thinking about it. The next term, withholding judgment, is important because mindfulness does not occur if one is wishing for a different experience. In addition, the aspect of intention comes up in mindfulness often. One must commit to return to the present continuously. The strategies of coming back to the moment will be discussed later in this section as well. In addition, participant observation is a part of Germer's (2005) description of mindfulness. This term means experiencing the body and mind more fully, instead of remaining detached. Mindfulness is also nonverbal because awareness itself occurs before language can describe it. Mindfulness is also exploratory because one is constantly trying to go deeper into the levels of the mind. Finally, liberation is often used in reference to mindfulness because mindfulness is a vehicle out of suffering (Germer, 2005). The nature of suffering in the Buddhist context is also discussed later.

Kornfield's (2008) four steps to mindfulness.

Finally, Jack Kornfield (2008) uses the acronym RAIN to teach clients mindfulness. RAIN includes recognition, acceptance, investigation, and non-identification. The first step is to

recognize the present moment. Next, one must accept whatever is present in the current moment, including negative experiences (Kornfield, 2008). This aspect of mindfulness is also present in Kabat-Zinn's (1990) attitudinal foundations. The third element of RAIN is investigation. Kornfield encourages clients to investigate the exact nature of an experience. Individuals need to ask themselves: what am I feeling? Is it negative, positive, or neutral? What are the feelings – both psychological and somatic – associated with the experience? Discovering the answers to these questions allows an individual to become "unstuck" from the experience (Kornfield, 2008). The final element in RAIN is non-identification (Kornfield, 2008). Other mindfulness teachers also encourage non-identification. Kabat-Zinn writes that thoughts, emotions, and desires are just mental events that need to be observed (Kabat-Zinn, 1982). In addition, Germer (2005) says that mindfulness can decrease an individual's reactivity to negative experience. This speaks to the non-identification element of mindfulness. If one stops attaching to negative thoughts and emotions, these mental states can prove to be less reactive.

Cultivating mindfulness through meditation.

While one can practice mindfulness with yoga and other physical practices, mindfulness meditation is the practice most often seen in therapeutic settings (Davis & Hayes, 2011). Meditation is the "intentional self-regulation of attention" in the present moment (Baer, 2003, p.125). There are two types of meditation practices: concentrative and insight. Concentrative meditation focuses on a particular sensation, object, or mantra. When the mind is distracted, the attention is simply brought back to the stimulus without attending to the distraction (Baer, 2003). Insight meditation is used by the therapies discussed in this thesis. Concentration is developed in mindfulness meditation as well, but the latter emphasizes the nature of the mind (Grossman & Van Dam, 2011). Insight meditation is a state of inquiry; it is a process of asking oneself what is

coming into attention (Kabat-Zinn, 2003). The insight that is cultivated in mindfulness meditation is related to Kornfield's (2008) principle of investigation. It is the process of asking what one feels in that current moment (Kornfield, 2008).

Although insight meditation investigates the nature of the mind, bare concentration needs to be developed. Once concentration is cultivated, insight into the workings of the mind can be achieved. This first step is not easy either. "The learning curve is steep and long" is an accurate depiction of honing concentration (Grossman & Van Dam, 2011, p. 224). Once steady concentration on the breath is established, the field of concentration is expanded gradually to include all experiences. Concentration is emphasized as a way to maintain a steady, unattached observation of these internal experiences (Kabat-Zinn, 1982). Grossman & Van Dam (2011) emphasize that mindfulness is not a quick fix nor is it to be used only in moments of suffering. It needs to be a way of life. If mindfulness can become a way of life, then mindfulness can change an individual's relationship with pain and suffering (Germer, 2005).

History of Mindfulness

Mindfulness is rooted in Buddhist psychology and has been called the "heart" of Buddhism (Grossman & Van Dam, 2011; Kabat-Zinn, 2003). While Buddhism is often described as a religion, it is more accurate to call it a psychology. The Dalai Lama says, "Buddhist teachings are not a religion, they are a science of mind" (as cited in Kornfield, 2008, p. 7). The tenets of Buddhism are universal and can be accepted by anyone, from any background. Buddhism lays out the reason for human suffering and simply offers a way to cope with suffering (Hagen, 1998).

The Buddha was a man named Gautama who lived in India 2,500 years ago. As a prince, he was sheltered from all suffering, but eventually discovered the human realities of sickness,

aging, and death. This realization caused him psychological pain and he sought a way out of that suffering. After many hardships and failures, Gautama finally discovered enlightenment by understanding human suffering and its solution. He became the "awakened one," or the Buddha. For the remainder of his life, the Buddha explained the causes for human suffering and the remedies for this suffering. It is important to remember that the Buddha was a human being and his solution to suffering lay in human ability. The practice of Buddhism is rooted in personal experience and fact (Hagen, 1998).

An important part of Buddhist teaching is the Four Noble Truths. The first truth is that human life is characterized by suffering. The second truth is that suffering comes from within each individual. Suffering is rooted in a desire for life to be different. The third truth is that if suffering comes from within, then it can also end. Finally, the fourth truth is the Eightfold path, the solution to ending suffering (Hagen, 1998). The Eightfold Path includes wise view, wise intention, wise speech, wise action, wise livelihood, wise effort, wise mindfulness, and wise meditation. These components boil down to being in the moment and acting from a place of mindfulness and compassion. It means seeing the situation in its entirety and then acting with wisdom. Therefore, Buddhism does not use absolutes or right and wrong dualism. Buddhism encourages everyone to act as the situation dictates (Hagen, 1998).

Buddhism emphasizes residing in the moment. As Hagen (1998) writes, "the mind will not be ruled. If you try to get it to lean less, it just leans all the more… just attend to what you're doing. Because in attending to this moment, you're attending to your own mind" (p. 76). In this statement, Hagen touches on most of the elements of mindfulness that thus far have been discussed: awareness, acceptance, insight, and non-identification. He tells the reader to watch the mind and not try to control or change it. In addition, the Buddha taught compassion, another

tenet of mindfulness in Western psychology. The Buddha taught people to see everyone in the way that a loving mother sees her child (Kornfield, 2008).

Mindfulness-based treatments: MBSR & MBCT.

While mindfulness has resided in Buddhism for 2,500 years, mindfulness was formally incorporated into Western treatment in 1979 by Jon Kabat-Zinn (Hagen, 1998; Kabat-Zinn, 2003). Kabat-Zinn saw many people who were not satisfied with their medical treatments or who were "'falling through the cracks' in the health care system" (Kabat-Zinn, 2003, p. 149). Using a referral service with medical doctors, Kabat-Zinn (2003) developed the program mindfulness-based stress reduction (MBSR) to teach people to refine their "innate capacity for paying attention" (p. 149). In creating the program, he tried to maintain the essential truth of Buddhist psychology without incorporating the Buddhist culture that would seem foreign to the average American. His other motivation in developing MBSR was to create a model for providing mindfulness-based treatment (Kabat-Zinn, 2003).

The root of MBSR is accepting the current moment. Kabat-Zinn (2003) tells his patients to let go of any expected outcome. Upon entering the MBSR clinic, clients are told "to let go of their expectations, goals, and aspirations for coming, even though they are very real and valid, to let go—momentarily, at least—even of their goal to feel better or to be relaxed" (Kabat-Zinn, 2003, p. 148).

MBSR is a form of group treatment and is an 8-10 week long program. There are two-hour long weekly group meetings, as well as a daylong meditation retreat later in the program. During the weekly sessions, patients are taught a 45-minute body scan in which they focus their undivided attention on one body part at a time. They are also trained in mindful walking, mindful eating, sitting meditation, and gentle yoga sequences. In MBSR, the breath is used as an anchor

for attention during these practices. When thoughts, emotions, sensations, and similar experiences drift into consciousness, the phenomena are noticed and then attention is drawn back to the ever-present breath. In addition, each client is given "homework:" to practice some form of mindfulness for 45-60 minutes a day guided by audio recordings. This homework begins with doing the body scan and sitting mediation. Later in the course, patients begin incorporation the other practices for homework. In addition, the students are encouraged to practice without the audio recordings in the latter half of the program to encourage self-reliance (Baer, 2003).

In 1995, researchers Teasdale, Segal, and Williams developed mindfulness-based cognitive therapy (MBCT). The researchers thought MBSR would be effective in treating reoccurring episodes of depression, but also valued cognitive behavioral therapy. While MBCT is based on MBSR, there is also the cognitive therapy element to help the patients distance themselves from their thoughts (Baer, 2003; Kabat-Zinn, 1982). Note that here, again, is Kornfield's (2008) non-identification. MBCT teachers show patients that thoughts do not define a person's character nor are thoughts inherently true. This program is also an 8-week group therapy (Baer, 2003).

Other therapeutic approaches incorporating mindfulness.

Dialectic behavioral therapy (DBT) is used primarily with those diagnosed with borderline personality disorder and is based on the dialectic theory. This theory posits that the world is made up of opposite concepts and the reconciliation of these opposites forms a new idea. The central dialectic in DBT is acceptance and change (Baer, 2003). This is similar to Carl Rogers's statement about acceptance leading to change (Rogers, 1995). Thus, mindfulness skills are used to accept internal states, while cognitive therapy is used to change these states gradually. Therapists using DBT do not teach formal meditation, but instead use skills training

and small exercises to teach mindfulness skills. Similar to other mindfulness practices, patients are taught to recognize thoughts and emotions and then to let them go. This treatment lasts for a year and includes weekly group sessions as well as individual sessions with a therapist (Baer, 2003).

