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Mindfulness and Self-Compassion as Predictors of Functional Outcomes and Psychopathology in OEF/OIF Veterans Exposed to Trauma

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Dedication

This dissertation is dedicated to my parents, Bruce and Kathy Dahm, who always encouraged me to follow my dreams.

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Mindfulness and Self-Compassion as Predictors of Functional Outcomes and Psychopathology in OEF/OIF Veterans Exposed to Trauma

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Self-compassion is a psychological construct that involves being open to experiencing one's pain and suffering and directing feelings of kindness inwards during moments of distress. Research has found that high levels of self-compassion are negatively associated with depression, anxiety, rumination, and avoidance, and positively associated with overall quality of life. The present study looked at self-compassion as a predictor of psychopathology and functional outcomes in a sample of trauma-exposed OEF/OIF veterans. Baseline data was used from Project PREDICT from of the Department of Veteran Affairs VISN 17 Center of Excellence for Research with Returning War Veterans.

The relations among self-compassion, mindfulness, and experiential avoidance were analyzed. Structural equation modeling was used and results found that higher

levels of self-compassion and mindfulness predicted lower levels of psychopathology and higher overall functioning. In addition, experiential avoidance partially or fully mediated the association between mindfulness and self-compassion and PTSD symptoms, psychological distress, and functionality. Supplemental regression analyses were also conducted examining the relationship between mindfulness and self-compassion with several outcome variables. Results found that self-compassion significantly contributed to the model predicting acceptance of chronic pain. In addition, mindfulness significantly contributed to the model predicting problematic alcohol use. These findings suggest that inclusion of acceptance-based interventions, specifically self-compassion and mindfulness, may improve emotional distress as well as overall functioning in trauma-exposed combat veterans.

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Chapter One: Introduction

Since October 2001, over 2 million troops have been deployed to Iraq and Afghanistan in Operations Enduring Freedom (OEF) and Operations Iraqi Freedom (OIF). The RAND Corporation recently conducted a large-scale post-deployment study citing the unique challenges that the soldiers are facing both in combat and upon returning home (Tanielian & Jaycox, 2008). Deployments are increasingly longer than previous conflicts, with tours lasting approximately fifteen months. In addition, soldiers are experiencing multiple deployments and having fewer breaks in between to recover and train at home. Evidence is suggesting that the psychological toll of the prolonged exposure to combat is disproportionately greater in comparison to physical injuries. In addition, the OEF/OIF veterans have the highest survival rates from combat, meaning that over 30,000 troops, when estimated in 2009, have returned home with physical injuries. Potentially traumatic events faced by soldiers in combat include roadside bombs, improvised explosive devices (IEDS), suicide bombers, handling of the dead or wounded, killing, and witnessing fellow soldiers be killed or wounded (Tanielian & Jaycox).

Studies have shown that many of the returning soldiers are able to recover over time and experience minimal posttraumatic distress (Hoge et al., 2004; Seal, 2009). Short-term symptoms and temporary duress are referred to as “battle fatigue” and are considered an adaptive and normal response when faced with extremely stressful conditions, both physically and psychologically. However, a relatively large percentage

of returning veterans develop more chronic symptoms that can have an impact upon all areas of daily functioning. Recent research (Tanielian & Jaycox, 2008; Hoge et al., 2004; Hoge et al., 2006) has found prevalence rates of around 15% in U.S. soldiers who develop clinically significant levels of posttraumatic stress disorder (PTSD) upon returning home.

PTSD is operationalized as a pathological response to a traumatic event and manifests as symptoms of hyperarousal, avoidance of trauma-related triggers, emotional numbing, intrusive recollection of the trauma, and significant functional impairment in daily life (American Psychiatric Association [APA], 2000). In combat situations, soldiers are exposed to multiple traumas over long periods of time, and faced with physically and psychologically demanding conditions on a daily basis. Exposure to prolonged and repeated trauma can present a complicated picture and can affect not only individuals' psychological and physical functioning, but multiple aspects of their overall quality of life.

A recent meta-analysis suggested that PTSD impacts a person's physical health, social functioning, and interpersonal relationships much greater than any other anxiety disorder (Olatunji, Cisler, & Tolin, 2007). We need to better understand what factors impact veterans' psychological resilience and overall well-being in order to strengthen and expand the development of treatment opportunities for this growing population.

MINDFULNESS AND SELF-COMPASSION

Two aspects of resilience that have been receiving increased attention in medical and psychological research are mindfulness and self-compassion. A growing number of

empirical studies have provided evidence that mindfulness and self-compassion enhance psychological resiliency and coping as well as promote overall positive well-being (Kabat-Zinn, 1990; Neff, 2003a; Neff, Kirkpatrick, & Rude, 2007). Mindfulness is a practice that stems from Buddhist traditions and focuses on attending to the present moment, detaching from cognitive habits that cause suffering, and gaining mind-body awareness (Kabat-Zinn). Broadly defined, mindfulness is the self-regulation of attention in the present moment with a stance of acceptance and curiosity (Bishop, 2004). Mindfulness has been conceptualized as a form of emotional intelligence and a beneficial way to relate to painful emotions when they arise. Studies have increasingly shown that mindfulness is associated with greater positive well-being and decreased emotional and physical distress (Grossman, Niemann, Schmidt, & Walach, 2004). Interventions that utilize mindfulness-based techniques have shown significant improvements in a wide range of mood disorders, substance abuse, and medical conditions (Baer, 2003; Grossman; Salmon et al., 2004).

Self-compassion adds a more active component to the awareness and acceptance qualities of mindfulness and involves emotional care and concern towards oneself. Stemming from the Buddhist notion of compassion, self-compassion involves being open to experiencing one's pain and suffering, directing feelings of kindness inwards in moments of distress, and recognizing that everyone as humans experience suffering (Neff, 2003a). In addition, A lack of self-compassion has also been conceptualized to include self-judgment, isolation, and an over-identification, or clinging, to negative thoughts and feelings (Neff, 2003a). A growing body of literature is finding that higher

levels of self-compassion are strongly associated with improved psychological health and life satisfaction, while lower levels of self-compassion have been linked to increased depression, anxiety, and other negative mood symptoms (MacBeth & Gumley, 2012; Neff, 2009; Neff, 2003b).

Mindfulness and self-compassion seem to directly target the numbing, detachment, and avoidance commonly found in combat veterans with posttraumatic stress (Batten, Orsillo, & Walser, 2005; Walser & Westrup, 2007). In addition, self-compassion addresses the self-criticism, self-isolation, and self-absorption that are commonly found in individuals with chronic mental health difficulties (Germer, 2009). Several therapeutic interventions that incorporate mindfulness and self-compassion are currently being implemented in Veterans Administration (VA) clinics around the country as adjunctive treatment (Vujanovic et al., 2011), such as Acceptance and Commitment Therapy (ACT; Luoma, Hayes, & Walser, 2007), Dialectical Behavior Therapy (DBT; Linehan, 1993; Becker & Zayfert, 2001), Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990), Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002), and Mindfulness-Based Relapse Prevention (MBRP; Bowen, Chawla, & Marlatt, in press). In addition, the Department of Defense recently created a program to teach mindfulness skills to soldiers prior to their deployment in attempts to help them better tolerate the physically and psychologically stressful conditions they will face in war zones (Stanley, Schaldach, Kiyonaga, & Jha, in press). However, little research has been conducted assessing the relationship between self-compassion, mindfulness, functional outcomes, and psychopathology in veteran populations.

The proposed study will examine self-compassion and mindfulness as predictors of positive functional outcomes and decreased psychopathology, specifically anxiety, depression, and posttraumatic stress, in a sample of OEF/OIF veterans who met criteria A for PTSD (exposure to a traumatic stressor involving threat or serious injury to self or others; and experiencing a response of intense, fear, helplessness, or horror; APA, 2000). Further, the relationship between self-compassion, mindfulness, and probable mechanisms underlying these constructs will be analyzed. This information will contribute to an improved understanding of the complicated psychological symptomolgy demonstrated by veterans exposed to trauma. In addition, significant findings might inform the development of treatment interventions tailored for this unique and growing population that address trauma-related symptoms as well as overall functioning and well-being.

Chapter Two: Review of the Literature

The integrative analysis will begin with an exploration of the impact of trauma, including a brief history of the PTSD diagnosis and relevant findings in the research. Conceptualizations of posttraumatic reactions and adjustment in combat veterans will then be discussed, and experiential avoidance will be highlighted as a key mechanism underlying the disorder. Established treatment options of PTSD and current limitations will be briefly reviewed as support for the relevance of this research. An overview of mindfulness will then be presented, with explanations of the clinical utility and relationship with trauma. The literature on self-compassion will be reviewed as well as the positive empirical support found with relations to low levels of psychopathology and high levels of functional outcomes. The relationships among mindfulness, self-compassion, and trauma will be explored as well as theoretical rationales for relevance with clinical veteran populations.

A Brief History of Trauma

The psychological and physical consequences of experiencing a traumatic event have been recognized since the mid-1800s. While studying hysteria, Freud and Breuer (1962/2004) observed intense emotional reactions and altered states of consciousness that were caused by psychological trauma. In the early 1900s, World War I veterans were exhibiting similar symptoms (uncontrollable outbursts, nightmares, and dissociative experiences) upon their return from combat. During both periods, the studies were suppressed and the traditional medical professionals considered the findings to be invalid. In 1922, psychiatrist Abram Kardiner outlined common posttraumatic symptoms in his

work *The Traumatic Neuroses of War* based on his work with combat veterans (Herman, 1992).

Not until after the Second World War, did the medical community recognize the presence of the many psychiatric causalities among soldiers and that these illnesses were a direct result of combat exposure. American psychiatrists, J.W. Appel and G.W. Beebe reported that combat experiences could "break the strongest soldier" and that "getting used to combat" was impossible (Herman, 1992, p. 25). These "invisible" psychological wounds of war were referred to as combat stress, soldier's heart, shell shock, and battle fatigue. A popular movie of the 1940s, *The Best Years of Our Lives*, highlighted the physical and psychological tragedies of returning WWII veterans and received public acclaim with ten Oscar awards (http://www.imdb.com). Despite over a century of reported afflictions from traumatic experiences, the lasting psychological effects of war were not fully recognized until after the Vietnam War, when informal "rap groups" of veterans were formed and the VA commissioned comprehensive studies assessing the long-term impact of war experiences. In 1980, the American Psychiatric Association added "posttraumatic stress disorder" to the official manual of diagnostic syndromes and identified clusters of symptoms that were similar to the ones identified almost sixty years prior by Kardiner (Herman, 1992).

OVERVIEW OF PTSD

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; APA, 2000), Posttraumatic Stress Disorder occurs following a traumatic event in which threat of serious injury or death was experienced or witnessed, and the person's

response includes feelings of intense fear, helplessness or horror. The three symptom clusters are characterized by re-experiencing of the traumatic event, avoidance of stimuli associated with the trauma and emotional numbing, and hyperarousal that persist for more than one month following the traumatic event(s). In the military, distinctions are sometimes made between PTSD and Acute Stress Reaction (ASR) and Combat (or Ongoing Military) Operational Stress Reaction (COSR). ASR is an acute response to intense physical or psychological stress that typically diminishes after a few days. COSR is characterized by any kind of response to battle stress that leaves a soldier temporarily unable to remain on duty. These more general manifestations of symptoms typically do not require any kind of long-term psychiatric intervention and are usually resolved while the soldier is still in the combat zone (Tanielian & Jaycox, 2008). However, researchers suggest that once posttraumatic symptoms develop, they can become chronic if left untreated (Riggs, Rothbaum, & Foa, 1995).

Conceptualizations of Traumatic Reactions

Traumatic experiences can have an impact on an individual's psychological, biological, and social functioning to the degree that memories of the particular event(s) seem to contaminate experiences occurring in the present. Despite people's ability to be resilient and adapt to difficult circumstances, some are unable to integrate the traumatic event and begin to develop habitual patterns of avoidance and hyperarousal - symptoms that are believed to further perpetuate symptoms of PTSD (van der Kolk, B., McFarlane, A., & Weisaeth, L., 1996; Foa and Kozak, 1986; Creamer, Burgess, & Pattison, 1992). The degree to which the disorder affects one's overall functioning can vary greatly from

person to person. Traumatized individuals appear to develop their own ways of coping with the intrusive symptoms and hyperarousal, which may be influenced by developmental level, temperament, or environmental factors. Due to this variability in people's experiences, the single diagnosis of PTSD does not seem to fully encapsulate the totality of what the person is experiencing (van der Kolk et al.; Herman, 1992).

Van der Kolk and colleagues (1996) highlighted six critical components that impact how an individual experiencing posttraumatic stress symptoms potentially processes information: intrusions, compulsive reexposure to the trauma, avoidance and numbing, inability to modulate arousal, attention problems, and changes in defense mechanisms and underlying personality structure. Intrusive recollection of the traumatic event(s) typically occurs in the forms of nightmares, flashbacks, and unwanted thoughts and sensations that can prevent an individual from attending to the present moment. These frequent reminders of the trauma and lack of integration of the memories can create difficulties in accepting that the event did indeed occur in the past. In addition, individuals may compulsively engage in risky behaviors or engage in reenactment procedures, which could lead to harm towards others, self-destruction, or revictimization. They also actively attempt to avoid trauma-related triggers and any kind of emotional arousal. However, this avoidance tends to eventually lead to an overall withdrawal from any kind of stimulation, whether positive or negative, and develops into an overall numbing of emotions (Van der Kolk at al.).

Even though traumatized individuals attempt to restrict their emotions, their bodies continue to elicit heightened physiological responses, producing hypervigilance,

restlessness, and increased startle response (Van der Kolk et al., 1996). Due to maintaining a state of heightened arousal, they lose the ability to regularly modulate their emotional and physiological responses to daily stressors. Individuals experiencing symptoms of posttraumatic stress may be unable to process signals accurately from the autonomic nervous system which inhibits their ability to adequately interpret feelings and emotions. They also tend to experience general problems with attention, distractibility, and flexibility to differentiate between important and unimportant stimuli. Lastly, traumatized individuals may experience potential changes in their personality structure and identity formation over time (Van der Kolk et al.).

Judith Herman (1992) also emphasizes the complicated psychological symptomology involved in PTSD, particularly when an individual has repeated exposure to trauma. She acknowledges that the existing DSM diagnostic definition seems to apply to individuals who have experienced a single circumscribed event and may not encapsulate the complexity that can exist when multiple traumas are experienced. Although not an officially recognized syndrome, Herman classified repeated, prolonged traumatic exposure as resulting in a spectrum of conditions called “complex posttraumatic disorder.” In addition to the avoidance, re-experiencing, and hyperarousal experienced in classical PTSD, she adds that this kind of subjection to multiple traumatic events can also lead to alterations in the following: affect regulation, consciousness, self-perception, perceptions of the perpetrator, interpersonal relationships, and systems of meaning. Thus, even if individuals do not meet the full diagnostic criteria for PTSD, they could still potentially experience changes to these other life domains (Herman). Due to

the repeated and prolonged conditions endured by soldiers in battle, this population is at risk for developing a complicated sequela of symptoms that can impact all areas of functioning (Hoge et al., 2004).

POST-DEPLOYMENT ADJUSTMENT IN VETERANS

The extreme psychological consequences of war have been recognized for over twenty centuries dating back to descriptions of battle in Homer's *Iliad* (Shay, 1994). Colonel Charles Hoge, M.D. (2010) uses the phrase "Once a warrior – always a warrior," to describe how war and combat forever impact an individual. He argued that even if a soldier does not meet criteria for PTSD, he or she has changes and growth in character and maturity. They may have difficulties relating to people and struggle with connecting to loved ones. In addition, people in their lives may not understand how to adapt to these changes and be confused or feel uncomfortable around them. At the same time, soldiers may find it difficult to interact with others who do not have their shared experience and subsequently withdrawal from friends and family. The transition period can last from months to years depending on combat experiences and number of deployments. Hoge emphasizes that even though the readjustment period differs, every individual who is deployed to a war zone, returns a changed person from the soldier who left.

Symptoms that persist once a soldier returns home are typically reactions that were necessary for survival in the combat zone. Thus, arguments have been made that PTSD is a disorder of "contradictions" and the symptom criteria are part of the body's natural response to life-threatening situations (Hoge, 2010). Following publication of the DSM-III, there was debate about whether PTSD should actually be labeled a disorder

since many of the posttrauma reactions are typical and expected to occur following a life threatening event. At the same time, it is these survival reactions that can cause disruption in multiple life domains when a soldier returns home. A concern with the medical definition of PTSD is that it fails to acknowledge and differentiate reactions that are normal versus abnormal in the context of the combat and military training. When an individual is unable to taper these combat reactions then it can disrupt their transition and adjustment back into civilian life. If the soldier is forced to make multiple deployments, a distinct characteristic of the recent OEF/OIF veterans, he or she will likely struggle to adjust back home then have to prepare mentally and physically to return to the combat zone (Hoge).

Posttraumatic Symptoms in Combat Veterans

The hallmark study of PTSD in combat veterans was not until the National Vietnam Veterans Readjustment Study (Kulka et al., 1990) which occurred in the 1980s. This nationwide rigorously designed study compared a random sample of Vietnam combat veterans to a civilian sample and revealed that 35.8% of the veterans met the full criteria for PTSD, even twenty years after their deployment. Over 70% of the veteran sample had experienced one of the symptom clusters at some point since their war experience. Recent studies with OEF/OIF veterans have suggested that approximately 20% of returning soldiers experience significant levels of posttraumatic stress post-deployment (Tanielian & Jaycox, 2008; Hoge et al., 2004). When assessed a year after their return home, 13-17% of veterans continue to exhibit significant symptoms. The increased combat exposure and multiple deployments suggest that OEF/OIF veterans are

at high-risk for emotional problems and need some form of long-term mental health intervention upon returning home from combat (Hoge et al.).

The number of OEF/OIF soldiers returning home from combat has been increasing within recent years, and the number of veterans seeking help for mental health disorders will continue to be on the rise (Tanielian & Jaycox, 2008). The VA is the single largest health and mental health provider for veterans returning home from Iraq and Afghanistan, and they are trying to improve their efforts to meet the challenging demands of this unique veteran population (Seal et al., 2009). Thus, it is important to conduct empirical studies to help identify and treat posttraumatic symptoms and other deployment-related mental health disorders in this population. Developing a greater understanding of the emotional functioning in veterans exposed to trauma will assist with the creation of better interventions to promote successful reintegration into society, improve overall quality of life, and prevent further mental and physical disability (Schnurr, Lunney, Bovin, & Marx, 2009).