Acceptance and commitment therapy (ACT) is not rooted in Buddhist psychology or mindfulness, but is based in behavioral analysis and functional contextualism (Baer, 2003; Hayes, Pistorello, & Levin, 2012). Functional contextualism puts truths and behavior in context and emphasizes progress towards a goal. ACT seeks to develop a model for changing individual's behavior. The focus is not on those who have been diagnosed with psychological disorders, but instead on changing the behavior of any individual (Hayes et al., 2012). While it is not consciously part of the mindfulness tradition, ACT shares many of the same characteristics. Similar to DBT, clients undergoing ACT do not learn meditation, but instead learn skills similar to mindfulness (Baer, 2003). Hayes, et al. (2012) state the intention of ACT is not to change the internal experiences, but instead change the individual's relationship with them. Germer (2005) said that mindfulness in general could serve that very function. There is also an emphasis on forming and committing to a value system, which is also important to Buddhism (Hagen, 1998; Hayes et al., 2012). In addition, ACT minimizes finding a truth-value in personal experiences, which is similar to the non-identification property of mindfulness (Hayes et al., 2012; Kornfield, 2008). Finally, ACT recognizes a "noticing self" (Hayes et al., 2012). This noticing self is awareness, or the ability to see that consciousness is separate from the internal experiences of thoughts and emotions. Discovering this awareness creates distance between an individual and their internal experiences. This is also a component of mindfulness (Kornfield, 2008).

Finally, mindfulness is being incorporated into existing psychological frameworks. For instance, it is becoming more important that the practitioner is mindful. A mindful therapist is important to treatment both because of the positive effects for the client, but also so that the therapist can fully experience what he or she is teaching his or her clients (Davis & Hayes, 2011; Germer, 2005; Kabat-Zinn, 2003). In addition, mindfulness has been included as an element of substance abuse treatment and is taught as a skill to use to avoid relapse. Clients are taught "to ride the wave" when they feel the urge to use substances. Mindfulness is also used to increase present-moment awareness because substance abuse is framed as an escape from the present moment (Baer, 2003).

Effectiveness of Mindfulness-Based Treatments

While mindfulness has been practiced in the Buddhist tradition for over 2,500 years, its effectiveness in Western psychology has only been investigated since the 1980s (Hagen, 1998). It is important to remember that the cultural constructs of empirical study are different in the Buddhist tradition compared to Western culture (Grossman & Van Dam, 2011; Kabat-Zinn, 1982). While Buddhist psychology is a "science of mind," it derives this science in a different manner (Kornfield, 2008, p. XI). As stated earlier, Buddhist psychology encourages experiential investigation for mindfulness (Grossman & Van Dam, 2011). With that being said, Western psychology has used empirical methods to investigate the efficacy of mindfulness-based treatments, some of which will be discussed next.

Jon Kabat-Zinn conducted many of the early studies using the MBSR program. In 1982, he completed the first study analyzing the effectiveness of MBSR for chronic pain. Most of the patients suffered from lower back pain, neck pain, shoulder pain, and headaches. Kabat-Zinn theorized that if one could develop bare attention on pain, there would be a decreased reaction to

it. There were 51 patients involved in the study that underwent MBSR classes for 10 weeks. They completed multiple pain scales before and after treatment. Over half of the individuals experienced moderate to great improvement in their levels of pain (Kabat-Zinn, 1982). This study is important because it was completed when mindfulness was new to Western psychology (Kabat-Zinn, 2003).

Ten years after this first study, Kabat-Zinn and colleagues (1992) investigated the efficacy of MBSR for anxiety disorders. Participants who met the diagnostic criteria for generalized anxiety disorder or panic disorder were included in the study. Again, patients completed an MBSR program. The study showed statistically significant improvements in anxiety and depression symptoms. After three years, these improvements remained. This study had important implications. Most importantly, individuals with panic disorder were able to sit unmoving for 45 minutes and observe their thoughts. This alone is very significant because individuals with panic disorder have difficulties sitting for extended periods (Kabat-Zinn et al., 1992).

Kabat-Zinn et al. (1998) also studied the effects of mindfulness meditation on psoriasis. Patients entering UV treatment for psoriasis were assigned to two conditions: one group listened to a guided meditation tape during the treatment and the other group just completed the treatment without meditation. The tape group experienced a higher rate of skin clearing than the other group. The skin was analyzed by nurses, who knew the patient's study condition, and by doctors who were blind to patients' study conditions (Kabat-Zinn et al., 1998).

Research has also been conducted analyzing the effect of mindfulness on a host of psychological problems (Baer, 2003; Davis & Hayes, 2011). Davis and Hayes (2011) conducted a literature review on mindfulness and its many benefits. They found that mindfulness,

specifically MBSR, reduced rumination symptoms in people with mood disorders (Davis & Hayes, 2011). Another study used MBSR to treat women suffering from eating disorders. The researchers found the intervention to be effective in eating behavior and mood changes (Baer, 2003). While many studies focus on individuals with the same diagnosis, mindfulness can also help a group of people with varying psychological problems. Green and Bieling (2012) used mindfulness to help a group of 23 individuals with mood or anxiety disorders. Many individuals had been diagnosed with multiple disorders and MBCT was found to be effective on this group as well. This demonstrates that mindfulness-based treatments, in this case MBCT, can be used on a diverse population (Green & Bieling, 2012).

Mindfulness has also been assessed as a tool for individuals without a clinical diagnosis. In adults who have not been clinically diagnosed, mindfulness reduced activity in the amygdala of the brain. High amygdala activity is associated with symptoms of depression, so mindfulness can serve as a tool for prevention. Davis and Hayes (2011) cited various studies that found mindfulness to decrease reactivity and a higher flexibility in emotional response. In addition, when therapist practiced mindfulness, the therapists showed higher rates of empathy, compassion, counseling skills, and decreased anxiety. Decreased anxiety is important to prevent "burn-out" for therapists (Davis & Hayes, 2011).

Mindfulness has been used on diverse groups of individuals. There are also a myriad of studies supporting its effectiveness. In a recent meta-analysis, researchers found 2,876 publications regarding mindfulness, 625 of which investigated mindfulness-based treatments (Khoury et al., 2013). This figure illustrates the extent of the research on mindfulness. In addition, meta-analyses have been conducted investigating the effect size for mindfulness-based treatments. When "mindfulness" and "meta-analysis" are used as search terms in PsycInfo, 53

publications are retrieved. Reviewing all of those studies is beyond the scope of this paper, but a few will be discussed further.

Hofmann, Sawyer, Witt and Oh (2010) conducted a meta-analysis on mindfulness-based treatments. The researchers included studies that used MBSR or MBCT (or programs that were closely based on either) in an adult, clinical sample. Each study included measurements for mood and/or anxiety disorders before and after the intervention and effect sizes. The researchers initially found 727 studies, but only 39 studies fit the inclusion. These studies were done using individuals suffering from anxiety, panic disorder, depression, cancer, physical problems (including arthritis, fibromyalgia, and chronic pain) and medical diagnoses (including diabetes, hypothyroidism, stroke, and others). The effect sizes were moderate to strong in reducing anxiety and depression symptoms. This effect was also present in individuals who were not diagnosed with anxiety or depression, but experienced symptoms of anxiety or depression because of their physical diagnosis. The effect sizes also were sustained through follow-up measurements. This study illustrates the scope of mindfulness-based treatment studies as of 2010 as well as the efficacy across diagnoses (Hofmann et al., 2010).

Fjorback, Arendt, Ørnbøl, Fink, and Walach (2011) also conducted an important meta-analysis on mindfulness-based treatments. This study included MBSR and MBCT as treatment protocols. Inclusion criteria included a sample size of at least 32 participants and studies had to be randomized controlled. Therefore, this meta-analysis used the highest quality studies. Because of these rigorous criteria, the researchers included only 21 studies. Four of the studies included a non-clinical population. Mental and physical health improved for individuals participating in a mindfulness-based program with no clinical diagnosis. The programs were also effective for individuals with a clinical diagnosis. MBCT was effective in individuals diagnosed with

depression that had recovered from three or more depressive episodes. Both MBSR and MBCT fit the standards for well-established and empirically supported therapies. The treatment protocols are manualized and treatment is consistent across different investigators. This study strengthened the findings of past meta-analyses because it used only randomized controlled studies with large sample sizes (Fjorback et al., 2011).

Khoury et al. (2013) conducted a more recent meta-analysis. The researchers used studies on mindfulness to determine the effect size for mindfulness-based treatments. The researchers found nearly 3,000 publications on PubMed and PsycInfo regarding mindfulness. The researchers found 209 studies that fit their criteria, which included a mindfulness meditation treatment, outcome data, and analyzed the direct effects of mindfulness. They found that mild anxiety was diminished and moderate to severe anxiety was reduced to mild anxiety. They also found that mindfulness-based treatments were more effective for psychological disorders than physical disorders. Mindfulness-based treatments were found to be most effective for anxiety and depression. There was also a strong correlation between high rates of mindfulness in patients and successful treatment outcomes. This meta-analysis confirmed the effectiveness of mindfulness therapies (Khoury et al., 2013).

The above research offers evidence for the use of mindfulness-based treatments for PTSD. These studies show that mindfulness can be used for many diverse psychological problems: anxiety, depression, borderline personality disorder, chronic pain, eating disorders, and substance abuse as well as being used for therapists and non-clinical patients (Arch & Craske, 2006; Baer, 2003; Davis & Hayes, 2011; Kabat-Zinn, 1982; Kabat-Zinn et al., 1992). Trauma is an anxiety disorder and is often linked to depression and substance abuse. PTSD also has aversion or avoidance being a class of symptoms (Herman, 1997). These treatments

encourage acceptance and compassion and are effective for many of the disorders related to PTSD. Since mindfulness has been successful in treating depression, substance abuse, anxiety, aversion, and avoidance, it is logical to assume that mindfulness will also be successful in treating PTSD. The following sections will detail posttraumatic stress disorder and make a more extensive argument for using mindfulness-based treatments for survivors of trauma.

Introduction to Posttraumatic Stress Disorder

The symptoms of posttraumatic stress disorder (PTSD) are often described as a normal reaction to horror (Herman, 1997; Jakovljević, Brajković, Lončar, & Čima, 2012; Schiraldi, 2009). However, the symptoms are often so severe that outside help is needed to heal (Schiraldi, 2009). As Judith Herman (1997), a psychiatrist and an authority on trauma, writes, "no one can face trauma alone" (p. 153). The prevalence of PTSD is 5% for men and 10% for women (Mulick et al., 2011; Rosenbaum, 2004). However, the percentage of people who experience a traumatic event, which is necessary to be diagnosed with PTSD, ranges from 60% to 90% (Mulick et al., 2011; Rosenbaum, 2004). The prevalence of PTSD in a population of people who have experienced trauma is higher than that of the general population. Anywhere between 33% and 50% of people who survive a trauma may be diagnosed with PTSD (Schottenbauer et al., 2008). Prevalence rates show that PTSD is a problem that affects many individuals. The following sections will explain why PTSD is a problem that needs to be addressed, including the symptoms that people who have survived trauma often express and experience. Second, current therapies that are available for PTSD and their weakness will be covered.

Symptoms

The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) was published in the past year. The DSM is used to diagnose and treat individuals and

has been described as the bible of psychiatry (Frances, 2012). However, the latest edition has caused some controversy, including The National Institute of Mental Health withdrawing its support last year (Frances, 2012; Lane, 2013, May 4). Instead of relying solely on the DSM-5 diagnosis criteria for PTSD, it is more accurate to see posttraumatic responses as encapsulating mental, emotional, and physical problems and dysfunction. In some cases, PTSD can completely change the identity, personality, and relationships of an individual (Herman, 1997). At other times, a person can develop a myriad of symptoms that are unfortunately treated as separate diagnoses (Herman, 1997; Rosenbaum, 2004; Sareen et al., 2007; Schiraldi, 2009). This section explains the current DSM-5 diagnosis criteria, but also illustrates the multitude of other symptoms that are not included in the formal diagnosis.

PTSD is the only mental health disorder that includes a specific stressor in the diagnostic criteria (Schiraldi, 2009). This event can be experienced directly, witnessed, learned about, or be a series of repeated exposure to negative details of trauma, such as the experiences of first responders. The DSM-5 then groups PTSD symptoms into four clusters: intrusion symptoms, avoidance, negative mood changes, and arousal changes ("DSM-5 Criteria for PTSD: National Center for PTSD," 2014). Many of these symptoms overlap and are related to each other.

Intrusion symptoms include re-experiencing the event and experiencing traumatic nightmares about the event. Intrusive memories and flashbacks are examples of intrusion symptoms. Flashbacks are events in which an individual is transported back to the trauma and completely loses touch with the present moment ("DSM-5 Criteria for PTSD: National Center for PTSD," 2014; Schiraldi, 2009). Other intrusion symptoms involve feeling distress and physiological reaction after the trauma is remembered.

The next cluster of symptoms is avoidance, which involves avoiding stimuli that remind the survivor of the trauma, including thoughts, feelings, people, places, and activities ("DSM-5 Criteria for PTSD: National Center for PTSD," 2014). The individual avoids these experiences in an effort to avoid feeling the resulting distress. Unfortunately, avoidance does not just numb negative emotions, but positive emotions as well. Emotional numbing is why many people with PTSD describe not being able to have fun or enjoy life since their trauma (Schiraldi, 2009).

The act of avoidance leads to the next cluster of symptoms in the DSM-5: negative alterations in mood and thoughts. This cluster of symptoms includes being unable to remember elements of the traumatic event, negative and distorted thoughts about the world or oneself, blaming oneself or others, negative emotions relating to the trauma, diminished activity, feeling alienated from others, and the inability to experience the full range of human emotion ("DSM-5 Criteria for PTSD: National Center for PTSD," 2014). Many of these symptoms relate back to the pervasive avoidance that people with PTSD express. When one avoids all thoughts and emotions, one's range of emotional capacity is easily restricted. Further, some organizations, such as the military, encourage emotional numbing. In addition, the avoidance of any traumatic reminders leads to avoiding gathers and other people. Avoiding other people causes social isolation and restricted interest in once pleasurable activities (Schiraldi, 2009). Isolation becomes a problem because people need others to recover from trauma (Herman, 1997).

The last cluster of symptoms in the DSM-5 is arousal and reactivity changes. Some examples of these symptoms are irritability, aggressiveness, recklessness, hypervigilance, an exaggerated startle response, concentration problems, and sleep problems ("DSM-5 Criteria for PTSD: National Center for PTSD," 2014). Schiraldi (2009) details the common features of PTSD well and it becomes clear that these symptoms are interrelated. For instance, irritability and

aggressiveness may stem from the various negative emotions that are associated with trauma, such as guilt, shame, frustration, and betrayal. Recklessness may also be related to another common symptom for people with PTSD: a sense of a foreshortened future. Some people who have survived traumatic events report being unable to imagine growing older or having a career (Schiraldi, 2009). This feeling could cause people to act in a reckless manner. Recklessness and self-harm may also be a way of avoiding the emotional pain from the trauma (Herman, 1997; Schiraldi, 2009). Hypervigilance is explained by the cognitive mechanism that attempts to prevent the event from happening again (Jakovljević et al., 2012). Hypervigilance is the anticipation and planning of a repeated trauma, including the survivor's use of weapons and overprotectiveness of his or her family members. Hypervigilance, therefore, is related to an exaggerated startle response. A heightened sensitivity to one's surroundings can cause people to startle at the slightest change. Concentration problems are also common because the survivor is using extensive mental resources trying to avoid the negative and intrusive experiences. Finally, sleep problems may be caused by the frequent nightmares described in the intrusive cluster of symptoms (Schiraldi, 2009).

The DSM-5 dictates that symptoms must be present for more than a month after the traumatic event and must cause functional impairment ("DSM-5 Criteria for PTSD: National Center for PTSD," 2014). This impairment is common because the symptoms often interfere with one's life. Because the survivor spends mass energy avoiding any reminders of the trauma, relationships suffer. In addition, the lack of concentration and sleep disturbances result in fatigue and may adversely affect one's career (Schiraldi, 2009).

The preceding section described the official diagnosis of PTSD, but sufferers exhibit a much more complex experience. These experiences are often conceptualized by healthcare

providers as separate diagnoses (Herman, 1997). It is important to remember that for the individual, these "separate" diagnoses are more accurately described as a "constellation of distressing and/or impairing symptoms" (Sareen et al., 2007, p. 242). Individuals who have survived trauma often exhibit a variety of symptoms including nightmares, headaches, flashbacks, social withdrawal, sadness, anxiety, anger, guilt, fatigue, pessimism, sexual problems, and emotional numbness (Schiraldi, 2009). While sufferers do not experience these symptoms as separate categories, the DSM does separate the diagnoses (Herman, 1997). However, comorbidity rates do paint a picture of the multiple complaints people report after surviving a trauma. In fact, the lifetime comorbidity rate – or the percentage of people that will be diagnosed with another disorder – for people with PTSD ranges from 62% to 92% (Jakovljević et al., 2012; Rosenbaum, 2004). The most common diagnoses associated with PTSD include anxiety disorders, mood disorders, and substance abuse. Some of the symptoms that PTSD sufferers report include anxiety, depression, body complaints, and more (Herman, 1997; Schiraldi, 2009).

PTSD is described as an anxiety disorder so it is easy to see why many people with PTSD would be diagnosed with other forms of anxiety as well. The name alone – posttraumatic *stress* disorder – is inherently anxiety related and some elements of PTSD are shared by anxiety disorders. For instance, an exaggerated startle response is a form of anxiety. Avoidance is also a key element to anxiety and PTSD (Schiraldi, 2009). Sleep disturbances, loss of concentration, and restlessness are also common anxiety symptoms. Childhood abuse is also related to high levels of distress and anxiety symptoms, including general anxiety, phobic anxiety, and paranoia (Herman, 1997). Sareen et al.'s (2007) study found that PTSD was linked with mania, panic attacks, agoraphobia, social phobia, and non-anxiety related disorders.

Conversely, depression is associated with PTSD (Herman, 1997; Rosenbaum, 2004). Even worse, depression is often more severe in people with PTSD (Herman, 1997). In addition, the effects of trauma are most often PTSD, depression, or both (Rosenbaum, 2004). Suicidality, which includes thoughts, plans, behaviors, and attempts of suicide, coincides with PTSD sufferers (Jakovljević et al., 2012; Sareen et al., 2007).