Empirical Research with OEF/OIF Veterans

Between October 1, 2001 and September 30, 2012, almost 275,000 OEF/OIF veterans received treatment at a VA hospital for posttraumatic symptoms (http://www.va.gov). With the large number of troops returning home from combat and seeking treatment, empirical studies with this unique veteran population have increased over the past few years but continue to be limited in quantity. Studies involving OEF/OIF veterans have found that symptoms of posttraumatic stress are related to increased problems with work, interpersonal relationships, home environment, and poorer physical

functioning (Erbes, Westermeyer, Engdahl, & Johnsen, 2007; Schnurr et al., 2009). Another study (Owens, Steger, Whitesell, & Herrera, 2009) found that younger age; higher levels of combat exposure, depression, guilt; and lower levels of meaning of life predicted posttraumatic symptom severity in a mixed combat veteran population. Although most studies include a threshold measure of PTSD, health and psychosocial impairments were also reported in a sample of OEF/OIF veterans who reported subsyndromal/partial PTSD (Pietrzak, Goldstein, Malley, Johnson, & Southwick, 2009). Thus, it is important to also include trauma-exposed veterans in empirical studies who may not meet the full DSM-IV criteria for PTSD.

Impact of Combat Exposure

Starting with the National Vietnam Veterans Readjusment Study, research has continued to demonstrate that greater combat exposure, including multiple tours of duty and increased exposure to personal threat and killing, predicts a higher risk for the development of PTSD (Marmar, 2009). Due to the increasing number of deployments as well as greater exposure to combat situations in Iraq and Afghanistan, recent research is starting to look at the impact of these conditions on OEF/OIF veterans. Direct proxies for combat exposure, such as rank, branch, and multiple deployments, were associated with higher rates of posttraumatic stress among active duty OEF/OIF vets (Seal et al., 2009; Vogt et al., 2011). In addition, when combat exposure was formally measured, higher levels of combat exposure in OEF/OIF veterans were related to an increased risk of the development of PTSD (Dedert et al., 2009; Hoge et al., 2004; Owens, Steger, Whitesell, & Herrera, 2009; Renshaw, Rodrigues, & Jones, 2009). A study examining the

relationship between combat exposure and alcohol abuse (Wilk et al., 2010) showed that exposure factors were also significantly related to alcohol misuse. Thus, research suggests that level of combat exposure can impact not only psychological distress but also engagement in risky and potentially harmful behaviors.

When particular combat experiences were measured, Hoge and colleagues (2004) found that 27% of US Army soldiers in OEF, 77% of US Army soldiers in OIF, and 87 % of US Marines in OIF reported having to fire on an enemy. Prevalence rates of coming under enemy fire were between 84% and 97% from the same sample of soldiers. When examined in relation to PTSD, the researchers found a linear increase of posttraumatic symptoms and number of firefights that soldiers participated in during their deployment. Similar findings were also found in a study that examined the relationship between combat exposure and PTSD symptoms in a National Guard sample (Renshaw, Rodrigues, & Jones, 2009). Research consistently shows that combat exposure increases a soldier's vulnerability to posttraumatic stress symptoms and other mental health problems which subsequently contributes to impairments in their social and occupational domains.

POSTTRAUMATIC GROWTH

Despite the negative consequences of posttraumatic stress and deployment, researchers are starting to examine whether any positive outcomes may results from veteran's wartime experiences (Pietrzak et al., 2009). Posttraumatic growth (PTG) is a relatively new concept in the literature that is proposed of encompassing three different growth processes that occur when core beliefs are challenged by trauma: development of strength through suffering, reevaluation of existential concerns, and psychological

resilience (Janoff-Bulman, 2006). Existential reevaluation involves the presence of a newfound wisdom or life purpose following trauma. This process recognizes the potential for an increase in appreciation or life satisfaction following a traumatic event. Whereas psychological resilience includes the rebuilding of new assumptions about one's environment that can potentially provide greater protection against difficulties in the future (Tedeschi, 2011). This model proposes that following trauma, cognitive processes occur over time that involve purposeful reflection on core beliefs and assumptions about the world. Based on these growth processes, PTG can be characterized as positive changes following trauma, including a new appreciation for life, improved relationships and identification of life goals, greater personal strength, and enhanced spirituality (Tedeschi & Calhoun, 1996).

PTG has been examined in wide range of samples that have experienced a traumatic event (Tedeschi & Calhoun, 1996). Studies found that individuals suffering from a traumatic brain injury (McGrath & Linley, 2006) and bereavement (Engelkemeyer & Marwit, 2008) reported significant levels of PTG. A recent study analyzed a PTG model and found that PTG had a direct relationship with life satisfaction but a stronger significant relationship indirectly through meaning of life (Triplett et al., 2011). These results suggest that potential growth following a traumatic event can positively impact general well-being by providing an increased sense of purpose and meaning and an overall strengthening of character (Tedeschi, 2011, Tedeschi & Calhoun, 1995).

Evidence of PTG has also been found in military and veteran samples (Tedeschi, 2011). Data from the (Kulka et al., 1990) was analyzed and found that 70.1% of male

veterans regarded their deployment experiences are primarily positive (Dohrenwend et al., 2004). Another study involving Persian Gulf veterans (Maguen, Vogt, King, King, & Litz, 2006) found that perceived threat while in the war zone was the strongest predictor of changes in appreciation of life. Only one study to date has looked at PTG in a sample of OEF/OIF veterans and the relationship between PTG and PTSD (Pietrzak et al., 2009) two years following deployment. Results found that 72% of the sample reported significant growth in at least one of the assessed areas. The most common growth areas were positive changes in deciding what is important in life, appreciating each day, and being better able to handle difficult situations. Factors that predicted greater PTG in a sample of predominantly older OEF/OIF Reservists included younger age, PTSD symptoms, and increased perception of unit support. The positive association between PTSD symptoms and PTG is consistent with past studies (Solomon & Dekel, 2007, Tedeschi & Calhoun, 1995) and is explained by suggesting that positive meaning making occurs primarily following an upsetting traumatic event, rather than an incident that is perceived as less threatening. It is believed that individuals who are more resilient and struggle less with the psychological impact of trauma may not be confronted with some of the core belief challenges that affect those with more posttraumatic stress (Tedeschi, 2011). Pietrzak and colleagues also found that social support was positively associated with PTG even after controlling for age, PTSD symptom severity, combat exposure, and psychosocial difficulties. Consistent with findings of functional outcomes and overall quality of life, adequate social support appears to be a critical component in mitigating the negative impact of PTSD in OEF/OIF veterans. However, other studies with veterans

have found that PTG was most commonly associated with lower levels of PTSD and higher levels of emotional maturity (Aldwin & Levenson, 2004).

PTG is an important construct for this population because it examines the ability to make meaning out of the trauma-related suffering. Although there have been no studies examining the relationship between posttraumatic growth and avoidance, it can be speculated that there would be a negative association between the two. The deliberate processing of a traumatic event can allow an individual to cope with the experience and in a more reflective way and possibly come to some sort of resolution (Tedeschi & Calhoun, 1995).

COMORBIDITY WITH PHYSICAL AND MENTAL HEALTH DISORDERS

Comorbidity of posttraumatic stress with other mental health and physical disorders are factors that complicate assessment and treatment for returning veterans. Hoge (2010) identifies all posttraumatic symptoms as having both a physiological and physical component due to the involvement of the neurological, endocrine, and other systems during stressful events. Serving in a combat zone tends to be associated with prolonged changes in stress hormones and adrenal levels which can include headaches, high blood pressure, and memory and concentration problems. Foa and colleagues (2008) highlight that, in a civilian population, 88% of men and 79% of women have co-morbid PTSD with another mental health condition and one-third of those individuals have three or more comorbid diagnoses. In addition, increasingly evidence suggests that individuals with a history of trauma are at greater risk of developing health concerns and somatic symptoms. The authors suggest that good clinical practice should focus on improvement

of not only posttraumatic symptoms but other comorbid symptoms as well. Recently, clinicians have recognized the importance of expanding treatment goals when working with patients exposed to trauma, aiming towards ameliorating associated symptoms, such as general anxiety, depression, shame, and guilt, while improving overall quality of life (Hoge et al., 2004; Seal et al., 2009; Schnurr et al., 2009).

When mental health diagnoses were examined in OEF/OIF veterans, researchers have found prevalence rates up to 36% for meeting criteria for one or more mental health diagnoses, with rates at approximately 15% for depression (Hoge et al, 2004; Seal et al, 2009). Alarming rates of suicide have also been documented in veterans, with male veterans being twice as likely as their civilian counterparts to attempt suicide, while female veterans are three times as likely (Kaplan, McFarland, Huguet, & Newsom, 2012). Significant levels of generalized anxiety were also present in 15-17% of OEF/OIF veterans postdeployment (Hoge et al.). Examination of VA records found that 26% of OEF/OIF veterans receiving any kind of health care had some mental health diagnosis (Kang & Hyams, 2005). In addition, 40% of OEF/OIF veterans have received either inpatient or outpatient mental health care in the VA, making this the largest proportion compared to prior wars (Seal et al). For instance, according to the National Vietnam Veterans Readjusment Study, only 10% of Vietnam veterans were enrolled in the VA healthcare system (Kulka et al., 1990). Due to the complicating comorbid mental health factors in returning OEF/OIF veterans, intervention models targeting both physical and psychological symptomology are warranted in order to improve overall levels of functioning (Hoge et al., 2004).

Comorbidity with Chronic Pain

Chronic pain can be characterized by an unpleasant perceptual experience related to a complex interplay of sensory and psychological factors (Beck & Clapp, 2011). Chronic pain can be defined by a variety of bodily symptoms and originate from a wide range of physical conditions. The painful sensations typically occur following a presumably resolved injury or disease thus the symptoms are difficult to manage. Pain is typically classified as chronic if it persists for longer than three months and causes significant impairment in daily functioning. Chronic pain typically does not respond well to standard medical treatments targeting the specific area of discomfort and interventions should focus on overall physical, social, environmental, and psychological domains (Beck & Clapp).

Researchers are recognizing that incidences of chronic pain are also increasingly being diagnosed in OEF/OIF veterans and tend to complicate already existing psychological symptoms (Lew et al., 2009). In a sample of OEF/OIF presenting to a VA primary care clinic, 45% of male veterans and 38% of female veterans screened positive for pain (Haskell et al., 2010). In a separate study, 47% of OEF/OIF veterans receiving treatment at a southeastern VA reported at least a mild level of pain, and 28% reported moderate to severe pain intensity (Gironda et al., 2006). Even after controlling for age, sex, depression, and PTSD, pain had a significant impact on home and work functioning (Helmer et al., 2009).

Reviews of comorbidity between chronic pain and PTSD have suggested common mechanisms that underlie the two disorders, such as the maintenance model (Sharp &

Harvey, 2001) and the shared vulnerability model (Asmundson et al., 2002). Both of these models hypothesize that PTSD and chronic pain share common physiological, emotional, social, and environmental factors that contribute to the development and sustainment of the two conditions. Some related factors they have hypothesized to influence the comorbid PTSD and chronic pain interaction are attentional bias towards cues associated with trauma or pain, inability to tolerate anxiety, avoidance of any reminders of trauma or pain, depression, and the demand of cognitive resources on a person's ability to cope and adapt to the conditions. Thus, overlap of these symptoms is typically found when examining these conditions.

When examining comorbidity in veteran samples, one study found rates as high as 60% of patients in an intensive PTSD treatment program also having a chronic pain diagnosis, with the most common complaints being back and generalized pain (Shipherd at al., 2007). Levels of chronic pain showed a significant reduction from pre- to post-treatment even though interventions were not intended to address chronic pain directly. The researchers suggested that PTSD treatment topics such as developing adaptive coping skills, regulating emotions, and reducing avoidant behaviors also indirectly targeted underlying mechanisms of chronic pain. Another study examined OEF/OIF veterans presenting at a polytrauma clinic (Lew et al., 2009) and found that 42% of the sample was diagnosed with a combination of PTSD, chronic pain, and post-concussive symptoms. Rates from these studies are likely high estimates given the inpatient settings; however, they highlight the importance of examining relationships with chronic pain in veteran populations.

A recent construct in the chronic pain literature that has been relevant in both research and interventions is acceptance of chronic pain (McCracken, Vowles, & Eccleston, 2004). Researchers have found that how patients respond and adapt to their chronic pain symptoms tends to impact severity of symptoms, level of psychological distress, and level of physical disability (McCracken, 1998; McCracken, Spertus, Janeck, Sinclair, & Wetzel, 1999). Acceptance of chronic pain also predicted pain-related depression, anxiety, and physical and vocational functioning above and beyond measures of coping style (McCracken and Eccleston, 2005). Chronic pain acceptance is typically conceptualized as a behavioral index with two different domains. The first involves a patient's willingness to engage in typical life activities even when experiencing pain symptoms, while the second describes attempts to control or block out the pain symptoms. The latter also acknowledges that those strategies to avoid pain are not effective and that patients can pursue their goals without having to control their symptoms. Thus, if a patient is experiencing chronic pain, research supports that it is beneficial to examine the level of acceptance of their condition to help indicate overall physical and mental functioning (McCracken et al, 2004).

Comorbidity with Alcohol-Related Problems

Alcohol abuse has also been a concern for returning veterans, particularly those who are already experiencing significant psychological distress. Although alcohol is banned on base in a war zone by the Department of Defense, heavy alcohol use has been identified as a significant problem in the military (Ames & Cunradi, 2004). The military has a longstanding history of encouraging alcohol use as a coping mechanism while

deployed, as well as during celebratory events for successful combat missions (Brooks, 2001). In addition, drinking alcohol is often used as a means to cope with stress, boredom, lonliness, and lack of recreational activities among military personnel.

Studies have found prevalence rates as high as 32% of military personnel who acknowledge heavy alcohol use (Ames & Cunradi, 2004). Thus, upon returning home, some soldiers may continue turning to the use of alcohol as a means to reduce adjustment-related stress and cope with physical and psychological problems (Brooks, 2001). A study looking at Iraq/Afghanistan National Guard soldiers three to twelve months post-deployment (Thomas et al., 2010) found that 9-14% of the sample endorsed alcohol misuse and aggressive behaviors. A study examining the relationship between combat exposure and alcohol abuse (Wilk et al., 2010) showed that exposure factors were significantly related to alcohol misuse. More striking results from the same study revealed that out of the soldiers who screened positive for depression or PTSD, 50% also met the criteria for alcohol abuse or aggressive behaviors. Another study assessing PTSD, alcohol abuse, and quality of life found that an alarming rate of 33% of the sampled veterans reported engaging in “hazardous” levels of alcohol use (Erbes et al., 2007). When assessing comorbidity, 57% of OEF/OIF veterans diagnosed with an alcohol and/or substance abuse disorder were also diagnosed with PTSD, depression, or another mental health diagnosis (Seal et al., 2011).

Despite the differences in findings, these results highlight the high rates of combordity between alcohol use, mental health disorders, and problem behaviors that can occur post-deployment. The onset of alcohol abuse disorders has been found to be

uniquely predicted by posttraumatic stress, avoidant style coping, and low positive emotionality (Kehle et al., 2011). Thus, it is important to consider alcohol use when examining psychological health and well-being in a combat veteran sample. The National Center for PTSD highlights the increased risk of alcohol abuse in individual experiencing posttraumatic stress. Alcohol use also tends to exacerbate posttraumatic symptoms, diminish positive treatment effects, and negatively influence other areas of psychological and social functioning in veterans (http://www.ncptsd.va.gov).

Functional Outcomes and Quality of Life

Studies have consistently shown that posttraumatic stress symptoms impact overall areas of quality of life and are related to poor functional outcomes (Lunney & Schnurr, 2007, Schnurr et al., 2006, Zatzick et al., 1997). In mixed veteran samples, posttraumatic stress is related to increased likelihood of unemployment (Smith, Schnurr, Rosenheck, & Salzer, 2005), greater risks of homelessness (O'Connell, Kasprow, & Rosenheck, 2008), and marital problems (Jordan et al., 1992). A study assessing a Homeless Veterans Program found that OEF/OIF veterans were more likely to have a diagnosis of PTSD than any other cohort of veterans (HCHV, 2008). When examining the influence of PTSD on overall functioning, severity of posttraumatic stress symptoms and depression was directly related to increases in impairment in family, work, and social functioning in samples of OEF/OIF veterans (Sayers, Farrow, Ross, & Oslin, 2009). In regards to academic functioning, Pietrzak et al. (2009) found that posttraumatic stress severity was also related to difficulties in school performance in a college veteran sample. That study also discovered that postdeployment social support partially mediated the

negative impact of posttraumatic stress on functional outcomes, suggesting the veterans having psychosocial difficulties are at greater risk of exacerbated psychological distress.

Rona (2009) examined posttraumatic stress related to work and social interference in a sample of active duty UK military and found that symptoms greatly increased functional impairment. In addition, 71% of the sample diagnosed with PTSD reported having at least moderate interference with their daily functioning. It is worth noting that impairment was not restricted to those who met the full criteria for PTSD and was still present in those with sub-threshold symptomology. Avoidance symptoms were the strongest predictor of impairment, compared to the hyperarousal and re-experiencing symptom clusters.

Functionality following trauma has also been found to be a protective factor from the development PTSD. A meta-analysis looking at both pre- and post-trauma predictors of PTSD (Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2003) found that life stressors and significant events that occur after the trauma were associated with more severe posttraumatic stress symptoms. Brewin and colleages found that lack of perceived social support was their strongest predictor of posttraumatic stress symptom severity. Hoge (2010) confirms this finding and claims that positive social support is the strongest variable that can aid in the recovery of the transition home. Thus, it is beneficial to consider not only mental health symptoms and comorbidities, but areas of functioning, such as work/school, relationships, living situation, and social support in returning veterans.

Overall quality of life is another component assessed when examining functional outcomes. Broadly, quality of life can be defined as the combination of an individual's physical, mental, and social well-being (World Health Organization, 2001). It is a person's subjectively experienced satisfaction with life that is typically encompassed by physical and psychological health, relationships, beliefs, and environmental factors (Burckhardt, Woods, Schultz, & Ziebarth, 1989). Posttraumatic stress has been consistently found to impair overall quality of life, with a recent meta-analysis finding large effect sizes for both veterans and non-veterans (Olatunji et al., 2007). Rapaport and colleagues (2005) found that 59% of individuals with PTSD have severe impairments in quality of life. Research with an OEF/OIF veteran sample found that both posttraumatic stress and depression were negatively correlated with general life satisfaction (Lapierre, Schwegler, and LaBauve, 2007). Studies with other veterans have found that significant changes in posttraumatic stress symptoms, particularly the avoidance/numbing symptom cluster, were also associated with improvements in all areas of quality of life (Gladis, Gosch, Dishuk, & Crits-Christoph, 1999; Lunney & Schnurr, 2007). Although the directionality of the relationship between posttraumatic stress and quality of life is unclear, they are believed to mutually impact each other.

Despite the strong evidence of posttraumatic symptoms impacting functionality and impairment, not much attention has been given to the role overall quality of life with anxiety-related disorders (Mogotsi, Kamier, & Stein, 2000). In posttraumatic stress studies, quality of life measures are typically a secondary focus and are not explored a great deal in the discussion (Gladis et al., 1999). This highlights the importance of

examining not only psychological symptoms but overall quality of life and areas of work, academic, family, and social functioning when conducting research with trauma-exposed samples. Measuring quality of life has been identified as providing a more complete assessment of an individual by examining their perception of multiple life domains (Kearney, McDermott, Malte, Martinez, & Simpson, 2013).