Another common complaint includes physical maladies. Because of the framework of the DSM, these symptoms may be diagnosed as somatization disorder even though they are frequently caused by trauma (Herman, 1997). The DSM-5 recognizes some of these physical symptoms such as memory and concentration loss and sleep problems ("DSM-5 Criteria for PTSD: National Center for PTSD," 2014). There are other symptoms not listed that people with PTSD often struggle with. The relationship between pain and PTSD exists with depression, too (Rosenbaum, 2004). Other physical symptoms include headaches, fatigue, joint or muscle pain, chronic pain – which may include heart pain, pelvic pain, joint pain, back pain, and pain relating to the trauma itself – hypertension, allergies, skin problems, gastrointestinal problems, cardiovascular disease, cancer, and diabetes (Herman, 1997; Rosenbaum, 2004; Sareen et al., 2007; Schiraldi, 2009).

Other serious symptoms exist for people with PTSD, such as dissociative disorder. Dissociation is the phenomenon of mentally leaving a situation due to the overwhelming nature of the situation. When individuals dissociate, they may feel outside of their body, the event may completely leave conscious memory, time may become distorted, and the individual may not experience of emotion or pain (Schiraldi, 2009). Dissociation during an event is highly associated with the development of PTSD (Flouri, 2005). After the trauma, dissociation makes the material impossible to integrate and the intrusive symptoms are thus caused. Dissociation is

also present in the aforementioned flashbacks. Dissociation is also linked with childhood abuse (Herman, 1997).

In addition to dissociation, an individual's identity can completely change after trauma. This situation is particularly true in cases of long-term abuse or captivity. The kaleidoscope of symptoms experienced by trauma survivors is often mistaken for personality disorders (Herman, 1997). One common disorder that is diagnosed is dissociative identity personality (DID), or previously known as multiple personality disorder. Dissociative identity disorder is highly associated with childhood abuse (Herman, 1997; Tartakovsky, 2014). In fact, the creation of multiple personalities may be a coping method for the abuse itself (Herman, 1997). Interestingly, the suggested treatment is the same therapy that would be used to treat PTSD (Tartakovsky, 2014). Another common diagnosis is borderline personality disorder (BPD). BPD is also highly associated with abuse and trauma (Herman, 1997). Both of these personality disorders have the same or similar comorbidities as PTSD, including depression, anxiety, suicide, impulsivity in the case of BPD, dissociation in the case of DID, and substance abuse (National Institute of Health, 2014; Tartakovsky, 2014).

Another common effect of surviving trauma is substance abuse. Abusing drugs and alcohol is one of the most reported comorbid disorders (Herman, 1997; Rosenbaum, 2004; Sareen et al., 2007; Schiraldi, 2009). It is a form of avoidance. The individual may use drugs or alcohol to numb the emotions and thoughts. However, substance abuse creates more problems and treatment for PTSD can be hindered by substance abuse (Schiraldi, 2009).

With all of these symptoms, it is clear to see why many people with PTSD show some element of suicidality. The disconnection from others and the feelings of a foreshortened future can exacerbate suicidality (Schiraldi, 2009). Self-harm is also a common behavior for those

suffering from PTSD (Herman, 1997; Schiraldi, 2009). Self-harm may be a way to express internal pain (Herman, 1997).

There are also more implicit problems with PTSD. One is a higher use of the healthcare system because of the physical and psychological symptoms associated with PTSD (Rosenbaum, 2004; Sareen et al., 2007). People with PTSD also tend to have high rates of pharmaceutical drug use. As Herman (1997) writes, sufferers "collect a virtual pharmacopeia of remedies: one for headaches, another for insomnia, another for anxiety, another for depression" (p. 119). The root of all of these problems is the original trauma, but often the trauma is not addressed. The patient then continues to suffer (Herman, 1997). Effective treatments are needed to address the multitude of symptoms that survivors of trauma endure.

Current Treatments for PTSD

Herman (1997) writes that no single treatment will consistently work for individuals suffering from PTSD. Different people at different stages of recovery require different treatment. Those stages, according to Herman (1997), include establishing safety, discussing and integrating the trauma, and reconnecting with others and with one's life. In addition, recovery, according to Schiraldi (2009), includes specific factors. One factor is the ability to recall and dismiss the memories of the trauma at will. This ability means that both avoidance and intrusion are no longer problems. Another factor is the ability to remember the event with an appropriate emotional response: neither detached nor distressed. Finally, recovery is present when the individual's symptoms are absent or at a livable level (Schiraldi, 2009).

While these concepts explain what recovery looks like, there may be many ways of working towards recovery. There are quite a few treatment methods available for people with

PTSD. The following sections will discuss the most established treatments available. The nature of the treatments as well as the limitations will be addressed.

Eye-movement desensitization and reprocessing (EMDR).

One treatment available for PTSD is (EMDR). Individuals undertaking this therapy hold an aspect of the trauma in their mind while completing rhythmic eye movements. Afterwards, they take a breath to calm their system and the process is repeated as new elements of trauma come up. If the patient struggles to process part of the trauma, this aspect is continually processed until recovery is complete. A body scan is also completed in EMDR (Schiraldi, 2009). However, EMDR has limitations. This treatment's effectiveness is not superior to prolonged exposure. In addition, there is no evidence that the eye movements themselves are what make the treatment effective. Therefore, the theoretical framework is often criticized (Batten, Orsillo, & Walser, 2005). In addition, the dropout rate is about 19%, which is close to the dropout rate for prolonged exposure (Hembree et al., 2003). A percentage of PTSD sufferers need a new treatment method.

Prolonged exposure.

One of the most common treatments for PTSD is prolonged exposure. The individual recounts the trauma in stages to the therapist. Breathing techniques are used before and after recounting the trauma. The patient also listens to a recording of the recounted trauma daily. As prolonged exposure progresses, the patient may begin visiting previously avoided areas, especially the area in which the trauma happened. If visiting that place is not possible, then imagined or virtual exposure is used (Schiraldi, 2009). Exposure therapy has the most empirical support when compared to other forms of treatment because of the amount of studies investigating it (Hembree et al., 2003). However, this treatment also has limitations. The first is

that clinicians do not always offer prolonged exposure, despite the empirical support (Schottenbauer et al., 2008). Another shortcoming is high dropout rates, though these rates are similar to those of other treatments (Hembree et al., 2003). Some patients simply do not respond to prolonged exposure; the rates of non-response range from 20% to 67% (Schottenbauer et al., 2008).

Cognitive behavioral therapy.

Forms of cognitive-behavioral therapy are also used to treat PTSD. Cognitive restructuring, often used with prolonged exposure, involves going through various thought patterns and questioning their accuracy. The next step is to replace unhealthy thoughts with more healthy thoughts (Schiraldi, 2009). Cognitive processing therapy analyzes maladaptive thinking patterns that may exacerbate PTSD symptoms. There is also the option to write out the trauma, which is a type of exposure (Steenkamp & Litz, 2013). Finally, stress inoculation training is another form of cognitive-behavioral therapy that is used. Therapists teach patients healthy ways to manage stress, including breathing techniques, muscle relaxation, and positive self-talk (DeAngelis, 2008). Forms of cognitive-behavioral therapy have been found to be effective for PTSD as well but these therapies also suffer from dropout rates similar to those of prolonged exposure (Hembree et al., 2003).

Limitations to current treatments.

While these treatments have been shown to be effective, there is room for mindfulness as well. First, the dropout rate for prolonged exposure is quite high at 12% - 20% (Bryant et al., 2007; Hembree et al., 2003; Steenkamp & Litz, 2013). For other therapies, the dropout rate may be as high as 27% (Hembree et al., 2003). The recovery rate for the most common therapies, including prolonged exposure is 67%. Some of these therapies do not address the common

comorbid symptoms and diagnoses common in people who have survived trauma. Another weakness is that the symptoms may be reduced, but quality of life may still suffer (Batten et al., 2005). A decreased quality of life is more severe in individuals with PTSD as compared to people with depression or obsessive-compulsive disorder. Unfortunately, health-related quality of life is a measure that receives very little attention in studies for treating PTSD (Kearney, McDermott, Malte, Martinez, & Simpson, 2013). For these reasons, mindfulness-based treatments should be analyzed more for individuals with PTSD.

Mindfulness Treatments for PTSD

The following sections will outline the justification for using mindfulness-based treatments for individuals with PTSD. Current research on the efficacy of mindfulness-based treatments and current mindfulness programs for individuals with PTSD will be also discussed.

Reasons for Using Mindfulness-based Treatments

There are several reasons for using mindfulness-based treatments for people with PTSD. Mindfulness can target specific symptoms. For example, flashbacks and dissociation are both common symptoms of PTSD (Schiraldi, 2009). Flashbacks and dissociation involve leaving the present moment. While dissociation can be a healthy response to horrific circumstances, it can be a problem if the memory of the trauma is not reintegrated into the memory (Herman, 1997; Schiraldi, 2009). Mindfulness would be an excellent tool for flashbacks because it is inherently present-based (Baer, 2003; Germer, 2005; Kabat-Zinn, 2003; Kornfield, 2008).

Another common symptom of PTSD, avoidance, could be addressed through mindfulness Studies have shown that suppression of thoughts – in other words, avoiding internal experiences – can actually cause the thoughts to increase in frequency. Therefore, the more an individual avoids an experience, the more it intrudes (Follette et al., 2006). This theory aligns with the

symptomology of PTSD. The only way to stop the cycle of avoidance and intrusion is to turn towards the experience (Schiraldi, 2009). The idea of gently turning towards negative experiences and accepting one's experience – no matter how uncomfortable – is a part of mindfulness (Baer, 2003; Germer, 2005; Kabat-Zinn, 2003; Vujanovic et al., 2013). In addition, mindfulness can teach trauma survivors to be mindful of the triggers that prompt panic as well as their minds' reactions to those triggers (Batten et al., 2005).