EXPERIENTIAL AVOIDANCE AS A MECHANISM OF PSYCHOPATHOLOGY

Experiential avoidance has been linked to many negative mental health outcomes and is suggested to underlie a wide range of psychopathology (Kashdan et al., 2006; Marx & Sloan, 2002; Hayes et al., 1996). In addition, multiple studies have found relationships between coping style following trauma and the development and severity of posttraumatic stress symptoms (Wolfe et al., 1993; Schnider, Elhai, & Gray, 2007; Sutker, Davis, Uddo, & Ditta, 1993). When assessing the impact of a traumatic event, it is important to examine how the individual has attempted to cope with and integrate the event into their current experience (Horowitz, 2003; Walser & Westrup, 2007). A brief review of the coping literature will be presented as background to the construct of experiential avoidance.

Introduction to Coping

Although there are various ways to categorize coping styles, most responses can be categorized into problem-focused or emotion-focused coping (Folkman & Lazarus, 1985). Problem-focused coping can be characterized by formulating a plan or actively demonstrating a behavior to overcome the problem that is causing the distress. This form of coping is typically viewed as adaptive but may be more difficult to implement in

situations involving posttraumatic stress due to the inability to change the occurrence of the traumatic event (Schnider et al., 2007). Emotion-focused coping involves a person attempting to alter or manage their emotional response to a situation and can be further categorized into avoidant versus active coping.

Active coping involves behavioral or psychological strategies intended to change the nature of the stressor or how the stressor is perceived. Avoidant coping is designed to prevent addressing the stressful event and can be implemented either behaviorally (e.g.,. alcohol use) or by inducing mental states (e.g., withdrawal or suppression). Active coping is generally seen as more adaptive and a better way to manage stress, while avoidant coping as been found to contribute to psychological distress (Holahan & Moos, 1987). In regards to trauma, avoidant coping has been found to be helpful in the short term while a person is experiencing a difficult or traumatic event (e.g., a combat situation); however, over time avoidance has been found to lead to a multitude of mental health problems (Coyne & Racioppo, 2000).

Studies with veterans have found that avoidant styles of coping were related to increases in stress-related symptoms (Sutker et al., 1995). In a cross-sectional study with Israeli soldiers (Solomon, Mikulincer, & Flum, 1988), avoidant coping at Time 1 predicted posttraumatic stress symptom severity at Time 2, while posttraumatic stress severity at Time 1 also predicted less problem-focused and more emotion-focused coping at Time 2. These researchers hypothesize that changes in coping style and symptoms are impacted concurrently and have a cyclical rather than causal relationship. Similar results were found more recently with a Gulf War veteran sample and confirmed that

participants who used avoidant styles of coping experienced more posttraumatic symptoms (Benotsch et al., 2000).

Related to avoidant coping, at least three types of avoidance symptoms are required to be present to meet the diagnostic criteria for PTSD (APA, 2000). Examples of avoidant symptoms include efforts to avoid thoughts and feelings associated with trauma, activities and places that may be reminders of the trauma, inability to remember parts of the traumatic event, reduced interest in otherwise pleasurable activities, feeling disconnected from others, restricted range of available affect, and hopelessness about the future. Research on posttraumatic stress suggests that the avoidance symptoms (cluster C) are the most reliable indicator that an individual meets the criteria for PTSD (Nemoroff et al., 2006) and may be the most predictive of PTSD severity (Plumb, Orsillo, & Luterek, 2004). Avoidance strategies are believed to underlie multiple pathologies including substance abuse, obsessive-compulsive disorder, and PTSD. These behavior patterns have been referred to as experiential avoidance and can be characterized as strategies to change, control, or deflect distressing thoughts, feelings, or sensations (Hayes et al., 1999).

Experiential Avoidance

Avoidance of unwanted thoughts, desires, or emotions is human nature and is a logical solution when used in the short-term. People use deliberate avoidance strategies on a daily basis to prevent harmful situations from occurring (Hayes et al., 1996). For instance, a female may avoid walking down a dark alley in fear of being attacked. Or a child may avoid sitting at a specific lunch table in school to prevent being humiliated by

peers. Particularly when dealing with trauma, attempting to avoid trauma-related cues can be beneficial initially when an individual is too overwhelmed to process the past event. Distraction and thought suppression can also have positive effects in the moment, even though research has shown that it tends to increase the presence of those thoughts in the long-term (Wegner et al., 1987). Avoidance of emotions may also stem from social cues or modeling that may have occurred during childhood. For instance, children may learn to mask their negative emotions due to feedback from their parents or peers that is not acceptable to display what they are feeling.

Hayes and colleagues (1996) acknowledge that multiple theoretical orientations recognize experiential avoidance as a problematic phenomenon but use different language to describe a similar process. For instance, Freud identified the aim of psychoanalysis as resolving unconscious internal conflicts and bringing into awareness material that was previously too painful and avoided (Freud, 1962). In client-centered therapies, Rogers (1957) believed that if individuals become aware of their thoughts and feelings, then they can start to tend to their experience and change to become a more congruent person. Awareness and integration are also central concepts in Gestalt therapy (Perls, 1973). The therapist's role is to guide the client in making contact with unwanted thoughts and feelings so they can process parts of their personality they have been previously avoiding. Avoidance is also a central theme in existential therapies but anxiety and distress is primarily perceived as revolving around the avoidance and fear of death (Yalom, 1980). Even though traditional cognitive and behavioral therapies have focused

on changing maladaptive thoughts and behaviors, more modern approaches are integrating acceptance-based strategies (Hayes et al., 1996).

PTSD has been argued as largely a disorder of experiential avoidance (Batten et al., 2005; Orsillo & Batten, 2005; Foa & Kozak, 1986). This model suggests that the "chronic, pervasive efforts to avoid thoughts, feelings, and memories related to the traumatic event produce long-term exacerbation of these private events and ensuing functional impairment" (Batten et al., 2005, p. 242). In support of this model, research has found that primary use of experiential avoidance strategies tends to exacerbate or maintain posttraumatic symptoms over time (Marx & Sloan, 2005; Tull, Gratz, Salters, & Roemer, 2004). In addition, individuals attempt to change the frequency and content of the disturbing intrusive thoughts, despite continued negative consequences, such as possible substance use or involvement in other risky behaviors.

Although these avoidance strategies provide temporary relief from negative distress, an individual with PTSD tends to employ these techniques more generally across life domains, causing avoidance and emotional detachment in multiple areas of their daily functioning. Thus, the strategies are eventually applied to non-trauma related stimuli and serve to further reinforce the posttraumatic stress symptoms (Thompson & Waltz, 2010). An individual with PTSD may exert so much effort attempting to control experiences related to their past trauma that they are unaware of what is going on in the present, including current thoughts, sensations, and feelings (Batten et al., 2005).

Research with veterans has shown that experiential avoidance is a stronger predictor of posttraumatic symptoms than level of combat exposure (Plumb et al., 2004).

These results suggest that not only is experiencing the traumatic event(s) stressful, but that the avoidance strategies employed to manage everyday stressors also contribute significantly to emotional functioning. Experiential avoidance has also been found to partially (Polusny, Rosenthal, Aban, & Follette, 2004) and fully mediate (Orcutt, Pickett, & Pope, 2005; Reddy, Pickett, & Orcutt, 2006) the impact of trauma on psychological distress, indicating that having an unwillingness to process the traumatic event may potentially lead to the development of PTSD. Kashdan (2006) examined experiential avoidance as the core mechanism in the development and maintenance of psychological distress and found that it mediates the relationship between maladaptive coping and anxiety. In a separate study with Kosovo war survivors (Kashdan, 2009), experiential avoidance meditated the relationship between posttraumatic stress and quality of life, suggesting that individuals who faced and accepted their psychological distress were overall more satisfied with their life.

When examining the relationship between experiential avoidance and physical symptoms, Costa and Pinto-Gouveia (2011) found that experiential avoidance mediated the effects of coping style on depression and stress in a sample with chronic pain. These findings suggest that patients may demonstrate increased emotional wellbeing when they reduce their attempts to avoid physical symptoms and make direct efforts towards accepting them.

Experiential avoidance can also be conceptualized as demonstrating a lack of acceptance and psychological flexibility (Hayes et al., 2006). Acceptance is commonly defined as the willingness to experience unwanted thoughts, emotions, and sensations,

without attempting to alter their form, frequency, or intensity, in order to achieve a certain value or goal (Bond et al., 2011; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Hayes and colleagues (2006) also conceptualize acceptance as a form of "psychological flexibility" which allows a person to fully connect with the experience and not try to avoid or defend against whatever is arising in the present moment. In contrast, "psychological inflexibility" occurs when negative reactions guide behaviors and values and prevent a person from pursuing their goals. As a result, a person who demonstrates this inflexibility is typically controlled by the fear of their unwanted internal experiences which can lead to further distress and psychopathology (Bond et al.).

Since many components of posttraumatic stress involve avoiding negative emotional states and reminders of trauma, the converse construct of acceptance is valuable to consider in this population. Vujanovic and colleagues (2011) found that non-judgmental acceptance was found to partially mediate the relationship between posttraumatic stress and alcohol coping in a trauma-exposed sample. This finding suggests that the less an individual with a trauma history is able to accept present-moment emotional experiences, the more likely they may use negative coping strategies, such as alcohol use.

In an acceptance-manipulated study, Marcks and Woods (2005) primed one group with a 5-minute acceptance metaphor prior to a thought suppression task, while the other group received no information. Although the frequency of intrusive thoughts was similar between groups, the acceptance group reported experiencing less distress by the thoughts. Similar findings were also found when negative affect was measured following a

distressing film and compared between an acceptance-trained group and a control group (Campbell-Sills et al., 2006). These studies provide evidence of the important role acceptance can have in changing the perception of negative thoughts and emotions which can ultimately lead to a reduction of negative emotional distress.

TREATMENT OPTIONS FOR PTSD

The relevant intervention literature will be briefly discussed to provide a framework for the utility of using alternative treatments for PTSD. Research shows that the most widely used interventions for PTSD have led to significant reductions in symptoms from baseline (Bradley, Greene, Russ, Dutra, & Westen, 2005). The most researched modalities are exposure-based treatments, cognitive approaches, and eye-movement desensitization and reprocessing (EMDR) (Hamblen, Schnurr, Rosenberg, & Eftekhari, 2010). Exposure-based treatments, such as prolonged exposure (PE; Foa, Hembree, & Rothbaum, 2007), involve having participants repeatedly re-experience memories of their traumatic event using methods such as in vivo and imaginal exposure. Cognitive-behavioral treatments (CBT) typically focus on the cognitive distortions and distressful emotions related to the traumatic event. Common CBT treatments include cognitive processing therapy (CPT; Resick & Schnike, 1993), stress inoculation therapy (Meichenbaum, 1974), and cognitive therapy (Cahill, Rothbaum, Resick, & Follette, 2008). EMDR is a technique that has the client engage in repeated sets of lateral eye movements while recalling particular images related to the traumatic event (Davidson & Parker, 1990). The Veteran’s Heath Administration (VHA) has established CPT and PE

as available treatments for PTSD and those modalities are becoming increasingly available in VA medical facilities across the country (Vujanovic et al., 2011).

Despite the positive findings found in meta-analyses of treatment for PTSD (Bisson, 2007; Bradley et al., 2005), there are significant limitations which impact the generalizability of these findings to clinical settings. For instance, many of the exclusion criteria included in these studies was general comorbidity with any other mental disorders, even though it is well documented that both civilian and veteran populations demonstrate high comorbidity rates with PTSD (Foa et al., 2008; Hoge et al., 2004; Tanielian & Jaycox, 2008).

In addition, a majority of the participants did not meet the criteria for PTSD post-treatment but continued to be highly symptomatic, indicating that treatment may not be as comprehensive in targeting multiple symptom clusters (Bisson, 2007; Bradley et al., 2005). Even without the presence of full criteria for the diagnosis, subclinical PTSD has also been found to result in distress and impairment similar to full PTSD (Marshall et al., 2001). A separate review of PTSD treatment outcomes in veterans (Steenkemp & Litz, 2013) found that most veterans do not lose their PTSD diagnosis after treatment and up to 70% continue to meet criteria for the disorder at follow-up evaluations.

While exposure therapy has strong empirical support, research has suggested that this treatment tends to address only posttraumatic symptoms and not other problematic areas of functioning (Steenkamp & Litz, 2013; Lombaro & Gray, 2005). In addition, exposure therapy may not be as effective in populations that exhibit guilt and shame due to the underlying self-criticism that accompanies the targeted posttraumatic symptoms

(Orsillo & Batten, 2005). Shay (1994) emphasizes that guilt and shame typically accompany posttraumatic stress in combat veterans due to the nature of war and the internal conflicts that can develop. In addition, a recent study found that combat-related guilt mediated the relationship between abusive violence and psychiatric diagnoses in a veteran sample (Marx et al., 2010).

Bradley et al. (2005) also found that the lowest effect sizes for interventions targeting posttraumatic stress existed in combat veteran samples. These results are possibly due to multiple traumatizations and more severe comorbidities. When studies using PE and CPT with veterans were reviewed (Steenkamp & Litz, 2013), effect sizes were only small to medium compared to supportive therapies. In addition, Schottenbauer and colleagues (2008) found that a large proportion of veterans exposed to trauma did not seek treatment, dropped out, refused to participate, or did not benefit from the interventions. While reviewing trauma outcome literature, they found attrition rates as high as 50% of the participants. Other researchers have found that veterans may not want to engage in exposure-based treatments due to having limited adaptive coping skills and social support (Becker & Zayfert, 2001).

When veterans do not believe they are ready to engage in exposure-based therapies, they are typically placed in psychoeducation and skill-based groups to prepare them for eventual treatment using CPT or PE. Many of these groups (i.e. DBT and ACT) use mindfulness-based and self-compassion components as part of the overall curriculum to develop more effective coping strategies and tolerate more distressing emotional and physical states (Vujanovic et al., 2011) Research conducted at the National Center for

PTSD has emphasized the benefits and utility of eclectic approaches of PTSD treatment that combine effective techniques from various modalities (http://www.ptsd.va.gov/professional/pages/overview-treatment-research.asp).

Complex trauma cases are increasing in presentation, particularly with the veteran population, so require more innovative and comprehensive treatments (Lombardo & Gray, 2005). Researchers have recognized the importance of targeting multiple areas of functioning when treating combat veterans (Hoge et al., 2004; Seal et al., 2009). Acquiring more information on the relationships between mindfulness, self-compassion, and PTSD might help to develop interventions that target both emotional distress and overall well-being.

THE CONSTRUCT OF MINDFULNESS

As understood in Buddhist psychology, mindfulness involves engaging with the current experience in a balanced way so that an individual neither ignores nor ruminates about particular aspects of an event. Greater clarity and objectivity are achieved by being able to take an observational perspective (Brown & Ryan, 2003). Traditionally, mindfulness is conceptualized as a way of being that ultimately leads to the cessation of unnecessary suffering (Hahn, 1976). In Buddhism, suffering originates from attachment to delusion and distorted perceptions of the environment and the self. Through insight and understanding, individuals can become non-attached from the unhealthy perceptions of the self and change the relationship they have with their environment (Epstein, 1995). Thus, mindfulness can also be described as a way to help reduce unnecessary suffering and improve overall quality of life.

Despite the Buddhist origins of mindfulness, Kabat Zinn (2003) emphasizes that *dukkha*, or suffering, is a universal concept that is inherent in any kind of understanding related to cognitive or emotional distress. The fundamental tenets of mindfulness are also similar to Western psychology's focus on the interconnectedness of behaviors, emotions, and cognitions and the importance of being aware of and observing that interdependence (Epstein, 1999). In addition, mindfulness is believed to enhance self-acceptance and foster one's ability to tolerate intense emotional experiences, thereby serving as defense for future stress (Chodron, 1997).

As mindfulness is becoming more popular in Western psychology, different conceptualizations and applications are being influenced by this traditionally Buddhist practice (Carmody, Baer, Lykins, & Olendzki, 2009). Langer (1989) initially explored the cognitive and social utility of mindfulness in the fields of education, health, and business; whereas, Kabat-Zinn (1982) focused on the therapeutic benefits of mindfulness as applied to medicine and psychology. Scholars have not yet agreed upon a concise definition of mindfulness and continue to debate about the elements comprising the construct (Grossman, 2008). Despite the multiple understandings of mindfulness, the most cited definition continues to be from the work of Kabat-Zinn (2003, p. 145): "the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment." He emphasizes that mindfulness involves stability of the body and mind as well as deep insight into physical and mental factors that contribute to one's ability to respond to stress.

In a series of meetings targeted to construct a cohesive and testable definition, Bishop and colleagues (2004) proposed a two-part definition of mindfulness consisting of self-regulation of attention and an open and accepting orientation to experience. They suggest that mindfulness is a metacognitive skill involving self-regulation of attention that cultivates a quality of relating to one's experience with a curious and non-judgmental stance. Acceptance involves being "experientially open" to the reality of the present moment, without judgment or rejection (Roemer & Orsillo, 2002, p. 7). It is described as an active process of allowing whatever thoughts, emotions, and sensations enter awareness (Bishop et al). Developing a stance of acceptance towards typically avoided negative thoughts is believed to subsequently change the relationship with those unpleasant events (Hayes et al., 1996). Purely accepting the negative events provides them to be subjectively experienced in a different context. It is believed that one can lessen the impact of the negative experience by addressing the struggle with those private events rather than targeting the events themselves.

As research continues to develop in the area of mindfulness, multiple measures have been created that seem to emphasize different aspects of the construct. Grossman (2008) recently acknowledged the difficulties of measuring mindfulness due to the conceptual variations among researchers and experts on how to define mindfulness. However, Feldman and colleagues (2007) recognize that having multiple measures can be beneficial in the initial stages of operationalization, since the measures come from slightly different perspectives, focus on different components of mindfulness, and are sampled on various populations. Despite the conceptual differences, the varied

mindfulness definitions and measures seem to share the common component of paying attention in the present moment without judgment or aversion (Shapiro, Oman, Thoresen, Plante, & Flinders, 2008).

One of the initial and most widely used measures of mindfulness, the MAAS (Brown & Ryan, 2004), is a unidimensional instrument that evaluates present moment attention and awareness. Brown and Ryan conceptualize mindfulness as a self-regulatory skill that focuses attention in the present moment. The authors argue that additional qualities added to definitions are likely more antecedents and outcomes of being mindful. Even though they conceptualize mindfulness as having an acceptance component, they found the acceptance items to be overlapping with attention items and were therefore excluded from the measure. However, the presence and acceptance factors were still moderately correlated across several measured samples suggesting that the MAAS may examine a kind of underlying "accepting awareness" (Brown & Ryan; 2003; Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008).