Mindfulness can also teach psychological flexibility. Mindfulness can be a way to ground into the present moment or to explore internal experiences. Therefore, patients with PTSD will learn the flexibility to either disengage or investigate internal experiences, depending on the needs of the situation (Vujanovic et al., 2013). Trauma survivors may be able to learn to allow the negative memories, thoughts, and emotions without either pushing them away or ruminating upon them. Mindfulness also reduces reactivity, which may help the survivor sleep better (Vujanovic et al., 2013).

Another justification for using mindfulness-based treatments for PTSD is their effectiveness with disorders that are associated with PTSD. MBSR has been shown to help individuals with anxiety disorders and panic disorder, which is especially notable because individuals with panic disorder often cannot sit for long periods, but, through MBSR, are able to sit for 45 minutes (Kabat-Zinn et al., 1992). Mindfulness is also used for treating substance abuse and depression, both of which are common in PTSD (Baer, 2003; Schiraldi, 2009; Vujanovic et al., 2013). MBCT, while treating depression, also treats rumination. Rumination has been shown to increase PTSD symptoms (Kearney, McDermott, et al., 2013). Finally, self-compassion is an element of mindfulness (Kornfield, 2008). Self-compassion is associated with reduced levels of self, rumination, thought suppression, anxiety, and depression (Kearney, Malte, et al., 2013).

In addition, mindfulness indirectly exists in current therapies for PTSD. Cognitive therapy encourages patients to turn towards painful memories and stay with current material (Boden et al., 2012; Follette et al., 2006; Vujanovic et al., 2013). Mindfulness also asks patients to turn towards negative material instead of avoiding it (Kabat-Zinn, 2003; Schiraldi, 2009). Cognitive therapy also teaches patients to notice their distorted thinking and find replacements (Schiraldi, 2009). This element of cognitive therapy is advocated in Buddhism as well; individuals are encouraged to change their thoughts when these thoughts do not come and go naturally through mindfulness (Kornfield, 2008). Aspects of mindfulness can also be found within prolonged exposure. Prolonged exposure asks individuals to sit with their memories until they are tolerated (Schiraldi, 2009). This practice aligns with the awareness and acceptance tenets of mindfulness (Kornfield, 2008). MBSR may also be a form of exposure. Individuals with chronic pain are asked to sit still for 45-minutes and just notice their experience. This practice does not decrease the pain, but it decreases the reactivity to the pain (Baer, 2003). For trauma patients, the traumatic event will never go away, but through mindfulness, the traumatic event may lose some of the reactivity (Follette et al., 2006).

Finally, DBT is a form of mindfulness practice that treats individuals with borderline personality disorder (Baer, 2003). Borderline personality disorder is associated with PTSD and childhood trauma (Herman, 1997). DBT has also been used with suicidal individuals and those with substance abuse (Vujanovic et al., 2013). These disorders are often experienced by people with PTSD (Herman, 1997; Schiraldi, 2009).

Evidence for Mindfulness-Based Treatments for PTSD

While the justification and interest exists for using mindfulness-based treatments for PTSD, effectiveness research is still in its infancy (Boden et al., 2012). Currently, ten studies

investigate mindfulness-based treatments and posttraumatic stress disorder (PTSD). This number illustrates how recently the field of psychology began moving in this direction. Four of these studies are correlational and the other six are outcome-based studies. Because these studies were completed before the recent fifth edition of the Diagnostic and Statistical Manual was published, all of the researchers use the diagnostic criteria of the DSM-4. The criteria are very similar to the criteria discussed early for the DSM-5, with a few changes. First, the individual has to be exposed to some traumatic event. In addition, the individual reaction included fear, helplessness, or horror. This last criterion was removed in the recent DSM. The three clusters in the former diagnosis were re-experiencing, avoidance and numbing, and increased arousal (Center for Substance Abuse Treatment, 2009). As discussed earlier, the new DSM includes intrusion symptoms, which includes re-experiencing; avoidance symptoms; negative affect and mood, which is a new category and includes numbing; and arousal changes ("DSM-5 Criteria for PTSD: National Center for PTSD," 2014). The symptoms have not changed drastically, however.

Correlational research.

The first correlational study was published by in 2009. The participants included 239 adults who had experienced some form of trauma in their life, but did not fit the criteria for a psychological disorder. The most common form of trauma was serious accident, fire, explosion (50%). The researchers measured the participants psychopathology, affect (the tendency to have negative emotions), the existence of any symptoms of PTSD, and mindfulness skills. The measure for mindfulness skills was the Kentucky Inventory of Mindfulness Skills (KIMS). This 39-item self-report assessment measures the individual's tendency to be mindful in everyday life (Vujanovic, Youngwirth, Johnson, & Zvolensky, 2009). There are four factors in the KIMS: observing both external and internal experiences, describing one's own emotions, awareness of

the given moment with undivided attention, and acceptance of the present moment (Boden et al., 2012). These assessments revealed that accepting without judgment was negatively associated with the existence of PTSD symptoms, specifically re-experiencing (Vujanovic et al., 2009). This study was completed with individuals that did not have a mental health diagnosis, which could be interpreted to mean that mindfulness skills can offset PTSD symptoms in a subclinical population.

Two years later, B.W. Smith et al. (2011) published correlational research with 124 professional firefighters. The participants completed self-report questionnaires that measured alcohol problems, depressive symptoms, firefighting stress, mindfulness, feelings of optimism, feelings of personal mastery, existing physical complaints, existing PTSD symptoms, and social support. The researchers used the Mindfulness Awareness Attention Scale (MAAS). This 15-item questionnaire measures only awareness to the present moment and is not intended to measure outcomes of mindfulness treatments (B. W. Smith et al., 2011). In this study, mindfulness was negatively associated with symptoms of PTSD, depressive symptoms, physical pain, and alcohol problems. Social support and feelings of mastery were also associated with few depressive symptoms (B. W. Smith et al., 2011).

Boden et al. (2012) conducted a correlational study on 48 military veterans enrolled in a residential VA program for PTSD. The veterans had been referred to the program for more intensive treatment. The treatment provided was group cognitive therapy. The researchers measured mindfulness with the KIMS, as well as PTSD and depression severity before and after the treatment. The researchers found that some individuals saw improvement in mindfulness skills, but that effect was variable (Boden et al., 2012). This provided evidence for idea that mindfulness is indirectly related to current therapies. In addition, the researchers were able to use

mindfulness factors to predict depression and PTSD symptom severity (Boden et al., 2012). This provides still more evidence that mindfulness skills are associated with lesser PTSD symptoms. However, because the study is simply correlational, conclusions must be drawn cautiously.

Finally, Owens, Walter, Chard, & Davis (2012) studied 149 veterans who were also enrolled in a residential treatment for PTSD. Of the 149 veterans, 98% had been diagnosed with PTSD and the other 2% were diagnosed with sub-threshold PTSD. Sub-threshold PTSD is defined as fulfilling all of the criteria for PTSD in the DSM-IV, but having two avoidance symptoms instead of the mandatory three (Owens et al, 2012; Center for Substance Abuse Treatment, 2009). Self-report and clinical interviews were used to measure PTSD, depression, and mindfulness. Of these clinical interviews, the Clinical Administered PTSD Scale (CAPS) was used, which is considered the best measurement for PTSD (Kearney, McDermott, Malte, Martinez, & Simpson, 2012; Niles et al., 2012; Owens et al., 2012). In addition, KIMS was used to measure mindfulness. The participants received 12 individual and 13 group sessions of cognitive therapy. They also had the option to attend 15 additional group sessions that covered a wide range of psychological suffering and coping skills. Seven of these classes were devoted to mindfulness-based cognitive therapy (MBCT). Interesting, Owens et al., (2012) did not find a significant increase in mindfulness skills. However, they did find that acting with awareness – a factor in KIMS – was significantly associated with lower PTSD and depression symptoms (Owens et al., 2012). While the veterans were given some MBCT training, the study did not compare the two treatments.

Outcome research.

The first outcome study analyzing mindfulness-based treatments and PTSD was conducted with adult survivors of child abuse in 2010. The researchers used mindfulness-based

stress reduction (MBSR). The program and subsequent homework were the same, except the researchers also asked participants to read Kabat-Zinn's (1990) book *Full Catastrophe Living*, which is a companion guide to MBSR. The study invited participants over age 21, with a history of child abuse, and a baseline score on General Severity Index of Brief Symptoms Inventory to participate. Participants also had to enroll or already be enrolled in psychotherapy to ensure their safety. Once the therapy began, the participant's therapist had to clear them to participate in the study. Exclusion criteria included a major psychiatric diagnosis such as borderline personality disorder, as well as individuals diagnosed with dissociative identity disorder with clear multiple personalities and individuals with substance dependency (Kimbrough, Magyari, Langenberg, Chesney, & Berman, 2010). It is important to remember that childhood sexual abuse is closely linked with both borderline personality disorder and dissociative identity disorder so that could exclude a significant portion of childhood sexual abuse survivors (Herman, 1997). Substance abuse is also associated with PTSD, but often needs to be addressed and under control before treatment for the trauma begins (Herman, 1997; Schiraldi, 2009). Four rounds of assessments were taken: the first at baseline before the eight-week MBSR course started, the second four weeks into the course, the third after the course, and the final assessments six months after the baseline. During the four months after the MBSR course, participants were invited to three refresher courses. The assessments were self-reports measuring PTSD symptoms, depressive symptoms, anxiety symptoms, and mindfulness. In addition, participants kept logs of their adherence to homework by reporting on the amount of time spent doing the exercises at home. The retention rate was 85% – out of a total of 27 participants, one participant left before the course began, one was asked to leave because the participant was found to be ineligible, one left because of scheduling and a fear of returning distress, one left because of a new job, and two

declined to do the final assessment. Depression, anxiety, and mindfulness were insignificantly improved after four weeks, and significantly better after the program. Of the 27 participants, 15 were diagnosed with PTSD. This was reduced to seven individuals by the end of the program, a drop of 53%. After the final assessment, nine were diagnosed with PTSD. This could mean that mindfulness needs to be practiced consistently after the intensive MBSR course. In fact, average attendance for the refresher courses was one out of three. Attendance for the MBSR course was high: an average of eight meetings out of nine. The homework logs also showed adherence to the given homework as the average was 44 minutes a day. Surveys also indicated that the participants enjoyed the course (Kimbrough et al., 2010). Overall, this study was successful. However, some weaknesses could be addressed by future research. First, the study was an open design instead of a randomized control study. In addition, the participants all enrolled in psychotherapy before the study, which may have confounded the results. However, Kimbrough et al. (2010) justify this decision because the treatment had not been studied with child abuse survivors before. The psychotherapy served as a safe place for participants. Finally, the sample size is quite small. The participants that dropped out all left for reasons other than the treatment being too difficult so a larger sample size may have a higher retention rate. Despite these limitations, the study was important because it was the first to analyze mindfulness-based treatments – MBSR in particular – in conjunction with PTSD.

The next study was a dissertation analyzing MBSR with women who had suffered from intimate partner abuse. There were 29 participants, though only 15 completed the intervention. The women could not be in a current abusive relationship or report substance abuse. The women all admitted to multiple traumatic events with the average being close to seven events. Of the 29 participants, 86% experienced physical and sexual assault and 76% had been sexually abused

before age 16. Self-report measures were also used before and after the treatment. In addition, the researcher interviewed the women extensively to understand the participants' reactions and feelings of MBSR. Assessments measured the existence of PTSD, mindfulness, self-compassion, orientation to life (or a sense of coherence), and physiological markers such as heart rate and blood pressure. The MBSR course was slightly modified as well. The body scan, which is generally taught in the first week, was moved to the second week. The researcher also taught a three-minute breathing space, an exercise that is found in MBCT. Finally, PTSD was specifically addressed in weeks four and five. Attendance for completers were high – an average of almost seven classes. PTSD symptoms were significantly reduced, even for individuals who still were diagnosable for PTSD after the course. Those individuals were diagnosed with severe PTSD and had significant symptom reduction. The interviews found that the participants advocated other individuals to use the program (J. D. Smith, 2010). There were several weaknesses in the study, however. First, the researcher used self-report measures instead of CAPS for diagnosing PTSD. In addition, the number of dropouts was particularly high. That should be analyzed further. Overall, however, the study provided further evidence for the efficacy of using MBSR for PTSD.

Kearney et al. (2012) conducted a study with 92 veterans, 75% of whom were diagnosed with PTSD at baseline. Exclusion criteria included psychotic disorders, mania or bipolar disorder, borderline disorder, antisocial disorder, suicide or homicide risk, and substance abuse. The participants underwent an MBSR course along with their treatment as usual. Assessments were taken at baseline, after the MBSR course, and six months after baseline. Measurements included the existence of PTSD symptoms, depression, behavior activation, which is the ability to do a behavior despite its unpleasantness, mental and physical health related quality of life, avoidance, and mindfulness. The MBSR course was slightly modified. Specifically, the yoga

postures that are taught were even gentler than what is taught in MBSR and *Full Catastrophe Living* because of the physical symptoms veterans often report. Attendance was an average of 5.7 classes and only four classes were needed to be compliant. No one dropped out because negative effects of the treatment. There was a significant change in mental health related quality of life. The effect size for mental health related quality of life was .65. After the treatment, 40% of the participants had significantly reduced PTSD symptoms and after the follow-up, that number climbed to 48%. Mindfulness skills were also significantly improved by the end of the study (Kearney et al., 2012). The limitations of this study included using self-report instead of clinical interviews, the lack of a control group, and the absence of a homework log to track compliance. This study shows further promise for using MBSR for people with PTSD.

The next study combined telehealth with mindfulness for individuals with PTSD. Telehealth offers psychological services over the phone or through video. Telehealth shows promise because the dropout rates are the same or lower when compared to traditional treatment types and the outcome measures indicate that it is effective. Niles et al. (2012) compared a telehealth mindfulness treatment and telehealth psychoeducation. Both treatments included two face-to-face meetings and six phone sessions. The two in-person meetings were used to develop rapport. The following sessions were used to discuss readings that were given to participants. The mindfulness group received a handbook on developing mindfulness and CDs to do at-home practices. The psychoeducation group received a handbook on PTSD, including symptoms, experiences, and common troubles experienced by those with PTSD. They were asked to reflect on their own symptoms and given various modes of coping to practice at home. The participants included 33 male veterans that had a diagnosis of PTSD from a clinical interview. Substance abuse was not an exclusion criterion, but substance dependence was. Each participant was

assessed for PTSD using CAPS and a self-report measure and randomized to one of the two groups. CAPS and self-report assessments for PTSD were completed after the course and only self-report PTSD assessments were completed after a six-week follow-up. Of the 33 participants, 82% completed treatment. The dropouts were not related to the actual treatment. Compliance was quite high: 89% of the participants read at least 75% of the readings and an average of two hours a week was spent on mindfulness practice, when only 15-20 minutes was requested. In addition, 69% reported doing the mindfulness practice both with the CD and without it. There was a significant change for the mindfulness group compared to no change for the other group. This was a large effect size. Over 50% saw significant change in PTSD symptoms, but even with this significant improvement, considerable PTSD symptoms continued. Scores for PTSD at the six-week follow-up returned to baseline. The researchers hypothesized that the treatment was too brief and that individuals reduced mindfulness practice (Niles et al., 2012). This study is influential because it uses a randomized control group. However, the treatment is brief and does not follow traditional mindfulness-based treatment protocols. Deviating from traditional protocols could have influenced the change in scores at the follow-up.

King et al. (2013) published a recent study on mindfulness and PTSD. These researchers used MBCT and compared it to group therapies that were designed to be a treatment as usual control group. The participants were veterans with a long history – at least 10 years – of PTSD. The MBCT course was modified slightly as well. Instead of using psychoeducation for depression, the researchers did psychoeducation on PTSD during the sessions. In addition, they reduced the at-home practice time from 45 minutes to 15-20 minutes five times a week. During the weekly meetings, the therapists focused on trauma-related material that came up. During these times, the three-minute breathing space exercise was used, in addition to the times it was

scheduled to be used. The researchers also asked participants to complete homework logs to measure compliance. Participants were not randomized to each group; instead, each group was recruited separately one at a time. A total of 37 participants were included in the study; 20 of which participated in the MBCT group. Using self-report and CAPS, the researchers measured PTSD in the participants before and after the treatments. Compliance was defined as five meetings. For the MBCT group, 25% dropped out, compared to 29% in the treatment as usual groups. Most of the dropouts left because of issues unrelated to treatment, but two individuals reported increased anxiety. One individual experienced flashbacks to a previous sexual assault during the body scan. Participants in the MBCT group saw significantly reduced PTSD symptoms. The effect size was moderate, but was a meaningful clinical improvement of CAPS scores. In addition, 73% of the participants in the MBCT group showed clinically meaningful improvement. The researchers also reported that this pilot study is currently being replicated in a randomized control design (King et al., 2013).

Finally, a recent study was published that is a randomized controlled pilot study. This study compared MBSR in junction with treatment as usual to just treatment as usual. Forty-seven participants were included, with 25 in the intervention. Assessments were given at baseline, post treatment, and at a four-month follow-up. These assessments measured PTSD symptoms, traumatic events, depression, health related quality of life, mindfulness, and behavior activation. The assessment for mindfulness was the Five Facet Mindfulness Questionnaire (FFMQ). In addition to measuring observing, awareness, describing, and non-judgment, this questionnaire also measures non-reactivity. There was an 84% retention rate: two dropped out, but not because of worsening symptoms. The MBSR group saw significantly improved quality of life. There were clinically meaningful improvements for PTSD symptoms for the MBSR group. Individuals

completing four or more classes reported changes in depression, behavioral activation, and health related quality of life. The significance of quality of life is often underrated. When quality of life has been analyzed, 59% of people with PTSD had severe quality of life. Quality of life is most associated with the avoidance/numbing symptoms in the DSM-IV (Kearney, McDermott et al., 2013). This study has some limitations because it uses self-report instead of CAPS to assess PTSD symptoms. It also has a small sample size.

Discussion of research on mindfulness-based treatments for PTSD.