Empirical Support for the Benefits of Mindfulness

Over 2,000 studies within the past twenty years have been conducted examining how mindfulness relates to emotional, physical, and neurological functioning. Studies tend to measure mindfulness in one of the following ways: an individual trait, an outcome following a mindfulness-based intervention, or as an experientially-induced mindful state. The following review of the literature will focus on studies measuring dispositional mindfulness and its examination with other related factors. Trait mindfulness is found to be associated with lower levels of rumination, though suppression, perceived stress,

dissociation, alexythymia, impulsivity, and other negative cognitive patterns that are typically associated with poorer emotional functioning (Baer, Smith, Hopkins, Krietmeyer, and Toney, 2006; Lattimore, Fisher, & Malinowski, 2011; Shapiro et al., 2008; Walach et al., 2006). High levels of mindfulness have also been associated with reduced psychological distress, such as anxiety, depression, negative affect, and overall stress. In addition, mindfulness has been associated with greater positive well-being, emotional intelligence, life satisfaction, and self-control (Brown & Ryan, 2003; Lakey, Campbell, Brown, & Goodie, 2007; Shapiro et al., 2008). When examined in conjunction with personality traits, mindfulness was negatively related to neuroticism and high negative affect and positively related to conscientiousness, openness to experience, extraversion, and agreeableness (Brown & Ryan, 2003; Giluk, 2009).

In accordance with the notion that mindfulness involves balanced awareness and objectivity, it has also been linked to greater affect regulation strategies, including greater acceptance of emotions, and better ability to correct unpleasant emotional states (Brown & Ryan, 2003; Baer, Smith, & Allen, 2004). Weinstein and colleagues (2009) measured mindfulness levels throughout a series of stress-induced situations and found that more mindful participants perceived demanding situations as less threatening and were able to respond to them in more adaptive ways. Others studies have also shown that mindfulness predicts lower emotional reactivity to threatening situations (Arch & Craske, 2006; Creswell, Way, Eisenberger, & Lieberman, 2007) as well as quicker recovery from unpleasant emotional states, such as sadness (Broderick, 2005).

Interventions Incorporating Mindfulness-Based Techniques

One of the first mindfulness-based intervention programs was developed by Jon Kabat-Zinn (1982). He developed the intervention in an attempt to find alternative relief for medical patients with chronic pain or other stress-related disorders who were resistant to other forms of medical treatment. Mindfulness-based stress reduction (MBSR) is the most cited mindfulness program in the literature and has been found to be effective for improving symptoms of a variety of psychological and medical disorders, including but not limited to mood disorders, substance abuse, fibromyalgia, chronic pain, and eating disorders (Baer, 2003; Grossman et al., 2004; Salmon et al., 2004). MBSR is conducted as an 8-10 week course for groups of typically 30 to 40 participants. The class meets weekly for 2-2.5 hours, and there is usually a day-long retreat towards the end of the program to provide opportunity for more intense practice. The content of the course includes instruction and practice of meditation skills, as well as discussion of stress and coping.

Interventions incorporating mindfulness techniques are associated with reductions in depression, anxiety, negative affect, rumination, posttraumatic stress, and overall psychological distress (Baer, 2003; Grossman et al., 2004). Mindfulness has also been used to reduce impulse behaviors, such as substance abuse and binge eating, and improve overall health outcomes (Hofman, Sawyer, Witt, & Oh, 2010). Kabat-Zinn (2003) acknowledged that the deep breathing involved in mindfulness practices helps to balance the parasympathetic and sympathetic responses which can help to alleviate physiological stress responses. Supporting this component, large effect sizes were found in studies

using mindfulness-based therapies for patients with anxiety disorders and depression (Hofman et al., Kabat-Zinn). The evidence that exists across different types of samples suggests that the benefits of mindfulness range from improving everyday functioning to managing symptoms associated with more serious stress-related disorders (Carmody et al., 2009). Additionally, mindfulness interventions are shown to improve mood symptoms, from mild to severe, even when they were associated with other medical and psychological disorders (Hofman et al).

Mindfulness and Trauma

The empirical evidence previously reviewed supports the relationship between lower levels of mindfulness and higher levels of negative cognitive patterns that are typically associated with increased psychopathology. A great deal of literature has examined the relationship between mindfulness and anxiety and depression (Baer, 2003; Grossman et al., 2004; Hofman et al., 2010; Kabat-Zinn et al., 1992); however, there is a gap in the literature examining mindfulness as it relates to trauma. The intentional balanced awareness involved in mindfulness seems to specifically target the numbing, detachment, and avoidance typically found in symptoms of posttraumatic stress (Batten et al., 2005). In addition, mindfulness fosters non-judgmental contact with events that occur in the present moment (Kabat-Zinn, 1990). In a disorder such as PTSD where individuals repeatedly suffer from intrusive recollection of past memories, exhibiting qualities of mindfulness may eventually allow a non-evaluative perspective of typically avoided material (Hayes & Wilson, 2003).

Mindfulness and Avoidance

Mindfulness involves working towards noticing the labeling and judgment individuals make on their thoughts and feelings and the tendency to avoid negative emotional states. It focuses on allowing and accepting any experience that occurs in the present moment, regardless if it is negative or positive (Kabat-Zinn, 1990). Batten and colleagues (2005) suggest that engaging in mindfulness can be used as a substitute for experiential avoidance and allow individuals to feel connected and relate to their present-moment experiences from a broader perspective. Mindfulness can help individuals experiencing posttraumatic stress to be engaged in their present life, including activities and relationships, and be less consumed by past events related to trauma.

Thompson and Waltz (2010) recently examined the relationship between experiential avoidance, mindfulness, and posttraumatic stress. The researchers found that mindfulness predicted additional variance in the severity of avoidance-related symptoms in posttraumatic stress; this finding was particularly strong for the non-judgment component. In a separate study (Weinstein et al., 2009), mindfulness predicted lower levels of avoidant coping and higher levels of approach style coping in response to social threat during a stress-induced task. Thus, results from these studies highlight the association between a mindful individual's ability to be present and engaged in the moment, and approach stressful situations rather than implement avoidance-related strategies.

Mindfulness and Posttraumatic Symptoms

Research has only begun examining the relationship between mindfulness and posttraumatic stress but results are consistent. In an adult sample reporting childhood trauma, Michal and colleagues (2007), found that mindfulness, as measured by the Mindful Attention and Awareness Scale (MAAS; Brown & Ryan, 2003), was significantly negatively associated with depersonalization. Another study (Berstein, Tanay, & Vujanovic, 2011) showed that levels of the MAAS negatively predicted posttraumatic stress severity, psychiatric multimorbidity, anxious arousal, and depression in a sample reporting at least one traumatic event. Lastly, Vujanovic and colleagues (2009) found that increases in posttraumatic stress severity were negatively correlated to the Accepting Without Judgment and Acting Without Awareness subscales of the Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al., 2004) in a sample of trauma-exposed adults. Researchers have suggested mindfulness as a possible transdiagnostic factor for PTSD (Berstein et al.); however, more information is needed to understand how the two constructs influence each other as well as other variables of mental health and well-being.

Very few studies have been conducted using mindfulness-based interventions for individuals with PTSD, but preliminary results have been encouraging (Kimbrough et al., 2010; Wolfsdorf & Zlotnick, 1990). MBSR with adult survivors of child sexual abuse found statistically significant improvements in depression, anxiety, mindfulness, and posttraumatic stress, with particular reductions in the avoidance and numbing symptoms (Kimbrough et al., 2010). A mind-body intervention program was also utilized to treat

posttraumatic stress in adolescents exposed to war and ethnic violence and results showed significant decreases in traumatic symptoms post-intervention and at a 9-month follow-up (Gordon, Staples, Blyta, & Bytyqi, 2004).

Mindfulness has also been incorporated with ACT (Batten & Hayes, 2005; Twohig, 2009) and DBT (Becker & Zayfert, 2001) as treatment for PTSD and preliminary findings were positive. Researchers have postulated that mindfulness can be used as a more tolerable form of exposure therapy with individuals who have sustained multiple traumas (Baer, 2003; Shapiro et al., 2006). In addition, mindfulness interventions have been used as part of a larger intervention for individuals with PTSD to prepare them for more formal exposure treatment (Becker & Zayfert).

Mindfulness and Veterans

Despite the empirical support for mindfulness, few studies have examined the relationship of mindfulness and trauma in veterans. Most recently, a group of veterans with PTSD who completed a Mindfulness-Based Stress Reduction program had significant improvements in posttraumatic stress symptoms as well as mental health-related quality of life (Kearney et al., 2013). Another study examining mindfulness and emotional regulation in a VA PTSD residential program (Reber et al., 2012) found that greater nonjudgmental acceptance at intake predicted greater reductions in emotional suppression at discharge. Owens and colleagues (2011) also measured changes in mindfulness skills among veterans receiving inpatient treatment for PTSD. Although there were no significant changes in overall mindfulness levels, results found that improvements on the Describe, Acting with Awareness, and Accepting subscales of the

KIMS (Baer et al., 2004) negatively predicted posttraumatic symptoms following treatment. This finding suggests that the more an individual is able to focus their attention in the moment, describe or label their experience, and accept their thoughts and emotions, the less they will experience posttraumatic stress symptoms.

Another study examined outcome data from a brief 2-hour ACT-based workshop provided to OEF/OIF soldiers as part of a post-deployment reintegration program (Blevins, Roca, & Spencer, 2011). Results found that compared to participants in the control group, the soldiers reported decreases in depression, anxiety, and posttraumatic stress and increases in relationship satisfaction. Collectively, results suggest that demonstrating mindfulness-based skills can assist with resiliency and symptom reduction in military samples; however, much more empirical support is needed.

As previously discussed, increases in mindfulness have been empirically associated with improvements in psychological and physiological symptoms as well as enhancements in overall well-being (Baer, 2003; Grossman et al., 2004; Salmon et al., 2004). Kabat-Zinn (1990) also reports that cultivating mindfulness skills has a profound impact on trust in self and others; establishing trust is a significant difficulty not only in individuals with PTSD but combat veterans as well (Shay, 1994). Veterans returning from Iraq and Afghanistan exhibit a wide range of medical and emotional difficulties that are having an impact on their work, relationships, health, and daily functioning (Jakupcak et al., 2008; Seal et al., 2009). Developing a better understanding of mindfulness, psychopathology, and functional outcomes in trauma-exposed veterans will assist in the creation of comprehensive interventions that target multiple areas of functioning.

THE CONSTRUCT OF SELF-COMPASSION

A factor related to mindfulness that is receiving increased empirical attention and recognized as significantly relating to overall mental health and well-being is self-compassion (MacBeth & Gumley, 2012; Neff, 2003a; Shapiro, Astin, Bishop, & Cordova, 2005). Stemming from the Buddhist notion of compassion, self-compassion involves being open to experiencing one's pain and suffering and directing feelings of kindness inwards during moments of distress. Self-compassion also involves a nonjudgmental understanding of one's suffering in order to perceive experiences as part of the shared human experience.

Neff (2003b) theorizes self-compassion as being comprised of three elements: self-kindness, common humanity, and mindfulness. *Self-kindness* suggests that in the face of adversity or perceived shortcomings, one treats themselves with caring and understanding instead of with harsh criticism or judgment. People who are self-compassionate turn comfort inwards when experiencing difficulties rather than "soldiering on" to try and take control of the situation (Neff, 2009). *Common humanity* involves perceiving one's suffering as part of a broader human experience, rather than occurring in isolation. When people are faced with difficult and challenging times, they often feel alone and disconnected from others. Self-compassionate people are able to recognize that everyone experiences some form of suffering and can connect with others when dealing with pain. *Mindfulness* addresses having a balanced awareness in the present moment of one's experience so that distressing thoughts and feelings are neither avoided nor exacerbated. Being able to recognize that one is suffering is necessary in

order to employ compassion towards the self (Neff, 2003a; Neff, Kirkpatrick, & Rude, 2007).

Self-compassion is observed to have many of the benefits of self-esteem, such as positive self-affect and self-acceptance, without the consequences that can be affiliated with overly inflated self-esteem such as narcissism (Neff, 2009). In contrast to self-esteem, self-compassion does not involve egotism or self-centeredness. It instead provides an opportunity for individuals to let go of the feelings of self-judgment, isolation, and over-identification that are commonly associated with significant emotional distress (Van Dam, Sheppard, Forsyth, & Earlywine, 2010; Germer, 2009). When exhibiting self-compassion, painful experiences are neither suppressed nor forced to the surface, thus approaching the negative distress in a more balanced and tolerable way (Neff, Kirkpatrick, & Rude, 2007). Self-compassion can therefore be conceptualized as an emotional regulation strategy that transforms negative attitudes towards oneself into more positive ones (Neff, 2003a).

Self-compassion is also a healthy form of self-acceptance that involves acceptance of the overall self, even parts of our personality or emotional functioning that we would like to change. When an individual experiences high levels of shame and self-criticism, accepting the multiple parts of self is necessary to help reframe the distressful symptoms and begin to reduce suffering (Gilbert, 2005). Germer (2009) outlines five stages of acceptance that occur when a person is suffering: aversion, curiosity, tolerance, allowing, and friendship. The last stage emphasizes the distinction from acceptance as conceptualized in the mindfulness literature by adding a positive affective component.

Establishing friendship towards suffering provides an opportunity to embrace and learn the value of unpleasant experiences. It also provides a sense of emotional warmth and care when encountering difficult emotions. According to researchers, self-compassionate acceptance softens the resistance usually associated with suffering and is typically followed by change and alleviation of distress (Germer; Neff, 2003a). Recognizing the common humanity of suffering and realizing that all people experience pain and suffering also helps to reduce self-isolation and prevent making harsh judgments of the self (Neff, 2003b).

Empirical Support for the Benefits of Self-Compassion

Research consistently suggests that self-compassion is related to greater psychological health and well-being and promotes positive coping and resilience (MacBeth & Grumley, 2012; Neff, 2009). It is important to note that self-compassion does not suggest a reduction or absence of pain and suffering but allows individuals to relate to those negative experiences in a healthier way. Thus, in addition to reducing negative mind states, it also increases positive mind states such as emotional intelligence, social connectedness, satisfaction with life, happiness, overall positive well-being, and other-focused concerns (Neff & Pommier, 2012; Neff, 2003a). In addition, curiosity, exploration, and personal initiative have been found to be associated with self-compassion, indicating that individuals with higher levels of self-compassion are likely more motivated to improve their lives and engage with their environment in an open and curious manner (Neff, Rude, & Kirkpatrick, 2007). Lastly, in a recent study with later life

adults, self-compassion was linked to higher levels of well-being (Allen, Goldwasser, & Leary, 2012).

When examining the relationship between self-compassion and negative affect, a recent meta-analysis (MacBeth & Gumley, 2012) found large effect sizes for the relationship between self-compassion and psychopathology. Neff (2003b) found that higher levels of self-compassion are associated with lower levels of self-criticism, depression, anxiety, rumination, and thought suppression. Levels of self-compassion were also found to increase in a sample who completed an alcohol rehabilitation program (Brooks, Kay-Lambin, Bowman, & Childs, 2012). In addition, results from a study examining the relationship between self-compassion, depression, and anxiety (Raes, 2010) found that rumination mediated the relationship between self-compassion and anxiety and depression. These findings suggest that self-compassionate individuals are less likely to become attached and fixated on negative mood states that have been found to play a significant underlying role in the development and maintenance of psychopathology (Tull et. al., 2004).

When self-compassion was examined qualitatively in a sample with depression or anxiety (Pauley & McPherson, 2010), participants acknowledged that being more compassionate towards themselves would likely be beneficial in managing their distressing symptoms. However, most reflected that demonstrating self-compassion was difficult due to the negative impact of their psychological disorders. In addition, participants expressed feeling the exact opposite of self-compassionate when their anxious and depressive symptoms were high and did not believe they had the capacity to

demonstrate kindness towards themselves during those periods. This study provides more information on the relationship between self-compassion and psychological distress, particularly anxiety and depression, and confirms the important role that low self-compassion plays in the maintenance of mental health disorders (Germer, 2009).

Self-compassion has also been shown to provide mitigating effects of negative life events. Neff, Kirkpatrick, and Rude (2007) found that self-compassion served as a protective factor against experiencing anxiety when individuals had to identify their greatest weakness. These findings suggest that individuals with higher self-compassion are able to maintain an honest and healthy appraisal of their role in negative events instead of being overwhelmed with negative self-judgment. In addition, self-compassion appears to reduce self-evaluative anxiety by recognizing the imperfection of human nature and treating oneself kindly when confronted with a negative feedback.

Self-compassion has also been identified as a valuable coping resource that impacts the way in which an individual perceives stressful events (Allen and Leary, 2010). In a set of studies (Leary, Tate, Adams, Batt Allen, & Hancock, 2007), self-compassion predicted a more balanced and less negative response to both real and perceived negative life events. The researchers also found that maintaining a self-compassionate view allowed participants to take responsibility for their role in negative events without experiencing the feelings of self-criticism and blame that would typically accompany such a reaction. Additionally, in a study with breast cancer survivors (Przezdzieki et al., 2012), self-compassion mediated the relationship between body image disturbance and psychological distress. These findings suggested that high levels of self-

compassion had a protective effect on women who are at-risk of experiencing body image distress typically found in oncology settings.

The importance of acceptance and embracing suffering with kindness has also been linked to physical symptoms. In a sample from a community primary care clinic, self-compassion was linked to acceptance of chronic pain (Costa & Pinto-Gouveia, 2011). Participants that reported more engagement in activities and more willingness towards their chronic pain also demonstrated higher levels of kindness, common humanity, and mindfulness. Subgroups were identified based on level of acceptance, and low acceptance subgroups reported higher levels of self-judgment, isolation, and over-identification. In a separate study (Wren et al., 2012), self-compassion was a significant predictor of negative affect, positive affect, pain catastrophizing, and pain disability in a sample with persistent musculoskeletal pain. These studies highlight the importance of the way in which an individual relates to their painful experiences. In both studies, approaching their physical symptoms with acceptance and compassion seemed to reduce discomfort typically associated with those conditions.

Interventions Incorporating Self-Compassion Techniques

Researchers recognize the significant implications that self-compassion has for improved mental health and overall well-being and have started to develop training programs to teach self-compassion. Gilbert and Proctor (2006) created a Compassionate Mind Training (CMT) program for use with clinical samples who suffer from chronic emotional difficulties. Experts on shame and self-criticism research, they teach individuals skills to understand and soothe their own distress and develop a more secure

and stable attachment to the self. Using cognitive training in a group setting, the program uses compassionate imagery and aims to replace the automatic tendency to self-criticize with responses of nurturance and support. Research has found significant reductions in anxiety, self-criticism, depression, shame, and inferiority following the completion of the program (Gilbert, 2005).

Stemming from CMT, Gilbert (2009) introduced Compassion-Focused Therapy (CFT) as using compassion and self-compassion to help regulate and sooth internal threat systems. CFT is an integrated approach that stems from neuroscience and developmental, evolutionary, social, and Buddhist psychology. Gilbert (2009) suggests using CFT with many different clinical populations who experience high levels of underlying shame and self-criticism, including victims of trauma. Significant improvements have been found using CFT as a treatment for anxiety disorders (Welford, 2010).