All of the studies discussed show promise for using mindfulness-based treatments for PTSD. These studies are diverse enough to show the effectiveness for using mindfulness-based treatments for PTSD. First, the studies have involved non-clinical, trauma-exposed adults, firefighters with or without a clinical diagnosis, with veterans seeking treatment, childhood sexual abuse survivors, and domestic violence survivors with success (Boden et al., 2012; B.W. Smith et al., 2011; J.D. Smith, 2010; Kearney et al., 2012; Kearney, McDermott et al., 2013; King et al., 2013; Kimbrough et al., 2010; Niles et al., 2012; Owens et al., 2012; Vujanovic et al., 2009). These studies illustrate that mindfulness-based treatments may be effective across populations and trauma severities. The correlational studies also illustrate that mindfulness skills are associated with fewer symptoms. This relationship could mean the effectiveness in outcome trials is at least partially related to the actual mindfulness skills being taught (Boden et al., 2012; B. W. Smith et al., 2011; Owens et al., 2012; Vujanovic et al., 2009). These studies are an excellent start to the research in this matter. Future studies should use more rigorous research methods and larger sample sizes. However, the research that exists now is quite promising.

Case Studies

While research is new on the efficacy of mindfulness-based treatments for PTSD, these treatments are already being used for people with PTSD. For instance, DBT, a mindfulness-based therapy originally designed for individuals with borderline personality disorder, is sometimes used as a precursor for prolonged exposure (Baer, 2003; Vujanovic et al., 2013). A case study was published in which a researcher treated an 18-year old child abuse victim with ACT successfully (Burrows, 2013). In another case study, researchers taught a 19-year old adult survivor of child abuse was taught mindfulness skills before prolonged exposure with success (Frye & Spates, 2012). Yet another case study detailed the use of mindfulness-based therapy for patients in Palestinian territories. The researcher focused on two women in particular. One woman suffered from PTSD after losing her baby at a military checkpoint. The other woman suffered from depression after her son was killed in conflict. While the researcher had yet to follow-up with her patients, she noticed changes in their behavior as well as her own during the sessions (Pigni, 2010). Further, Libby, Reddy, Pilver, & Desai (2012) found that yoga is offered at various VA centers across the country for veterans with PTSD. In addition, mindfulness practices were taught at many programs. The majority of the VA centers in the study advocated using mindfulness, either as a standalone practice or in DBT, ACT, MBSR, or MBCT (Libby et al., 2012).

Conclusion

Summary of Mindfulness

While mindfulness has been difficult for Western scholars to conceptualize, it has been an effective treatment for a multitude of disorders. Mindfulness is rooted in the Buddhist tradition and Kabat-Zinn is responsible for first incorporating it in a treatment setting. Since his

program, MBSR, was created, other therapies have incorporated or are based in mindfulness. MBCT is another mindfulness-based treatment, while DBT and ACT both incorporate mindfulness skills (Baer, 2003). MBSR has been found to be effective in helping individuals suffering from chronic pain, anxiety disorders, and mood disorders, (Davis & Hayes, 2011; Kabat-Zinn, 1982; Kabat-Zinn et al., 1992). Meta-analyses have also been conducted using the hundreds of available studies on MBSR and MBCT and have found the treatments to be effective and have moderate to large effect sizes (Hofman et al., 2010; Fjorback et al., 2011; Khoury et al., 2013).

Summary of PTSD

Posttraumatic stress disorder is a pervasive mental health diagnosis that affects people after they witness, experience, or are informed of horror. The DSM-5 classifies the common symptoms into four cluster: intrusion, avoidance, negative alterations in mood, and changes in arousal and reactivity ("DSM-5 Criteria for PTSD: National Center for PTSD", 2014). In addition, survivors of trauma may also experience depression, physical pain, dissociation, personality disorders, substance abuse, self-harm, and even suicide (Herman, 1997; Schiraldi, 2009). The chances of someone diagnosed with PTSD will be diagnosed with another disorder are 62-92% (Jakovljević et al., 2012; Rosenbaum, 2004). While there are therapies available, they suffer from high dropout rates and the treatments do not address quality of life (Batten et al., 2005; Hembree et al., 2003). Therefore, there is a place for mindfulness-based treatments for people with PTSD. For example, mindfulness directly targets avoidance, a core symptom of PTSD by teaching patients to gently turn towards experience (Germer, 2005; Schiraldi, 2009). Mindfulness-based treatments have also been effective at treating disorders that co-occur with

PTSD, such as substance abuse, depression, and physical pain (Baer, 2003; Kabat-Zinn, 1982; Kabat-Zinn et al., 1992; Schiraldi, 2009).

Summary of Research for the Use of Mindfulness-based Treatments for PTSD

Research, while still in its infancy, has supported the use of mindfulness for people with PTSD. Correlational studies have found that the tendency to be mindful is negatively associated with PTSD and depression symptoms (Boden et al., 2012; Owens et al., 2012; B. W. Smith et al., 2011; Vujanovic et al., 2009). The available outcome studies that have analyzed the effects of mindfulness on people with PTSD have also been hopeful. Four studies have used mindfulness-based stress reduction (MBSR) to treat people with PTSD (Kearney et al., 2012; Kearney, McDermott et al., 2013; Kimbrough et al., 2010; J. D. Smith, 2010). All but one of these studies had high compliance rates and, in three of the studies, patients saw reductions in PTSD symptoms (Kearney et al., 2012; Kimbrough et al., 2010; J. D. Smith, 2010). In the other study, patients had significantly higher scores on a self-report for health-related quality of life (Kearney, McDermott et al., 2013). Another study incorporated mindfulness into telehealth therapy with promising results (Niles et al., 2012). Finally, a study used MBCT and compared it to group therapy. Again, PTSD symptoms were reduced and 73% saw clinically meaningful improvement in PTSD symptoms (King et al., 2013). This research shows promise for the use of mindfulness-based treatments for individuals suffering from PTSD.

Future Research Directions

Because the research is so new on this subject, there is fortunately much more research to be done. The first step is to increase the amount of participants for a more accurate result. In addition, randomized control studies should be utilized. Kearney, McDermott et al. (2013) have conducted the first randomized control study and King et al (2013) reported that their study is

being replicated using a randomized control study. CAPS, the Clinical Administered PTSD Scale, should also be used instead of self-report, as this is the best measurement for PTSD (Kearney, McDermott, et al., 2013). Next, research should analyze if mindfulness-based treatments are more effective as stand-alone programs or if patients are better served receiving mindfulness-based treatments in addition to traditional psychotherapy. If research finds that using both approaches is most effective, than researchers and clinicians should develop models for using those treatments. Finally, research should analyze the relationship between the effectiveness of mindfulness-based treatments for PTSD and the length and severity of the trauma. Often people who have been held in captivity or experienced prolonged abuse have more severe symptomology that is harder to treat (Herman, 1997). Future research should investigate whether more severe cases of trauma are still treated effectively with mindfulness-based treatments. While there is more research to be done, individuals with PTSD may have another option to help ease their symptoms.

References

Arch, J. J., & Craske, M. G. (2006). Mechanisms of mindfulness: Emotion regulation following a focused breathing induction. *Behaviour Research and Therapy, 44*(12), 1849-1858. doi: 10.1016/j.brat.2005.12.007

Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology-Science and Practice, 10*(2), 125-143. doi: 10.1093/clipsy/bpg015

Batten, S. V., Orsillo, S. M., & Walser, R. D. (2005). Acceptance and mindfulness-based approaches to the treatment of posttraumatic stress disorder. In S. M. Orsillo & L. Roemer (Eds.), *Acceptance and Mindfulness-Based Approaches to Anxiety: Conceptualization and Treatment* (Vol. 2, pp. 241-269). New York, NY: Springer Science + Business Media, LLC.

Boden, M. T., Bernstein, A., Walser, R. D., Bui, L., Alvarez, J., & Bonn-Miller, M. O. (2012). Changes in facets of mindfulness and posttraumatic stress disorder treatment outcome. *Psychiatry Research, 200*(2-3), 609-613. doi: 10.1016/j.psychres.2012.07.011

Bryant, R. A., Moulds, M. L., Mastrodomenico, J., Hopwood, S., Felmingham, K., & Nixon, R. D. V. (2007). Who drops out of treatment for post-traumatic stress disorder? *Clinical Psychologist, 11*(1), 13-15. doi: 10.1080/13284200601178128

Burrows, C. J. (2013). Acceptance and commitment therapy with survivors of adult sexual assault: A case study. *Clinical Case Studies, 12*(3), 246-259.

Center for Substance Abuse Treatment. (2009). *Appendix E: DSM-IV-TR criteria for posttraumatic stress disorder*. Retrieved from http://www.ncbi.nlm.nih.gov/books/NBK83241/

Davis, D. M., & Hayes, J. A. (2011). What are the benefits of mindfulness? A practice review of psychotherapy-related research. *Psychotherapy, 48*(2), 198-208. doi: 10.1037/a0022062

DeAngelis, T. (2008). PTSD treatments grow in evidence, effectiveness. *American Psychological Association, 39*(1), 40. Retrieved from http://www.apa.org/monitor/jan08/ptsd.aspx

DSM-5 Criteria for PTSD: National Center for PTSD. (2014). Retrieved from http://www.ptsd.va.gov/professional/PTSD-overview/dsm5_criteria_ptsd.asp

Fjorback, L. O., Arendt, M., Ørnbøl, E., Fink, P., & Walach, H. (2011). Mindfulness-Based Stress Reduction and Mindfulness-Based Cognitive Therapy - a systematic review of randomized controlled trials. *Acta Psychiatrica Scandinavica, 124*(2), 102-119. doi: 10.1111/j.1600-0447.2011.01704.x

Flouri, E. (2005). Post-traumatic stress disorder (PTSD): What we have learned and what we still have not found out. *Journal of Interpersonal Violence, 20*(4), 373-379. doi: 10.1177/0886260504267549

Follette, V., Palm, K. M., & Pearson, A. N. (2006). Mindfulness and trauma: Implications for treatment. *Journal of Rational-Emotive & Cognitive-Behavior Therapy, 24*(1), 45-61. doi: 10.1007/s10942-006-0025-2

Frances, A., J. (2012). *DSM 5 is guide not bible—Ignore its ten worst changes*. Retrieved from http://www.psychologytoday.com/blog/dsm5-in-distress/201212/dsm-5-is-guide-not-bible-ignore-its-ten-worst-changes

Frye, L. A., & Spates, C. R. (2012). Prolonged Exposure, Mindfulness, and Emotion Regulation for the Treatment of PTSD. *Clinical Case Studies, 11*(3), 184-200. doi: 10.1177/1534650112446850

Germer, C. (2005). What is mindfulness? In C. Germer, R. Siegel & P. Fulton (Eds.), *Mindfulness and psychotherapy* (pp. 3-27). New York: Guilford Press.