In addition, Neff and Germer (2013) recently developed a Mindful Self-Compassion (MSC) workshop that incorporates both mindfulness and self-compassion into a training aimed at personal growth and development. This 8-week, 2.5 hour class incorporates meditation, informal practice, and assigned weekly homework to help develop ways to treat oneself kindly and manage difficult emotions. A recent randomized wait-list control study (Neff and Germer, 2013) examined the impact of the Mindful Self-Compassion (MSC) program on a community sample. Results found significant post-test improvements in mindfulness, compassion for others, social connectedness, life satisfaction, happiness, depression, anxiety, stress, and impact of life events. These improvements were also maintained at 6 and 12-month follow ups. Although this is one

of the first studies assessing outcomes from the MSC program, results are promising and suggest that training individuals to be more mindful and self-compassionate contributes significantly to overall psychological health and well-being (Neff & Germer, 2011).

Self-compassion and Trauma-Related Symptoms

Self-compassion involves kindness and self-soothing rather than self-criticism when dealing with difficult life events. Thus, a self-compassionate individual will cultivate the emotional safety needed to deal with distressing situations, rather than employ methods to run away or avoid them. Neff (2003a) found that self-compassion is negatively correlated with attempts to repress or avoid unwanted thoughts, particularly those related to unpleasant affect. When examining relationships between self-compassion and coping strategies during academic failure, one study (Neff, Hsieh, & Dejitterat, 2005) found that self-compassion was negatively associated with avoidance-oriented coping strategies, with significant findings related to denial and mental disengagement. This suggests that having self-compassion allows an individual to acknowledge and accept failure situations, while having the capacity to process and cope with the setback in a more adaptive manner. Whereas, individuals low in self-compassion will likely attempt to deny or detach oneself from the situation to avoid experiencing the negative consequences of the failed task. Repressing and denying negative emotions can cause the adverse effect of increases in those intrusive thoughts (Wegner et al., 1987). Therefore, responding to negative affect with compassionate awareness can provide an adaptive way to process and cope with a stressful situation, rather than demonstrate feelings of self-criticism and self-doubt.

When examined in a sample with a childhood history of trauma (Vettese et al., 2011), lower level of self-compassion were associated with child maltreatment and difficulties with emotional regulation. When analyzed with other predictor variables, low levels of self-compassion predicted emotional dysregulation above and beyond maltreatment history, current psychological distress, and substance-related problems. A separate study with adolescents (Tanaka et al., 2011) found that low self-compassion was associated with a history of emotional and physical abuse, increased psychological distress, problematic alcohol use, and suicide attempts. These studies suggest that individuals with a history of trauma may develop low self-compassion which may in turn be associated with greater psychological difficulties.

Even though these just mentioned factors are all associated with symptoms of PTSD (Hoge et al., 2004; Tanielian & Jaycox, 2008; Tull et al., 2004), research examining the relationship between trauma and self-compassion is extremely limited. To date, only one study has assessed levels of self-compassion in a sample diagnosed with PTSD (Thompson & Waltz, 2010). The researchers found that individuals with greater levels of self-compassion showed significantly less avoidance symptoms. These results suggest that individuals with higher self-compassion were more willing to engage with the memories and associated negative symptomology related to their trauma. They may feel less threatened by their trauma-related thoughts and feelings and be more willing to comfort themselves during times of intense distress. These preliminary findings suggest that when managing posttraumatic symptoms, more self-compassionate individuals may be more willing to engage in exposure-based treatments (Thompson & Waltz).

RELATIONSHIP BETWEEN MINDFULNESS AND SELF-COMPASSION

Both mindfulness and self-compassion are receiving strong empirical support as emotional regulation strategies that buffer against reacting negatively to stressful events (Neff, Kirkpatrick, & Rude, 2007), and that also enhance overall health and well being (Baer, 2003; Grossman et al., 2004; MacBeth & Gumley, 2012; Salmon et al., 2004). Thus, it is important to examine the relationship between these two constructs and explore their distinct yet complementary qualities. As previously mentioned, mindfulness is described as a present moment attention and awareness that encompasses attitudes of non-judgmental acceptance (Kabat Zinn, 1990), while self-compassion involves treating oneself with kindness and concern when faced with distressing circumstances (Neff, 2003b). Self-compassion also emphasizes demonstrating mindful awareness of painful thoughts and emotions, rather than avoiding or clinging to them, and acknowledging the common human experience of suffering (Neff, 2003a). As noted before, demonstrating a mindful attitude of non-judgment and acceptance towards negative private thoughts and emotions is necessary prior to embracing the suffering (Birnie, Speca, & Carlson, 2010). Thus, as expected, a measure of mindful attention and awareness (MAAS; Brown & Ryan, 2003) was found to be significantly correlated with self-compassion (SCS; Neff, 2003a; Baer et. al., 2006).

However, one distinction between mindfulness and self-compassion lies in the kind of interaction one has with the present moment experience. Mindfulness is a general awareness of one’s internal experience that focuses on the thoughts, emotions, and sensations that arise (Kabat-Zinn, 1990); whereas self-compassion adds the active

element of treating oneself with kindness and care in times when those experiences are negative and painful (Neff, 2003b). Even though mindfulness is one of the three factors used to describe self-compassion, the interpretations seem to vary slightly between the two constructs.

When both mindfulness and self-compassion measures are examined together the Mindfulness subscale of the Self-Compassion Scale (SCS; Neff, 2003) relates more with the four other subscales on the SCS, than with overall mindfulness as measured by the MAAS (Brown & Ryan, 2003; Van Dam, Sheppard, Forsyth, & Earleywine, 2011). Mindfulness, as interpreted in self-compassion, seems to demonstrate a more traditional Buddhist notion of a balanced mental state rather than specific attention and awareness. Self-compassion focuses more on the temporality and fleeting nature of experiences as well as the acknowledgement that suffering is not unique to the individual (Van Dam et al.). Thus, concurrently measuring the two constructs can provide different yet complementary information on how one relates to distress.

Conceptualizations of acceptance also seem to differ somewhat when exploring the constructs of mindfulness and self-compassion. Similar to mindfulness, Germer (2009, p. 11) defines acceptance as embracing “whatever arises within us, moment to moment, just as it is.” However, self-compassion adds the element of accepting, comforting and soothing the person to whom the experience is happening. Self-compassion is acceptance of not only the experience, but the person and the person’s reaction to that experience (Germer). Researchers believe that adding compassion to

acceptance allows an individual to fully embrace themselves and their present moment experiences rather than just the experience itself (Gilbert, 2006; Neff, 2003a).

When examining relationships between both mindfulness and self-compassion to mental health and functional outcomes in a community sample (Van Dam et al., 2011), self-compassion was a significantly greater predictor of anxiety, depression, and quality of life than mindfulness. The SCS uniquely accounted for 10 to 27% of the variance in the outcome measures, while the MAAS only uniquely accounted for between 1 and 3% of the variance. This finding illustrates the benefit of self-compassion as a predictor of mental health and overall well being above and beyond mindfulness. In other words, demonstrating focused attention and awareness seems to be less important in predicting outcomes than examining how one relates to those internal experiences. However, due to the unique contribution of both self-compassion and mindfulness, it is recommended to consider both when measuring predictors of outcome variables (Van Dam et al.).

As described previously, results following participation in an MSC program found significant improvements across multiple areas of psychological functioning and well-being in a community sample (Neff & Germer, 2013). Interestingly, mindfulness was a stronger predictor above self-compassion of perceived stress; whereas, self-compassion was a stronger predictor above mindfulness on most of the other indices, including social connectedness, happiness, depression, and anxiety. Mindfulness, however, was the sole predictor of emotional avoidance as measured by a subscale on the Impact of Events scale (Weiss & Marmar, 1997). These findings suggest that the mindfulness component of an intervention may target more perceived overall stress and

emotional avoidance, while self-compassion addresses most other areas of psychological health and overall quality of life.

PROPOSED STUDY

Statement of Purpose

The proposed study will examine self-compassion, as measured by the SCS, and mindfulness, as measured by the MAAS, as predictors of psychopathology (posttraumatic stress, depression, anxiety, and stress) and functional outcomes (quality of life and functional disability) in a sample of trauma-exposed OEF/OIF veterans. Experiential avoidance will be proposed as a mediator of the relationship between mindfulness and self-compassion with psychopathology and functional outcomes. Relations among self-compassion, mindfulness, acceptance of chronic pain, posttraumatic growth, and misuse of alcohol will also be examined.

Despite empirical support for the mental health benefits of mindfulness and self-compassion, there are no published studies examining mindfulness, self-compassion, and experiential avoidance in trauma-exposed veterans. The focus of mindfulness practice seems to specifically target the avoidance, detachment, and numbing typically found in combat veterans (Batten et al., 2005). In addition, self-compassion directly relates to the self-criticism, self-isolation, and self-absorption that are typically found in individuals with chronic mental health difficulties (Germer, 2009).

PTSD has often been conceptualized as a disorder of experiential avoidance since the pervasive efforts to avoid the traumatic material typically result in long-term exacerbation of the related thoughts, feelings, and memories (Batton et al., 2005).

Experiential avoidance has consistently been found to influence symptom severity and quality of life in samples with chronic mood and pain disorders (Costa & Pinto-Gouvela, 2011; Kashdan, Barrios, Forsyth, & Steger, 2006). Both mindfulness and self-compassion focus on allowing unpleasant thoughts and emotions to arise and turning towards, rather than avoiding, distressful symptoms (Kabat-Zinn, 1990; Neff, 2003a). They also emphasize an attitude of openness, curiosity, and acceptance in moments of suffering which promotes the development of distress tolerance and self-soothing capabilities. Thus, it is valuable to examine how these factors together contribute to outcomes of mental health and overall well-being. Identifying predictors of psychopathology and functional outcomes in a veteran sample will help develop appropriate interventions that target the comprehensive needs of this growing population.

This study aims to build upon existing research of veterans and examine the predictive relationships of mindfulness, self-compassion, and experiential avoidance on outcomes of mental health and overall well-being. Prevalence rates of PTSD diagnoses from OEF/OIF veterans typically range between 12 and 20 percent (Hoge et al., 2004). Local data queries support this finding, with 21% of veterans enrolled for care in the CTVHCS having a diagnosis of PTSD. There is a gap in the literature examining mindfulness, self-compassion, avoidance, and trauma, and conducting this study with a sample of trauma-exposed OEF/OIF veterans will provide a valuable contribution to this growing field. Baseline data from Project SERVE (Study Evaluating Returning Veteran's Experiences) Pilot Study, Project SERVE:FX, and Project PREDICT from the VA Center of Excellence for Research on Returning War Veterans will be used. These projects are

ongoing research studies within the Central Texas VA system and follow-up data is currently being collected for longitudinal analyses. For the purposes of this proposed study, only baseline measures will be examined.

PROPOSED RESEARCH QUESTIONS

Research Question 1: What is the relationship of mindfulness, self-compassion, and experiential avoidance to posttraumatic stress?

Hypothesis 1: It is hypothesized that there will be a significant negative association of mindfulness and self-compassion with overall posttraumatic stress while accounting for combat exposure. This effect will be partially mediated by experiential avoidance, specifically that higher levels of mindfulness and self-compassion will predict lower levels of experiential avoidance which will then predict lower levels of posttraumatic stress.

Rationale: The examination of mindfulness and self-compassion with posttraumatic stress is relatively new in the literature but findings have shown strong relationships. Mindfulness, as measured by the MAAS, predicted posttraumatic stress symptom severity (Bernstein et al., 2011) and depersonalization (Brown & Ryan, 2003) in trauma-exposed samples. In addition, self-compassion has predicted significantly less avoidance (Thompson & Waltz, 2010) in a sample diagnosed with PTSD.

Correlations between mindfulness, as measured by the MAAS, and experiential avoidance, as measured by the AAQ, have been as high as .52 (Moore, Brody, & Dierberger, 2009), suggesting the possibility for a strong association. Experiential avoidance has been found to strongly predict severity of posttraumatic stress (Plumb et

al., 2004) as well as mediate the impact of trauma on psychological distress (Orcutt et al., 2005; Reddy, Pickett et al., 2006). In addition, experiential avoidance has mediated the relationship between cognitive flexibility and symptoms of PTSD (Palm & Follette, 2011).

Research Question 2: What is the influence of mindfulness, self-compassion, and experiential avoidance on psychological distress?

Hypothesis 2: It is hypothesized that there will be a significant negative association of mindfulness and self-compassion with overall psychological distress while accounting for combat exposure. This effect will be partially mediated by experiential avoidance, specifically that higher levels of mindfulness and self-compassion will predict lower levels of experiential avoidance which will then predict lower levels of psychological distress.

Rationale: It is well established that greater levels of trait mindfulness are associated with lower levels of depression and anxiety (Baer, 2003; Grossman et al., 2004; Hofmann et al., 2010; Salmon et al., 2004). In addition, self-compassion has been linked to lower levels of anxiety and depression (MacBeth & Grumley, 2012; Neff, Rude, & Kirkpatrick, 2007; Raes, 2010). Experiential avoidance has been conceptualized as a mechanism underlying many psychological disorders (Hayes et al., 1996), and research has found that experiential avoidance partially mediated the association between history of sexual victimization and depression (Merwin, Zachary Rosenthal, & Coffey, 2009). In addition, the relationship between cognitive flexibility and depression was fully mediated in a sample of women with trauma histories (Palm & Follete, 2011). When examined in a

group of college students, experiential avoidance was found to significantly mediate the relationship between history of childhood abuse and overall psychological distress (Reddy et al., 2006).

Research Question 3: What is the influence of mindfulness, self-compassion, and experiential avoidance on functionality?

Hypothesis 1: It is hypothesized that there will be a significant positive association of mindfulness and self-compassion with overall functionality while accounting for combat exposure. This effect will be partially mediated by experiential avoidance, specifically that higher levels of mindfulness and self-compassion will predict lower levels of experiential avoidance which will then predict higher levels of functionality.

Rationale: Mindfulness and self-compassion have strong associations with quality of life and life satisfaction (Allen et al., 2012; Brown & Ryan, 2003; Neff, Rude, & Kirkpatrick, 2007; Shapiro et al., 2008). In addition, experiential avoidance has been found to mediate the relationship between psychological distress and quality of life, while high experiential avoidance is also significantly related to poorer life functioning (Kashdan et al., 2009).

The latent variable of Functionality will be comprised of total scores from the World Health Organization Disability Assessment Schedule II (WHO-DAS II; World Health Organization, 2001) and Quality of Life Scale (QLS; Burckhardt et al., 1989). These two measures were combined in order to have both a general life satisfaction inventory as well as a measure that assesses daily disability and functioning. Both the WHO-DAS II and QLS have been associated with a variety of mental health and physical

health outcomes (Burckhardt & Anderson, 2003; Chwastiak & Von Korff, 2003; Hägg, Burckhardt, Fritzell, & Nordwall, 2003).

Research Question 4: Are mindfulness and self-compassion associated with posttraumatic growth?

Hypothesis 4: It is hypothesized that mindfulness and self-compassion will have a significant positive association with higher levels of posttraumatic growth.

Rationale: Posttraumatic growth is a newly measured construct in the literature and to the researcher's knowledge has not been examined with mindfulness or self-compassion. Thus, the hypothesized relationship is exploratory in nature. Posttraumatic growth involves a new appreciation for life, greater personal strength, and enhanced spirituality (Tedeschi & Calhoun, 1996). Theoretically, it can be suggested that creating positive changes following a traumatic event involves having a compassionate view towards oneself during the times of struggle (Neff, 2003a) and approaching negative events related to trauma with awareness and acceptance (Brown & Ryan, 2003). However, no research has examined this particular relationship. Since both mindfulness and self-compassion have been conceptualized as a form of emotional resiliency (Broderick, 2005; Neff, 2009) and are related to life satisfaction (Brown & Ryan; Lakey et al., 2007; Neff, Rude, & Kirkpatrick, 2007; Shapiro et al., 2008) there is the likelihood that a significant association is present.

Research Question 5: Are mindfulness and self-compassion associated with alcohol misuse?

Hypothesis 5: It is hypothesized that mindfulness and self-compassion will be significantly negatively associated with misuse of alcohol.

Rationale: Research has found empirical evidence of a strong negative association between mindfulness and alcohol use (Fernandez, Wood, Stein, & Rossi, 2010). A separate study found that large amounts of alcohol consumption were associated with low levels of mindfulness, as measured by the MAAS (Brown & Ryan, 2003; Gallagher, Hudepohl, & Parrott, 2010). Limited studies have examined the relationship between alcohol use and self-compassion so this part of the analysis is largely exploratory. However, one study did find that alcohol use was negatively correlated with self-compassion (Brooks et al., 2012; Rendon, 2007). Alcohol misuse can be conceptualized as a form of avoidant coping during negative situations (Hayes et al., 2006) and a way to self-medicate during unpleasant affective states (Pullen, 1994). Thus, it is likely that a self-compassionate individual will possess the emotional resiliency and balanced awareness to assist in combating negative events (Neff, 2008) and will be less likely to engage in alcohol misuse.

Research Question 6: Are mindfulness and self-compassion associated with acceptance of chronic pain?

Hypothesis 6: It is hypothesized that mindfulness and self-compassion will be significantly and positively associated with acceptance of chronic pain.

Rationale: Research has found that self-compassion and mindfulness help reduce the fear and anxiety typically associated with chronic pain (McCracken & Keogh, 2009; Wren et al., 2012). In addition, mindfulness-based interventions have evidenced strong support as

a way to accept and manage chronic pain (Kabat-Zinn, 1990). Self-compassion has been linked to acceptance of chronic pain in one study using a sample from a community primary care clinic and results suggested that participants with more willingness to accept their pain also reported more kindness, common humanity, and mindfulness (Costa & Pinto-Gouveia, 2011). Mindfulness, self-compassion, and acceptance of chronic pain have never been measured together much less in a veteran sample; thus, this question is largely exploratory. However, since self-compassion involves acceptance and self-kindness during moments of painful experiences (Neff, 2003a), there is the likelihood that a strong association is present.

Chapter Three: Methods

The current study is an analysis of archival data collected through the VA Center of Excellence for Research on Returning War Veterans in Waco, Texas. Self-report data will be used from Project SERVE Pilot Study, Project SERVE FX, and Project PREDICT. Participants in Project PREDICT were drawn from Project SERVE and data was combined between the two studies to minimize the burden of the participants. Longitudinal data continues to be collected for both studies; however, only baseline data will be used in this proposed study. All studies submitted research proposals and were approved by the VA IRB prior to initial data collection.

PARTICIPANTS AND PROCEDURES

Participants were recruited for Project SERVE through direct mailings, advertising at enrollment sites and veterans' service organizations, and in-service presentations to primary care staff, mental health staff, and OEF/OIF coordinators. Recruitment was targeted toward over-sampling individuals with mental health diagnoses. Veterans were either enrolled in Central Texas Veteran's Health Care System) CTVHCS or willing to be enrolled for the purposes of participating in the study.