Green, S. M., & Bieling, P. J. (2012). Expanding the scope of mindfulness-based cognitive therapy: Evidence for effectiveness in a heterogeneous psychiatric sample. *Cognitive and Behavioral Practice, 19*(1), 174-180. doi: 10.1016/j.cbpra.2011.02.006

Grossman, P., & Van Dam, N. T. (2011). Mindfulness, by any other name...: trials and tribulations of sati in western psychology and science. *Contemporary Buddhism, 12*(1), 219-239. doi: 10.1080/14639947.2011.564841

Hagen, S. (1998). *Buddhism plain and simple*. Broadway Books.

Hayes, S. C., Pistorello, J., & Levin, M. E. (2012). Acceptance and commitment therapy as a unified model of behavior change. *Counseling Psychologist, 40*(7), 976-1002. doi: 10.1177/0011000012460836

Hembree, E. A., Foa, E. B., Dorfan, N. M., Street, G. P., Kowalski, J., & Xin, T. (2003). Do Patients Drop Out Prematurely from Exposure Therapy for PTSD? *Journal of Traumatic Stress, 16*(6), 555-562.

Herman, J. (1997). *Trauma and recovery: The aftermath of violence – from domestic abuse to political terror.* Basic Books.

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. doi: 10.1037/a0018555

Jakovljević, M., Brajković, L., Lončar, M., & Čima, A. (2012). Postraumatic stress disorders (PTSD) between fallacy and facts: What we know and what we don't know? *Psychiatria Danubina, 24*(3), 241-245.

Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: theoretical considerations and preliminary results. *General Hospital Psychiatry, 4*(1), 33-47.

Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness.* New York: Random House.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology-Science and Practice, 10*(2), 144-156. doi: 10.1093/clipsy/bpg016

Kabat-Zinn, J., Massion, A. O., Kristeller, J., Peterson, L. G., Fletcher, K. E., Pbert, L., . . . Santorelli, S. F. (1992). Effectiveness of a meditation-based stress reduction program in the treatment of anxiety disorders. *American Journal of Psychiatry, 149*(7), 936-943.

Kabat-Zinn, J., Wheeler, E., Light, T., Skillings, A., Scharf, M. J., Cropley, T. G., . . . Bernhard, J. D. (1998). Influence of a mindfulness meditation-based stress reduction intervention on rates of skin clearing in patients with moderate to severe psoriasis undergoing phototherapy (UVB) and photochemotherapy (PUVA). *Psychosomatic Medicine, 60*(5), 625-632.

Kang, C., & Whittingham, K. (2010). Mindfulness: A dialogue between Buddhism and clinical psychology. *Mindfulness, 1*(3), 161-173. doi: 10.1007/s12671-010-0018-1

Kearney, D. J., Malte, C. A., McManus, C., Martinez, M. E., Felleman, B., & Simpson, T. L. (2013). Loving-kindness meditation for posttraumatic stress disorder: A pilot study. *Journal of Traumatic Stress, 26*(4), 426-434. doi: 10.1002/jts.21832

Kearney, D. J., McDermott, K., Malte, C., Martinez, M., & Simpson, T. L. (2012). Association of participation in a mindfulness program with measures of PTSD, depression and quality

of life in a veteran sample. *Journal of Clinical Psychology, 68*(1), 101-116. doi: 10.1002/jclp.20853

Kearney, D. J., McDermott, K., Malte, C., Martinez, M., & Simpson, T. L. (2013). Effects of Participation in a Mindfulness Program for Veterans With Posttraumatic Stress Disorder: A Randomized Controlled Pilot Study. *Journal of Clinical Psychology, 69*(1), 14-27. doi: 10.1002/jclp.21911

Khoury, B., Lecomte, T., Fortin, G., Masse, M., Therien, P., Bouchard, V., . . . Hofmann, S. G. (2013). Mindfulness-based therapy: A comprehensive meta-analysis. *Clinical Psychology Review, 33*(6), 763-771. doi: 10.1016/j.cpr.2013.05.005

Kimbrough, E., Magyari, T., Langenberg, P., Chesney, M., & Berman, B. (2010). Mindfulness intervention for child abuse survivors. *Journal of Clinical Psychology, 66*(1), 17-33.

King, A. P., Erickson, T. M., Giardino, N. D., Favorite, T., Rauch, S. A. M., Robinson, E., . . . 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. doi: 10.1002/da.22104

Kornfield, J. (2008). *The wise heart*. New York. Bantam Dell.

Kornfield, J. (2011). *Jack Kornfield biography*. Retrieved from http://www.jackkornfield.com/about-bio/

Lane, C. (2013, May 4). The NIMH withdraws support for DSM-5. *Psychology Today.* Retrieved from http://www.psychologytoday.com/blog/side-effects/201305/the-nimh-withdraws-support-dsm-5

Libby, D. J., Reddy, F., Pilver, C. E., & Desai, R. A. (2012). The use of yoga in specialized VA PTSD treatment programs. *International Journal of Yoga Therapy, 22*, 79-87.

Mulick, P. S., Landes, S. J., & Kanter, J. W. (2011). Contextual behavior therapies in the treatment of PTSD: A review. *International Journal of Behavioral Consultation and Therapy, 7*(1), 23-32.

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), 538-547. doi: 10.1037/a0026161

Owens, G. P., Walter, K. H., Chard, K. M., & Davis, P. A. (2012). Changes in mindfulness skills and treatment response among veterans in residential PTSD treatment. *Psychological Trauma-Theory Research Practice and Policy, 4*(2), 221-228. doi: 10.1037/a0024251

Pigni, A. (2010). A first-person account of using mindfulness as a therapeutic tool in the Palestinian Territories. *Journal of Child and Family Studies, 19*(2), 152-156. doi: 10.1007/s10826-009-9328-0

Rogers, C. (1995). *On becoming a person: A therapist's view of psychotherapy*. Mariner Books.

Rosenbaum, L. (2004). Post-traumatic stress disorder: The chameleon of psychiatry. *Nordic Journal of Psychiatry, 58*(5), 343-348. doi: 10.1080/08039480410005927

Sareen, J., Cox, B. J., Stein, M. B., Afifi, T. O., Fleet, C., & Asmundson, G. J. G. (2007). Physical and mental comorbidity, disability, and suicidal behavior associated with posttraumatic stress disorder in a large community sample. *Psychosomatic Medicine, 69*(3), 242-248. doi: 10.1097/PSY.0b013e31803146d8

Schiraldi. (2009). *The post-traumatic stress disorder sourcebook: A guide to healing, recovery, and growth*. McGraw-Hill.

Schottenbauer, M. A., Glass, C. R., Arnkoff, D. B., Tendick, V., & Hafter Gray, S. (2008). Nonresponse and Dropout Rates in Outcome Studies on PTSD: Review and Methodological Considerations. *Psychiatry: Interpersonal & Biological Processes, 71*(2), 134-168.

Smith, B. W., Ortiz, J. A., Steffen, L. E., Tooley, E. M., Wiggins, K. T., Yeater, E. A., . . . Bernard, M. L. (2011). Mindfulness Is Associated With Fewer PTSD Symptoms, Depressive Symptoms, Physical Symptoms, and Alcohol Problems in Urban Firefighters. *Journal of Consulting & Clinical Psychology, 79*(5), 613-617. doi: 10.1037/a0025189

Smith, J. D. (2010). *Mindfulness-based stress reduction (MBSR) for women with PTSD surviving domestic violence.* (Doctoral Dissertation). Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2010-99040-076&site=ehost-live Available from EBSCOhost psych database. 3370129

Steenkamp, M. M., & Litz, B. T. (2013). Psychotherapy for military-related posttraumatic stress disorder: Review of the evidence. *Clinical Psychology Review, 33*(1), 45-53. doi: 10.1016/j.cpr.2012.10.002.

Tartakovsky, M. (2014). *Dispelling myths about dissociative identity disorder*. Retrieved from http://psychcentral.com/lib/dispelling-myths-about-dissociative-identity-disorder/0009785

Vujanovic, A. A., Niles, B., Pietrefesa, A., Schmertz, S. K., & Potter, C. M. (2013). Mindfulness in the treatment of posttraumatic stress disorder among military veterans. *Spirituality in Clinical Practice, 1*(S), 15-25. doi: 10.1037/2326-4500.1.S.15

Vujanovic, A. A., Youngwirth, N. E., Johnson, K. A., & Zvolensky, M. J. (2009). Mindfulness-based acceptance and posttraumatic stress symptoms among trauma-exposed adults

without Axis I psychopathology. *Journal of Anxiety Disorders, 23*(2), 297-303. doi: 10.1016/j.janxdis.2008.08.005