The following were inclusion criteria for participation in the study: OEF/OIF veteran status, English-speaking, age 18 years or older, able to comprehend and sign the informed consent, able to complete the structured interviews and self-reports measures, willing to be contacted for follow-up data collection, deemed stable on psychotropic medications (defined as >3 months on a selective serotonin reuptake inhibitor or monoamine oxidase inhibitor, >1 month on an anxiolytic or beta-blocker, >1 month

medication discontinuation), and deemed stable in psychotherapy (>3 months stabilization for psychotherapy or 1-month past discontinued psychotherapy).

Exclusion criteria included the presence of a current or lifetime Axis I psychotic disorder (bipolar disorder, schizophrenia, schizoaffective disorder), reports of current suicidal or homicidal risk warranting a crisis intervention, reports of symptoms consistent with severe traumatic brain injury, or plans to relocate out of the CTVHCS system within four months post protocol initiation.

Eligibility for participation in Project PREDICT included history of trauma exposure determined during baseline assessment of Project SERVE. Participants who met the eligibility criteria for Project PREDICT were contacted to participate in the additional study. If they expressed interest in participating, they were provided with a brief overview of the study and an opportunity to ask questions. Those who agreed to participate were able to continue with the informed consent process and study procedures at that time or schedule an additional appointment. Out of those participants who were eligible, 65% of the Project SERVE sample accepted additional participation in Project PREDICT.

The sample for Project PREDICT included 118 OEF/OIF veterans who met criterion A for PTSD. Eligibility was assessed by the Clinician-Administered PTSD scale for DSM-IV (CAPS; Blake, Weathers, Nagy, & Kaloupek, 1995). Within the trauma-exposed sample who completed the CAPS, 46.2% met the criteria for current military-related PTSD, 70.8% met lifetime criteria, 26.4% met lifetime criteria but not current

criteria, and 26.4% had never met the criteria for PTSD. The current study will utilize data from all 118 OEF/OIF veterans who participated in Project PREDICT.

Participants were compensated as follows: $25 for completion of Project PREDICT baseline assessments, which were estimated to take 1.5 to 2 hours to complete. As previously mentioned, only baseline data will be used for this current study.

Among the 118 OEF/OIF veterans who participated in PREDICT, 81% of the sample were male and 16% were female. Studies with OEF/OIF veterans typically have a sample comprised of less than 10% female (Jakupcak et al., 2008; Hoge et al., 2004; Thomas et al., 2010), so having this percentage of female participants is a strength of the study. Mean age was 34.3, with the largest representation of participants age 40+ years old (38.8%), 28.9% were between the ages of 30 and 39 years old, 25.7% were between the ages of 25 and 29 years old, and 5.1% were less than 25 years old. Racial/ethnic composition of the sample consisted of 30% Hispanic, 24% African-American, and 57% Caucasian participants. Highest level of education level varied with a majority of the participants having some college experience (45.5%), 12.4% graduated from high school or earned their GED, 13.2% had an associate's degree, .8% had a technical certification, 14.9% held a bachelor's degree, while 6.6% had a graduate degree. A majority of the participants described themselves as married (57.9%), while 10.7% were single and not dating, 5.8% were single and in a casual relationship, 6.6% were single and in a serious relationship, 1.7% were engaged to be married, 1.7% were married but geographically separated, 5.0% were married but separated, and 6.6% are divorced.

Measures

Demographic Questionnaire and Military History Form. Participants were asked to respond to questions providing information about their demographics, including age, gender, race/ethnicity, level of education, employment status, income, and relationship status. Veteran-specific characteristics, including years of military service, branch, and family history of military service were also included.

Treatment Involvement Form. The Treatment Involvement Form was created for use in this study to assess treatment involvement during the previous 4 months, including medical, psychiatric, psychological treatment, and supportive intervention (e.g. Alcoholics Anonymous). Due to the multiple types of interventions classified, participants were coded as either participating in treatment or not participating in treatment in the preliminary analyses.

Full Combat Experiences Scale. The Full Combat Experiences Scale (FCES; Hoge et al., 2004) was developed to measure combat experiences of military deployed to Iraq and Afghanistan. It is a 33-item self-report measure assessing exposure to typical combat-related experiences, such as firing a weapon, being fired on (by enemy or friendly fire), and witnessing injury or death. Participants rate the frequency of the particular event experienced during combat on a 5-point Likert scale from 0 (“Never”) to (“10+ times”).

The items provide a description of objective combat-related experiences and do not include subjective interpretations or judgments about the wartime events. Higher scores on the FCES reflect greater exposure to combat (Hoge et. al, 2004). Higher scores

on the FCES combat experiences scale were significantly associated with higher levels of posttraumatic stress and depression, as well as lowers levels of mental health and cognitive functioning in military deployed to Iraq and Afghanistan (Hoge et al). The Cronbach's alpha for this study was .92.

Self-Compassion Scale (SCS). The Self-Compassion Scale (SCS; Neff, 2003b) is a 26-item self-report questionnaire designed to assess overall self-compassion as well as the three facets that comprise self-compassion: common humanity, mindfulness, and self-kindness. Six subscales represent a positive and negative aspect of each facet, with negative items reverse-coded. The six subscales are as follows: self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification. In addition, inter-correlations between the six factors can be explained by a single higher-order factor of self-compassion which comprises a total score.

Respondents describe how they relate to themselves during times of distress by using a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). Sample items include, "When times are really difficult, I tend to be tough on myself" and "When something painful happens I try to take a balanced view of the situation" (Neff, 2003b). The SCS has been found to demonstrate strong divergent and convergent validity. Reliability and internal consistency have also been stable, with Cronbach's alpha ranging from .91 to .94 (Neff, 2003b; Neff et al., 2005). In this study, Cronbach's alpha measured slightly greater at .95.

Higher scores on the measure reflect higher levels of self-compassion. The SCS has been negatively associated with depression, anxiety (MacBeth & Gumley, 2012;

Neff, 2003b; Neff, Rude, & Kirkpatrick, 2007), and avoidant coping (Neff et al., 2005) and positively associated with life satisfaction (Neff, 2003b).

For the present study, the items comprising the measure will be divided into three sets of item parcels based on the three facets (common humanity vs. isolation, mindfulness vs. overidentification, and self-kindness vs. self-judgment) for use in the latent variable models (Neff, 2003b). This strategy allows for researchers to include multiple indicators of a construct when there are limited measures available or when practical reasons do not allow multiple measures of a construct to be included in a study (Weston & Gore, 2006). In addition, the subscales of each facet will be combined to make three indicators loading onto the self-compassion latent variable (Kline, 2011). This method is preferable to using six indicators comprised of the subscales in order to preserve overall power of the model.

Mindfulness Attention Awareness Scale (MAAS). The Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003) is a 15-item trait-type self-report scale that assesses mindfulness as enhanced awareness of and attention to current experience. It is a single factor measure that uses a Likert scale ranging from 1 (“Almost Always”) to 6 (“Almost Never”). Although, Brown and Ryan originally designed the measure to include two scales, attention and acceptance, they significantly overlapped and the measure was found to better represent a unidimensional assessment of mindfulness. The MAAS has demonstrated adequate psychometric qualities of reliability and validity, with Cronbach’s alpha ranging from .82 and .89 (Brown & Ryan; MacKillop & Anderson, 2007). In this study, the Cronbach’s alpha measured stronger at .94.

The MAAS was developed for use with general populations regardless of past meditation experience, and has shown to discriminate between mindfulness practitioners and a control group. Sample items include “I rush through activities without being really attentive to them” and “I find it difficult to stay focused on what’s happening in the present” (Brown & Ryan, 2003). Higher scores on the MAAS reflect increased mindfulness in everyday activities. The MAAS has been significantly negatively related to anxiety and depression (Brown & Ryan) as well as associated with positive treatment gains in a sample receiving treatment for anxiety disorders (Roemer et al., 2008). This measure has also shown positive associations with greater life satisfaction (Brown & Ryan).

The item-parceling strategy described above was also used for this measure in the latent variable models creating even/odd scales of the questionnaire items (Weston & Gore, 2006). Although three or four indicators are preferable for a latent variable, two indicators is the minimum number required for identification (Kline, 2011). Due to the small sample size, two indicators were used in this analysis in order to preserve power.

Acceptance and Action Questionnaire – 2nd Edition. The Acceptance and Action Questionnaire (AAQ-II; Bond et al., in press), is a 7-item self-report measure that assesses acceptance, experiential avoidance, and psychological inflexibility. This newly updated version of the instrument correlates strong with the original AAQ (r = .97; Hayes et al., 2004) but with stronger psychometric properties (Bond et al.). Sample items include “My painful memories prevent me from having a fulfilling life” and “I’m afraid

of my feelings." The AAQ-II has demonstrated adequate reliability and validity, with Cronbach's alpha ranging from .78 to .88. The Cronbach's alpha for this study was .91.

Higher scores on this measure indicate greater levels of experiential avoidance. Higher scores are significantly associated with depression, anxiety, and stress (Bond et al., in press). Studies using the AAQ also found significant positive relations with posttraumatic stress (Marx & Sloan, 2005; Tull et al., 2004). Odd/even item parcels were used to create the latent variable construct for experiential avoidance (Weston & Gore, 2006).

PTSD Checklist – Military Version (PCL-M). The PTSD Checklist – Military Version (PCL-M; Weathers et al., as cited in Blanchard, Jones Alexander, Buckley, & Forneris, 1996) is a widely used self-report instrument developed by the National Center for PTSD. The 17 items are rated on a Likert scale from 1 ("not at all") to 5 ("extremely") and include symptoms from each of the three PTSD symptom clusters: criterion B (reexperiencing), criterion C (avoidance/numbing), and criterion D (hyperarousal). Sample items include: "Repeated disturbing dreams of a stressful military experience" and "Suddenly acting or feeling as if a stressful military experience were happening again (as if you were reliving it)." Respondents are instructed to describe symptom occurrence within the past month.

The PCL-M has been shown to be a reliable and valid measure for use with veterans and has been validated against the "gold-standard" Clinician-Administered PTSD Scale (Blanchard et al., 1996). Although reliable to use as a diagnostic tool for PTSD, the PCL-M was used in this study to measure level of recent symptom distress

rather than to make a diagnosis of PTSD. Studies have yielded good psychometric properties, with Cronbach's alpha ranging from .96 to .98 (Owens et al., 2009; Pietrzak et al., 2009). The Cronbach's alpha for this study was .96.

Higher scores reflect greater levels of posttraumatic stress. High scores on the PCL-M have been associated with higher levels of depression (Owens et al., 2009), functional impairment (Jakupcak et al., 2011; Thomas et al., 2010), and physical symptoms (Jakupcak et al., 2008), with lower levels of quality of life (Morrill et al., 2008). Due to recent research providing evidence for a four-factor model of PTSD (Simms, Watson, & Doebbeleing, 2002; Yufik & Simms, 2010), the latent variable was comprised of four indicators for the following symptom categories: intrusions, avoidance, dysphoria, and hyperarousal.

Depression, Anxiety, and Stress Scale – 21. The Depression, Anxiety, and Stress Scale – 21 item version (DASS-21; Lovibond & Lovibond, 1995) is a self-report measure developed to assess depression, hyperarousal, and tension in both clinical and nonclinical groups. The DASS-21 is a shortened version of the 42-item DASS and is suggested to have a cleaner latent structure, as problem items were omitted (Henry & Crawford, 2005). The DASS-21 is comprised of three subscales measuring low physiological arousal (DASS - Depression), physiological hyperarousal (DASS - PA), and negative affectivity (DASS – Stress). The DASS-21 demonstrates satisfactory convergent and divergent validity, with Cronbach's alpha ranging from .87 to .97 on the subscales (Anthony, Bieling, Cox, Enns, & Swinson, 1998). In this study, the Cronbach's alpha for each of the subscales was .93 (Depression), .87 (PA), and .91 (Stress).

Higher scores on each of the subscales reflect higher levels of distress. High scores on the DASS-21 scales have been negatively associated to quality of life (Alvarez, Bados, & Pero, 2010; Bucks et al., 2011). Sample items include “I found it difficult to relax” and “I felt that I was using a lot of nervous energy.”

Quality of Life Scale. The Quality of Life Scale (QLS; Burckhardt et al., 1989) is a 16-item self-report measure assessing life satisfaction in 16 distinct domain areas, including physical well-being, significant others, social, community, relationships, civic activities, independence, recreation, and personal development and fulfillment. The QLS was developed for use in a population with chronic health conditions but has been normed to use with general populations as well (Hägg et al., 2003). Participants are instructed to rate their satisfaction on a 7-point Likert-type scale ranging from 1 (“Delighted”) to 7 (“Terrible”). Sample items include “Socializing – meeting other people, doing things, parties, etc.” and “Material comforts, home, food, conveniences, financial security.” Psychometric properties have been strong, with Cronbach’s alpha ranging from .82 to .92 (Burckhardt et al., 1989; Burckhardt & Anderson, 2003). In this study, Cronbach’s alpha measured at .94.

Higher scores indicate greater overall life satisfaction and have been positively associated with job satisfaction and marital satisfaction, while significant negative associations were found with depression, physical dysfunction, chronic pain (Hägg et al., 2003).

World Health Organization Disability Assessment Schedule II. The World Health Organization Disability Assessment Schedule II (WHO-DAS II; World Health

Organization, 2001) assesses disability and functioning in the past 30 days in six different life domains, including Understanding and Communicating, Getting Around, Self-Care, Getting Along with Others, Household and Work Activities, and Participation in society. The measure was developed based off the International Classification of Functioning, Disability and Health (ICF; World Health Organization, 2001). The instrument provides six subscale scores as well as a total score. Participants rate items on a 5-point Likert scale from 1 ("no difficulty") to 5 ("extreme difficulty or inability to perform the activity") and sample items include "Analyzing and finding solutions to problems in day-to-day life" and "Getting out of your home." The WHO-DAS-II demonstrates good reliability and validity. Cronbach's alpha has ranged between .70 and .97 (Pösl, Cieza, & Stucki, 2007), with a value of .91 for this study.

The measure is intended to be used with both clinical and non-clinical populations and has been found to be strongly associated with depression and a variety of medical and chronic health conditions (Chwastiak & Von Korff, 2003). Higher scores reflect greater levels of disability. For the present study, total scores on the WHO-DAS II was reverse coded in order to be positively correlated with the other indicator in the Functionality latent variable (Kline, 2011).

Post-Traumatic Growth Inventory. The Post-Traumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) is a 21-item measure that assesses positive changes reported by people who have experienced a traumatic event. The items comprise five scales, including New Possibilities, Relating to Others, Personal Strength, Spiritual Change, and Appreciation of Life and yield a Total Score. Participants indicate the degree of change

reflected in the statement as a result of their traumatic military experiences on a 6-point Likert scale ranging from 1 (“No change”) to 6 (“Very great change”). Sample items include “An appreciation for the value of my own life” and “Appreciating each day.” The PTGI has demonstrated good reliability and validity, with Cronbach’s alpha around .90 (Tedeschi & Calhoun). In this study, Cronbach’s alpha was measured at .94.

Higher scores indicate higher levels of posttraumatic growth, with strong associations found with positive emotions and spirituality (Tedeschi & Calhoun, 1996). When used in a veteran sample (Morrill et al., 2008), high total scores on the PTGI moderated the relationship between posttraumatic stress symptoms, as measured by the PCL-M (Blanchard, Jones Alexander, Buckley, & Forneris, 1996) and both depression and quality of life.

Chronic Pain Acceptance Questionnaire. The Chronic Pain Acceptance Questionnaire (CPAQ; McCracken, Vowles, & Eccleston, 2004) is a 20-item measure assessing the ability to accept, versus control, pain and be willing to engage in life activities despite experiencing pain symptoms. The measure was originally developed by Geiser (1992) and based on the Acceptance and Action Questionnaire (Hayes et al., 2003). The measure is comprised of a total score and four subscales, including Activity Engagement, Pain Willingness, Thought Control, and Chronicity. Participants rate items on a 7-point Likert scale from 1 (“Never True”) to 7 (“Always True”), and sample items include “I need to concentrate on getting rid of my pain” and “Despite the pain, I am sticking to a certain course in my life.” The CPAQ demonstrates adequate reliability with

Cronbach's alpha at .84 (Reneman, Dijkstra, A., Geertzen, & Dijkstra, P., 2010). Cronbach's alpha measured at .89 in this study.

Higher scores on the CPAQ reflect higher levels of acceptance of chronic pain and have strong negative association with depression, disability, and pain anxiety (McCracken et al., 2004; Vowles, McCracken, McLeod, & Eccleston, 2008). For this study, only veterans who endorsed experiencing chronic pain completed this measure.

Rutger's Alcohol Problem Index. The Rutger's Alcohol Problem Index (RABI; White & Labouvie, 1989) is a 23-item self-report screening tool to measure problematic behaviors related to alcohol use. Items are rated on a 4-point Likert scale ranging from 0 ("None") to 3 ("More than 5 times") describing the frequency of alcohol-related physical (e.g., withdrawal symptoms, passed out of fainted suddenly), psychological (e.g., felt you were going crazy, noticed a change in your personality), and social (e.g., had a fight, argument, or bad feeling with a friend, relatives avoided you) consequences that occurred within the past three months. The RABI has demonstrated strong reliability and validity, with Cronbach's alpha at .92 (White & Labouvie). In this study, Cronbach's alpha measured at .94. Higher scores indicate greater amount of consequences to alcohol-related behavior.

Data Analysis Strategies

In the present study, data analysis consisted of preliminary analyses and primary analyses. The preliminary analyses included assumption testing and inspection of normality of distributions and reliability. Several procedures were used in the primary analyses to answer each of the six research questions. The first three research question

were answered using a two-step latent variable SEM analysis procedure, consisting of measurement model specification and testing and then examination of a full latent variable model. Relationships among mindfulness, self-compassion, and experiential avoidance with posttraumatic stress were examined. Results from the measurement model testing with the first research question were utilized in the models for the second and third research questions. For those analyses, full latent variable model testing was used to examine relationships among mindfulness, self-compassion, and experiential avoidance with both psychological distress and functionality.

Lastly, separate hierarchical regression analyses were used to answer research questions four through six, addressing the impact of mindfulness and self-compassion on each posttraumatic growth, misuse of alcohol, and acceptance of chronic pain. Level of combat exposure was used as a control variable in all of the statistical analyses in this study. The procedures involved in the SEM analysis will be provided followed by a brief description of the regression analyses.

Power Analysis

Power analysis in SEM is complex and can be estimated using a variety of different methods (Keith, 2006). MacCallum, Browne, and Sugawara (1996) developed an approach that estimates power at the model level and is based on the root-mean-square error of approximation (RMSEA; Steiger, 1990) and noncentral chi-square distribution tests for three different null hypotheses (Kline, 2011). The power analysis is conducted by providing sample size, desired alpha level, degrees of freedom, and an adequate value for the parameter estimated by the RMSEA of the alternative hypothesis. In general, the

larger the sample size and greater degrees of freedom, then the greater the estimate of power.

For this study, power was estimated using R code generated by a webpage designed by Preacher and Coffman (2006). The hypothesized latent variable models had 36 degrees of freedom and power was estimated at .80. Common acceptable values for power are .8 or .9, indicating that there is an 80% to 90% chance of rejecting a false null hypothesis of no effect (Keith, 2006). Thus, the hypothesized models had adequate power in order to be tested. Estimated power analysis for regression analyses is less stringent and was based on Tabachnick and Fidell's (2001) recommendation that sample size by at least 104 + *m*, where *m* is the number of independent variables. Regression analyses in the present study did not exceed five independent variables.

Strategy for Preliminary Data Analyses

A series of one-way ANOVAs were conducted to assess potential differences among participants based on demographic variables. Descriptive statistics were computed and normality was examined by assessing values of skewness and kurtosis. Independence of errors was examined and scatterplots of residuals were produced to assess for homoscedasticity and linearity. Outliers were assessed by examining the distance, leverage, and DF Beta of the residuals (Keith, 2006). Participants that had more than 10% missing data were not used in the analysis.

Reliability of the measures was calculated using Cronbach's alpha to assess stability and internal consistency. The absence of multicollinearity was examined among the predictor variables to ensure that the variables were not overlapping significantly thus

inflating the probability of incurring a Type II error. Multicollinearity can be diagnosed by examining the tolerance statistic and variance inflation error (VIF). Values close to zero for the tolerance statistic and greater than 10 for the VIF suggest multicollinearity (Cohen et al., 2003).

In addition to the assumptions underlined for multiple regression, four additional assumptions need to be met to estimate path analysis models, including: no reverse causation, reliable measurement of the exogenous variables, a state of equilibrium, and inclusion of all common causes (Keith, 2006).

Strategy for Primary Data Analyses

Structural equation modeling was used as the primary analytic tool to examine the first three research questions for the present study. Kline (2011) outlines three steps for conducting path analysis prior to estimating the model. The model is first developed and drawn based on theory, previous research, time precedence, and logic. The identification status of the model is evaluated to ensure that the model can be estimated. The proposed models developed for the present study are all overidentified, thus they can likely be estimated. Next, the variables in the model need to be measured by selecting instruments that seem to adequately represent the underlying construct in the model.

Zero-order correlations, means, and standard deviations of all variables of interest were calculated to examine the unique relationships of mindfulness, self-compassion, and experiential avoidance with measures of depression, anxiety, stress, posttraumatic stress, quality of life, functional disability, acceptance of chronic pain, posttraumatic growth, and misuse of alcohol. Amos 7.0 (Arbuckle, 2006) with maximum likelihood estimation

was used to conduct SEM and evaluate the hypothesized latent variable models determining the unique influence of self-compassion and mindfulness on the other variables.

SEM is perceived as an advantageous analysis method because it allows for the calculation of both direct and indirect effects and the examination of relationships among multiple exogenous and endogenous variables. In addition, latent variable SEM adds the benefits of accounting for measurement error and increasing the reliability of the intended construct (Keith, 2006). Weston and Gore (2006) describe SEM as a combination of factor analysis and path analysis that is comprised of two components: the measurement model and the structural model. The measurement model uses confirmatory factor analysis to evaluate how well the observed variables combine to load onto the underlying constructs, or latent variables. The structural model is then estimated to examine the hypothesized relationships between the latent variables. The combination of the measurement model and the structural model are combined and typically referred as the full latent SEM model (Keith, 2006).

Once the model was estimated, fit statistics were examined to evaluate if the hypothesized model was a good fit for the data. There are a multitude of fit indices derived from comparing the actual covariance matrix to the implied covariance matrix and that focus on different aspects of fit for the model. Fit indices examine the model of interest on a continuum in which the independent model with unrelated variables is at one end, with the saturated model, where all variables are related, at the other end (Tabachnick & Fidell, 2001). Hoyle and Panter (1995) recommend examining a

combination of fit indices in order to make a correct interpretation about the model. Keith (2006) recommends using the Root Mean Residual Square (RMSEA) which is designed to examine the *approximate* fit of a model. Values below .05 suggest reasonable fit, and models with values above .10 represent a poor fit (Hu & Bentler, 1999). RMSEA also has the ability to calculate confidence intervals around the index and be used to estimate power. A standardized version of the RMSEA, the SRMR, was also interpreted, with values less than .08 suggesting adequate fit (Bentler, 2000). Weston and Gore (2006) recommend using Comparative Fit Index (CFI) and Tucker-Lewis Fit Index (TLI) for sample sizes less than 500 participants, with values greater than .90 for adequate fit.

Confirmatory Factor Analysis

Confirmatory factor analysis was used to examine the measurement model and ensure that the hypothesized indicators adequately reflect the latent variable constructs (Keith, 2006). Correlations were drawn between the latent variables as an initial evaluation of their intercorrelations and relatedness since directionality was not implied in this model. Adequate fit of the measurement model provided a base upon which to estimate the structural model. In a confirmatory factor model, the indicators are continuous variables that are represented as having two causes of influence – a single factor that the indicator is intended to measure and all other omitted causes reflected by the error term. In addition, the measurement errors are independent of each other as well as of the factors (Kline, 2011). In order to estimate the model, the scale of each latent variable was established by setting a single factor loading to one. In addition, every error-unique variable had its scale established by setting the path from each measured variable

to its error variable to one (Keith, 2006). All hypothesized factor loadings should be significant, thus confirming the factor structure hypothesized by the researcher.

In addition, fit statistics were examined based on the previously described criteria. To potentially improve the fit of the model, modification indices were examined for relatively large values. The modification indices show the minimum reduction in chi-squared that will occur if the listed parameter is freed. Since freeing a parameter will result in the reduction of one degree of freedom, any modification was carefully considered and justifiable by research and theory. By freeing the error covariances between two measured variables, the researcher is suggesting that the unique variances between the two are related above and beyond the effect of the latent variable.

Standardized residuals can also be examined to gain a better understanding of poor model fit. Relatively large values were identified, particularly those standardized residuals greater than 2.0. The model was reestimated after every modification was made to determine the fit of the model with that single change. The change in chi-squared was used to compare competing nested models. If significant, indicating that the two covariances matrices are statistically significantly different, the model with fewer degrees of freedom was used. However, if the change in chi-squared was not significant, then the researcher chose the less parsimonious model (Keith, 2006).

Structural Model Analyses

The structural model is comprised of the paths and covariances among the latent variables as well as the disturbances for the endogenous latent variables. This model was built upon the measurement model to create the full latent variable SEM model. Once

estimated, the standardized direct, indirect, and total effects were examined in the output. Significant findings between latent variables (e.g. self-compassion and psychological distress) show that the indicated variables have strong effects on one another. Fit indices were examined and model fit was assessed based on the previously mentioned criteria. Alternative models were created by either adding or deleting paths based on theoretical or empirical support. Change in chi-squared or other indices for non-nested models, like AIC, were used to compare the competing models (Keith, 2006).

The role of experiential avoidance as a mediating variable was assessed comparing the fit of three alternative models with the original model. First, the original model, comprised of freely estimated direct and indirect paths, was compared to a model in which the direct path from Self-Compassion to the outcome variable (PTSD, psychological Distress, or functionality) was constrained to zero to assess for full mediation. Another alternative model constrained only the path from mindfulness to the outcome variables to also assess for full mediation. Lastly, both direct paths from mindfulness and self-compassion to the outcome variables were constrained to examine full mediation involving both exogenous variables. The chi-square change, AIC, and PCFI were used to compare the nested models (Keith, 2006).

To test the statistical significance of the indirect effects, a Monte Carlo bootstrapping procedure through AMOS 7.0 (Arbuckle, 2006) was used. Bootstrapping uses small, repeated random samples to develop empirically estimated standard errors and confidence intervals of any model parameter. If the 95% confidence interval does not include the value of zero, then the indirect path is considered to be significant at the .05

level (Keith, 2006). The mediating role of experiential avoidance was assessed in all three path models to examine the influence of mindfulness and self-compassion on both psychological distress and functionality.

Additional Regression Analyses

Three separate hierarchical regression analyses were conducted to examine the relationships between mindfulness and self-compassion with each posttraumatic growth, acceptance of chronic pain, and misuse of alcohol. Since research examining relationships between these variables is either very limited or does not yet exist, an exploratory procedure was used to assess influence of the predictor variables on the outcome (Keith, 2006). In the first analysis, posttraumatic growth served as the criterion variable with mindfulness and self-compassion as the predictor variables. Combat exposure was entered into the model in the first step as a covariate. R-squared was examined to determine the overall variance in posttraumatic growth accounted for by the model. The standardized regression coefficients explain the magnitude of the effect of each variable taking into account all other variables, while the F statistic determines statistical significance of the overall model and was assessed at the $p < .05$ level (Cohen, 1994). This procedure was repeated for each acceptance of chronic pain and misuse of alcohol as criterion variables, with the same predictor and covariate variables as the previous analysis.

Chapter Four: Results

The data analyses included descriptive statistics, assumption testing, and regression analyses conducted with SPSS 17. Multiple latent variable structural equation models were tested using Amos 7. A detailed description of the analyses will be provided, including the statistical techniques and decisional processes used for determining the best fitting models for the data.

PRELIMINARY DATA ANALYSES

The means, standard deviations, and correlations among all measured variables in the analyses are presented in Table 1. All measures had good to excellent levels of internal consistency according to common rules of thumb (Stevens, 2012). Preliminary testing of the data revealed that data were normally distributed for all measures, with the exception of the RABI (White & Labouvie, 1989). Results of this measure were non-normally distributed, with a skewness of 2.307 (S.E. = .229) and a kurtosis of 4.357 (S.E. = .455). A square root transformation was conducted for the RABI data to correct for the positively skewed data (Tabachnick & Fidell, 2001). Both the skewness (1.473) and kurtosis (.967) improved with the transformed values.

Multicollinearity was assessed by evaluating the VIF and tolerance statistic, and all values were less than the recommended cutoff of 10 (Stevens, 2012), indicating that the measures are adequately independent from one another (Keith, 2006). In addition, the Durbin-Watson statistics were approximately 2, indicating that the residuals were independent from one another (Stevens, 2012). No significant differences were found on

the measures based on age, gender, education level, relationship status, ethnicity, or treatment status, thus no additional covariates were added to the models.

As mentioned previously, participants who had more than 10% missing data were removed from the analysis. Other missing data were considered missing at random due to changes in study design that occurred during data collection. Due to the missing data, a covariance matrix of the measured variables was used in Amos to analyze the data.

PRIMARY ANALYSES: RESEARCH QUESTION ONE

The first model that was examined was for Research Question 1: What is the relationship of mindfulness, self-compassion, and experiential avoidance to posttraumatic stress?

Measurement Model Analysis

Following the recommendations of Weston and Gore (2006), confirmatory factor analysis was first used to assess the fit of the measurement model and determine how well the observed variables load onto the latent variables. Once an acceptable measurement model was developed, then the hypothesized relations were examined in the structural model. Each latent variable in the model had its scale set by setting the path from the latent variable to a single measured variable to 1. The residual variable scale was also set by setting each path from the error variable to the measured variable to 1.

The measurement model with posttraumatic symptoms as the endogenous variable was analyzed and the loadings of the measured variables on the latent variables were all statistically significant at the .001 level. All latent variables showed strong factor loadings, standardized values between .86 to .92. However, for the mindfulness latent

variable, the initial value of the loading for the odd-numbered items of the MAAS (MAASodd) was 1.07. The presence of this illogical value is characterized as a Heywood case and was addressed by setting the error variance of that indicator to zero (Dillon, Kumar, & Mulani, 1987). Once adjusted, the value MAASodd was 1.0, suggesting an adequate value for the indicator (Kline, 2011). Other variations of item-parceling were examined (ie. random item split, split-half parcels, and a 3-parcel split) for the MAAS; however, Heywood cases continued to be present in the model. Thus, the original item parcels were used with the adjusted error variance.

The model fit for the measurement model suggested good fit based on the previously mentioned criteria. Values for the fit indices were as follows: $\chi^2 = 57.89$ (p = .026), df = 39, CFI = .986, TLI = .980, RMSEA = .065 (C.I. = .023 - .098), and SRMR = .032. These findings indicate that the observed indicators were well related to the proposed latent variables in the model when latent variables were allowed to correlate freely. Due to adequate fit of the model, modification indices were not examined and model trimming was not conducted. The next step in model analysis was to examine the magnitude of the presumed effects of one variable on another and direct and indirect effects in the structural model.

Structural Model Analysis

The structural portion of the model was included to examine the effects of one latent variable on another. The model fit for the hypothesized partially mediated structural model showed an overall good fit to the data. The values for the fit indices

were as follows: $\chi^2 = 65.21$ ($p = .04$), $df = 47$, CFI = .99, TLI = .98, RMSEA = .058 (C.I. = .013 - .090), and SRMR = .066.

Tests of Mediation for Experiential Avoidance

Alternative models were tested (i.e., fully mediated structural models) to determine if Experiential Avoidance fully mediated the presumed effect of Mindfulness and Self-Compassion on PTSD. Three nested models were compared to the initial model to examine these effects. Fit indices from the mediation models are included in Table 2.

First, the initial partially-mediated model where the direct and indirect paths were freely estimated was compared to the fit of a model where the direct relationship between Self-Compassion and PTSD was constrained to zero (i.e. full mediation of Self-Compassion). The change in chi-square for this model was not significant ($p = 0.23$). This finding suggests that even though the chi-square value was greater, the nested Self-Compassion Full Mediation model did not fit statistically significantly worse than the initial model.

Next, the initial model was then compared to an alternative model where the direct relationship between Mindfulness and PTSD was constrained to zero (i.e. full mediation of Mindfulness). The change in chi-square for this model was also not significant ($p = 0.19$). Last, the initial model was compared to a model in which the direct relation between both Self-Compassion and Mindfulness was constrained to zero (i.e. full mediation of Self-Compassion and Mindfulness). The change in chi-square for this model was also not statistically significant ($p = 0.08$), indicating that constraining both direct

paths from Self-Compassion and Mindfulness to PTSD did not significantly reduce the fit of the model.

Since the tested mediation models were not significantly different from one another, the model that should be maintained is the most parsimonious model (i.e. model with the greater degrees of freedom; Keith, 2006). Thus, the full mediation model was the best fit to explain the mediated role of Experiential Avoidance. The values for the fit indices of the final accepted model were as follows: $\chi^2 = 70.312$ ($p = .03$), $df = 49$, CFI = .99, TLI = .98, RMSEA = .06 (C.I. = .023 - .092), and SRMR = .07. Overall, the model showed an adequate to good fit to the data (Keith, 2006).

Bootstrap Procedure for Testing Significance of Indirect Effects

The Monte Carlo bootstrapping procedure was utilized to test the significance of the mediation. A total of 1,000 bootstrap samples were used and 95% CIs were calculated for the indirect effects (Preacher & Selig, 2012). If the 95% CI for the average estimates of the 1,000 samples does not include zero, then the indirect effect is significant at the .05 level. Results indicate that the indirect effects for Self-Compassion (95% CI: -.95, -.56) were significant. In addition, the indirect effects for Mindfulness (95% CI: -.1.24, -.11) were also significant. Thus, the results support the hypothesis that experiential avoidance is a significant mediator between both mindfulness and self-compassion and posttraumatic stress symptoms. The final model is displayed in Figure 1.

Results of Final Model

The standardized direct, indirect, and total effects of the total model are presented in Table 3. Statistical significance of the effects was determined by using bootstrapping

to estimate standard errors and then calculate *z* statistics (Kline, 2011). The standardized direct effect of Mindfulness on Experiential Avoidance was moderate, whereas the direct effect of Self-Compassion on PTSD was large. Both effects were statistically significant. All things being equal, for each *SD* change in the Mindfulness variable, Experiential Avoidance should decrease by .17 of a standard deviation, while for each *SD* change in the Self-Compassion variable, Experiential Avoidance should decrease by .68 of a standard deviation. A large statistically significant direct effect was also found for Experiential Avoidance on PTSD, suggesting that for every *SD* change in the Experiential Avoidance variable, PTSD should increase by .80 of a standard deviation.

The indirect effects of both Mindfulness and Self-Compassion on PTSD through Experiential Avoidance were also statistically significant. A moderate indirect effect was found for Mindfulness on PTSD through Experiential Avoidance, while a large indirect effect was found for Self-Compassion on PTSD through Experiential Avoidance. Overall, the indirect effects of Mindfulness and Self-Compassion on PTSD were significant, and based on the bootstrapping findings, Experiential Avoidance fully mediates that relationship.

Given the significant direct and indirect effects of the variables on PTSD, it is not surprising that total effects of Combat Exposure, Mindfulness, Self-Compassion, and Experiential Avoidance are significant as well. These results show that veterans who exhibit greater levels of Mindfulness and Self-Compassion, demonstrate lower levels of Experiential Avoidance, which in turns results in lower levels of PTSD. In addition,

veterans who report greater levels of Combat Exposure, also report greater levels of both Experiential Avoidance and PTSD symptoms.

PRIMARY DATA ANALYSES: RESEARCH QUESTION TWO

The second model examined addressed Research Question 2: What is the relationship of mindfulness, self-compassion, and experiential avoidance to overall psychological distress?

Measurement Model Analysis

The procedures conducted for the second model, with Psychological Distress as the endogenous variable, were similar to those of the first model. Loadings of the measured variables on the latent variables were statistically significant at the .01 level. The latent variables showed strong standardized factor loadings ranging from .85 to .92. The error variance for MAASodd was again changed to zero due to the presence of a Heywood case.

The model fit for the measurement model suggested adequate fit based on the previously mentioned criteria. Values for the fit indices were as follows: $\chi^2 = 86.105$ ($p = .000$), df = 30, CFI = .96, TLI = .94, RMSEA = .126 (C.I. = .095 - .157), and SRMR = .04. These findings, in addition to the strong factor loadings, indicate that the observed variables are well related to the proposed latent variables in the model and the correlations between the latent variables are consistent with the proposed hypothesis. The structural model was then examined to assess the directionality of the proposed relationships and the indirect and direct effects.

Structural Model Analysis

The structural portion of the model was included to test the effects of the latent variables on one another. The model fit for the hypothesized partially mediated structural model showed overall adequate fit to the data. The values for the fit indices were as follows: $\chi^2 = 96.98$ ($p < .001$), $df = 38$, CFI = .96, TLI = .96, RMSEA = .115 (C.I. = .087 - .143), and SRMR = .07. Modification indices were examined and one of the larger indices suggests that chi-square could be reduced by at least 7.94 by freeing the correlation-covariance between the residual for DASS-Anxiety and the residual for DASS-Stress. It makes theoretical sense that the unique variances of the Anxiety and Stress subscales of the DASS are related above and beyond the effect of the DASS. Thus, the covariance-correlation was freed and the model was re-examined. The change in chi-square for the alternative model was significant ($\Delta\chi^2 = 19.17$, $df = 1$; $p < .001$), indicating that the fit of the nested model is statistically significantly different than the initial model. The values for the fit indices of the alternative model were as follows: $\chi^2 = 77.81$ ($p = .000$), $df = 37$, CFI = .97, TLI = .95, RMSEA = .097 (C.I. = .066 - .127), and SRMR = .07.

Tests of Mediation for Experiential Avoidance

Alternative models were tested to determine if Experiential Avoidance fully mediated the presumed effect of Mindfulness and Self-Compassion on Psychological Distress (Table 4). Similar to the procedures used for the first model, three nested models were compared to the initial model. First, the initial model was compared to the fit of a model where the direct relationship between Self-Compassion and Psychological Distress

was constrained to zero. The change in chi-square was not significant for this model (p = 0.14). In the next model, the direct relationship between Mindfulness and Psychological Distress was constrained to zero. The change in chi-square for this model was also not significant (p = 0.89). Lastly, in the model where both direct relationships from Self-Compassion and Mindfulness to Psychological Distress were constrained to zero, the change in chi-square was not significant (p = 0.22).

Thus, the third model showing full mediation should be maintained in order to examine the mediation of Experiential Avoidance on Psychological Distress. The values for the fit indices of the alternative model were as follows: χ^2 = 80.13 (p = .000), df = 39, CFI = .97, TLI = .96, RMSEA = .09 (C.I. = .065 - .124), and SRMR = .08.

Bootstrap Procedure for Testing Significance of Indirect Effects

As described previously, the Monte Carlo bootstrapping procedure was used with 1,000 bootstrap samples and 95% CI were calculated. Results indicate that the indirect effects for both Self-Compassion (95% CI: -.14,-.08) and Mindfulness (95% CI: -.20,-.004) were significant. Thus, the results support the hypothesis that the relationship between self-compassion and mindfulness with psychological distress is significantly mediated by experiential avoidance. The final model is displayed in Figure 2.

Results of Final Model

The standardized direct, indirect, and total effects of the final model are presented in Table 5. The standardized direct effects of Mindfulness and Self-Compassion on Experiential Avoidance were statistically significant. The standardized direct effect of Mindfulness on Experiential Avoidance was moderate, whereas the direct effect of Self-

Compassion on Psychological Distress was large. A large statistically significant direct effect was also found for Experiential Avoidance on Psychological Distress.

The indirect effects of both Mindfulness and Self-Compassion on Psychological Distress through Experiential Avoidance were also statistically significant, with Mindfulness showing a moderate effect and Self-Compassion showing a large effect. Subsequently, the total effects of Combat Exposure, Mindfulness, Self-Compassion, and Experiential Avoidance are significant as well. These results show that veterans who exhibit greater levels of Mindfulness and Self-Compassion, demonstrate lower levels of Experiential Avoidance, which in turns results in lower levels of Psychological Distress.

Based on the bootstrapping results, Experiential Avoidance fully mediates the effects of Mindfulness and Self-Compassion on Psychological Distress. In addition, veterans who report greater levels of Combat Exposure, also report greater levels of both Experiential Avoidance and Psychological Distress.

PRIMARY DATA ANALYSES: RESEARCH QUESTION THREE

The third model examined addressed Research Question 3: What is the relationship of mindfulness, self-compassion, and experiential avoidance to functionality?

Measurement Model Analysis

The procedures conducted for the third model, with Functionality as an endogenous variable, were similar to those of the first model. Loadings of the measured variables on the latent variables were statistically significant at the .01 level. The latent variables showed strong factor loadings ranging from .74 to .98. Similar to the previous

models, the error variance for the MAASodd was changed to zero due to the presence of a Heywood case.

The model fit for the measurement model suggested good fit of the data. Values for the fit indices were as follows: $\chi^2 = 34.333$ ($p = .045$), $df = 22$, CFI = .989, TLI = .982, RMSEA = .069 (C.I. = .010 - .112), and SRMR = .03. These findings indicate that the observed variables are well related to the proposed latent variables in the model and the correlations between the latent variables are consistent with the proposed hypothesis. The structural model was then examined to assess the directionality of the proposed relationships and the direct and indirect effects.

Structural Model Analysis

The structural portion of the model was included to test the effects of the latent variables on one another. The model fit for the hypothesized partially mediated structural model showed overall adequate fit to the data. Similar to the Mindfulness latent variable, a Heywood case was found in the squared multiple correlation for Functionality, thus the variance of the disturbance for that latent variable was set to zero (Dillon et al., 1987). The values for the fit indices were as follows: $\chi^2 = 48.69$ ($p = .02$), $df = 30$, CFI = .98, TLI = .98, RMSEA = .07 (C.I. = .03 - .11), and SRMR = .07. Modification indices were examined and one of the larger indices suggests that chi-square could be reduced by at least 4.13 by freeing the correlation-covariance between the residual for SCS - Mindfulness/Overidentification subscale (SCS3) and the residual for the AAQ-II odd-numbered items (AAQOdd). The argument can be made theoretically that the unique variances the two measured variables would be related above and beyond the effect of

each of the respected latent variables. Thus, the covariance-correlation was freed and the model was re-examined. The change in chi-square for the alternative model was significant ($\Delta\chi^2 = 4.48$, $df = 1$; $p < .05$), suggesting that the fit of the model is statistically significantly different than the fit of the initial model. The values for the fit indices of the alternative model were as follows: $\chi^2 = 44.22$ ($p = .04$), $df = 29$, CFI = .99, TLI = .98, RMSEA = .07 (C.I. = .02 - .11), and SRMR = .07.

Tests of Mediation for Experiential Avoidance

Alternative models were tested to assess whether Experiential Avoidance fully mediated the presumed effect of Mindfulness and Self-Compassion on Functionality (Table 6). As previously explained, three nested models were compared to the initial model. The initial model was first compared to the fit of a model where the direct relationship between Self-Compassion and Functionality was constrained to zero. The change in chi-square was significant for this model ($p < 0.01$), indicating that it was significantly different than the fit of the initial model. Next, the direct relationship between Mindfulness and Functionality was constrained to zero. Similar to the previous model, the change in chi-square for this model was significant ($p < 0.01$). Last, the model was examined where both direct relationships from Self-Compassion and Mindfulness to Functionality were constrained to zero. The change in chi-square for this model was also statistically significant ($p < .001$), indicating that this model is also significantly different than the initial model. Since the chi-square values for the alternative models are greater than the initial model, these findings suggest that the model has a significantly worse fit

than the initial model. Thus, the initial model should be maintained in order to examine the mediation of Experiential Avoidance on Functionality.

Bootstrap Procedure for Testing Significance of Indirect Effects

The Monte Carlo bootstrapping procedure was used with 1,000 bootstrap samples and 95% CI were calculated. Results indicate that the indirect effects for both Self-Compassion (95% CI: .02,.11) and Mindfulness (95% CI: -.003,.14) were significant. Thus, the results support the hypothesis that the relationship between self-compassion and functionality is significantly mediated by experiential avoidance. However, since zero was included in the confidence interval for Mindfulness, then it cannot be interpreted with confidence that the indirect effect is different from zero. The final model is displayed in Figure 3.

Results of Final Model

The standardized direct, indirect, and total effects of the final model are presented in Table 7. The standardized direct effects of Mindfulness and Self-Compassion on Experiential Avoidance and Functionality were statistically significant. The standardized direct effect of Mindfulness on Experiential Avoidance was moderate, while the direct effect of Mindfulness on Functionality was large. The direct effects of Self-Compassion for both Experiential Avoidance and Functionality were also large. In addition, a large statistically significant direct effect was also found for Experiential Avoidance on Functionality.

The moderate indirect effect of Self-Compassion on Functionality through Experiential Avoidance was statistically significant. Subsequently, the total effects of

Mindfulness, Self-Compassion, and Experiential Avoidance on Functionality are significant. These results show that veterans who exhibit greater levels of Mindfulness and Self-Compassion, demonstrate lower levels of Experiential Avoidance, which in turns results in greater levels of Functionality. Based on the bootstrapping results, Experiential Avoidance partially mediates the effects of Self-Compassion on Functionality. In addition, veterans who report greater levels of Combat Exposure, also report greater levels of Experiential Avoidance.

PRIMARY DATA ANALYSIS: RESEARCH QUESTION FOUR

Hierarchical regression analysis was employed to address the following question: Are mindfulness and self-compassion associated with posttraumatic growth?

In the hierarchical regression analysis, a measure of combat exposure (FCES) was entered into the Step 1, explaining 6.8% of the variance in posttraumatic growth (PTGI), F (1, 31) = 2.17, p = .15 (R^2 = .07). In Step 2, mindfulness and self-compassion were entered into the model, and the total variance explained was 9.3%, ΔF (2, 29) = .45, p = .64 (R^2 = .09, ΔR^2 = .03). These results suggest that levels of mindfulness and self-compassion did not predict post-traumatic growth. Thus, the hypothesis for research question number four was not supported. The results for all of the hierarchical regressions are reported in more detail in Table 8.

PRIMARY DATA ANALYSIS: RESEARCH QUESTION FIVE

A separate hierarchical regression analysis was employed to address the following question: Are mindfulness and self-compassion associated with misuse of alcohol?

As previously mentioned, the data from the RAPI (White & Labouvie, 1989) was transformed to correct for positive skewness and kurtosis. Results from the hierarchical regression analysis indicate the overall model was significant [F (3, 87) = 4.30, $p < .01$)] and the variables accounted for a significant amount of variance in misuse of alcohol. In Step 1, combat exposure accounted for 7.1% of the variance in alcohol misuse [F (1, 89) = 6.77, $p = .01$]. In Step 2, mindfulness and self-compassion were entered into the model, the variables accounted for 13.0% of the variance [ΔF (2, 87) = 2.92, $p = .06$].

When examined separately, mindfulness ($p = .04$) significantly predicted alcohol misuse; in contrast, self-compassion did not ($p = .72$). The results of this model partially support the hypothesis for research question five, indicating that mindfulness is significantly associated with alcohol misuse. However, self-compassion is not significantly associated (see Table 8).

PRIMARY DATA ANALYSIS: RESEARCH QUESTION SIX

Another hierarchical regression analysis was employed to address the following question: Are mindfulness and self-compassion associated with acceptance of chronic pain?

Results from the analysis indicated the overall model was significant [F (3, 59) = 11.59, p < .001)] and the variables accounted for a significant amount of variance in acceptance of chronic pain. In Step 1, combat exposure accounted for 1.2% of the variance of acceptance of chronic pain [F (1, 61) = .84, $p = .36$]. Addition of both mindfulness and self-compassion in Step 2 accounted for 37.1% of the variance of acceptance of chronic pain [F (2, 59) = 16.74, $p < .001$]. When the variables were

examined further, it was shown that only self-compassion ($p < .001$), not mindfulness ($p = .20$), was a significant predictor of acceptance of chronic pain. These results partially support the hypothesis and suggest that self-compassion, but not mindfulness, is significantly associated with acceptance of chronic pain (see Table 8).

Chapter Five: Discussion

General Findings

The present study examined mindfulness, self-compassion, and experiential avoidance together to determine the strength of their relationships with symptoms of posttraumatic stress, psychological distress, and functionality in a sample of OEF/OIF veterans. Experiential avoidance was also analyzed as a mediator to determine to what degree this variable influenced the relationship between the mindfulness and self-compassion with the outcome variables. Using latent variable SEM, results were significant for all three models. In general, these results supported the theoretical hypotheses of the negative associations between mindfulness and self-compassion with experiential avoidance, and the combination of those variables on symptoms of posttraumatic stress, overall psychological distress, and functionality. In all three SEM models, experiential avoidance was found to partially or fully mediate the relationship between mindfulness and self-compassion and the outcome variables. These results emphasized the critical role experiential avoidance has on mental health and functional outcomes.

Additional exploratory analyses were employed to assess associations between both mindfulness and self-compassion with posttraumatic growth, misuse of alcohol, and acceptance to chronic pain. Results of these analyses produced mixed findings. Self-compassion was a significant predictor of acceptance of chronic pain. In addition, mindfulness was a significant predictor of misuse of alcohol. Neither mindfulness nor self-compassion significantly predicted posttraumatic growth.

This study provides innovative findings as well as extends prior literature by examining mindfulness, self-compassion, and experiential avoidance in a sample of OEF/OIF combat veterans. Such data can pave direction for future research as well as provide support for the development of therapeutic interventions to use with combat veterans.

SPECIFIC FINDINGS

Findings Related to Self-Compassion, Mindfulness, and Experiential Avoidance

Results showed a significant relationship between both mindfulness and self-compassion with experiential avoidance. The definition alone of mindfulness suggests the presence of a strong relationship with experiential avoidance – being present in the moment (Kabat-Zinn, 1990). Findings confirmed this and were consistent with studies examining the association between the AAQ-II and mindfulness, as measured by the MAAS (Mitmansgruber, Beck, Höfer, & Schübler, 2009), FFMQ (Baer et al., 2006; Fledderus, Voshaar, M., ten Klooster, P., & Bohlmerijer, E., 2012; Thompson & Waltz, 2010) and the KIMS (Baer et al., 2004; Moore, S., Brody, L., & Dierberger, A., 2009). In addition, results supported the literature related to mindfulness and both avoidant-style coping (Weinstein at al., 2009) and PTSD avoidance symptoms (Thompson & Waltz, 2010). Mindfulness has also been associated with lower levels of thought suppression (Baer at al., 2006) which can be conceptualized as one aspect of the experiential avoidance construct (Tull et al., 2004).

In regards to self-compassion, the results show that the association with experiential avoidance was strong. Even though this relationship has not yet been

examined in the literature, self-compassion has been found to be negatively correlated with thought suppression, avoidant-style coping, mental disengagement (Neff, Hseieh, & Dejitterat, 2005), and emotional avoidance (Neff & Germer, 2013). Self-compassion involves approaching situations with balanced acceptance and psychological flexibility (Neff, 2003a), while promoting curiosity and exploration (Neff, 2009). In addition, self-compassion provides a sense of emotional safety needed to face fearful experiences. Self-compassionate individuals do not push away or avoid negative emotions. Instead, they are embraced and considered as valid and important as positive emotions (Neff & Dahm, in press). In contrast, someone exhibiting experiential avoidance demonstrates psychological inflexibility by not being willing to engage with their experience (Hayes et al., 2006). As a result, these individuals are typically controlled by the fear of their unwanted and distressful internal experiences and avoid trying to connect with the present moment (Bond et al., 2011)

Another important finding is the difference in the strength of the relationship between mindfulness and self-compassion with experiential avoidance. Despite the conceptual overlap, self-compassion had a stronger association with experiential avoidance, either directly or indirectly, in all three models tested in this study. To the researcher's knowledge, these three variables have not been examined together in the literature, so it is worth considering some distinctions between mindfulness and self-compassion that may explain this finding. As discussed previously, mindfulness addresses paying attention and accepting the present moment experience – whether it is positive or negative (Germer, 2009). However, self-compassion extends that definition by

including not only the experience but an individual's reaction to that experience. Including the person in the conceptualization of acceptance adds that element of turning kindness inwards and providing comfort during negative states (Gilbert, 2006; Neff, 2003a). Experiential avoidance addresses how an individual reacts to negative emotions and can involve attempting to change the experience, rather than accept it. Thus, self-compassion may be more closely related to experiential avoidance due to their shared focus on negative states. It is during distressful experiences when a person is likely to employ either compassion towards the self or avoidance strategies. A highly self-compassionate person has the tendency to approach negative thoughts and emotions with equanimity and turns towards the suffering, rather than away from it (Neff, 2003a).

A feature of the study that may have also influenced the results is the use of the MAAS to measure mindfulness. The MAAS is a unidimensional measure that assesses mindfulness as paying attention to the experience in the moment (Brown & Ryan, 2003). It has been argued that the MAAS only measures one aspect of mindfulness and does not address the acceptance and non-judgment components that are emphasized with many other mindfulness measures (Baer, 2003). Thus, the MAAS may not measure the open and accepting stance that many of the other mindfulness measures address. Given the structure of the measure, the mindfulness construct may have resulted in a stronger relationship with experiential avoidance if a broader measure was used in the study. However, it can also be argued that the MAAS allows measurement of attention and awareness without confounding variables that could be conceptualized as outcomes of mindfulness (e.g. acceptance; Brown & Ryan, 2003; Bishop et al., 2004). In addition,

when examining results, the balanced acceptance component of self-compassion can be uniquely interpreted from the present moment awareness of mindfulness.

Findings Related to the Model with Posttraumatic Stress Symptoms as an Outcome Variable

Results suggested that the model with posttraumatic stress symptoms as the outcome variable was an overall good fit. Both the total effects and indirect effects for mindfulness and self-compassion were also significant. Tests of mediation indicated that experiential avoidance fully mediated the relationship between both mindfulness and self-compassion with posttraumatic stress. These findings indicate that there is a strong relationship between mindfulness and self-compassion with posttraumatic stress which can be fully explained by experiential avoidance.

Results from this study support the consistent findings in the literature relating experiential avoidance to posttraumatic stress symptom severity (Marx & Sloan, 2005; Orcutt et al., 2005; Palm & Follette, 2011; Plumb et al., 2004; Reddy, Pickett et al., 2006). Similar to a study by Plumb and colleagues (2004), results also show that the influence of experiential avoidance on posttraumatic stress is even stronger than trauma severity and combat exposure. Most recently, a study found that experiential avoidance accounted for unique variance in PTSD symptoms beyond PTSD-related avoidance symptoms (Meyer et al., 2013).

With the accepted final model, experiential avoidance accounted for most of the relationship between mindfulness and self-compassion with posttraumatic stress. These findings do not seem consistent with the few studies that have examined mindfulness and

self-compassion with trauma-related symptoms (Bernstein et al., 2011; Thompson & Waltz, 2010; Thompson & Waltz, 2008; Vujanovic et al., 2009). However, it is important to note that studies examining mindfulness and self-compassion tend to focus more on trauma-related avoidance symptoms, rather than a more generalized experiential avoidance. As evidenced by the recent study conducted by Meyer and colleagues (2013), experiential avoidance remained a significant predictor of PTSD symptom severity even after controlling for avoidance symptoms. The authors suggested that the study highlights the broad application of experiential avoidance to multiple life domains, whereas avoidance symptoms seem to be related to trauma-specific cues. A review that examined these variables separately suggested that mindfulness and acceptance predicted positive functioning following trauma, whereas experiential avoidance and negative coping styles increased posttruamtic stress symptom severity and related psychopathology (Thompson, Arnkoff, & Glass, 2011). Thus, mindfulness and acceptance-based traits were conceptualized as resiliency factors that protect against the development of PTSD following trauma.

Mindfulness has been suggested as a transdiagnostic factor for PTSD (Bernstein et al., 2011). These findings do not conflict with that theory, necessarily, but the relationship between posttraumatic stress and mindfulness suggests that it may be more influenced by experiential avoidance. It can be argued, based on these results, that both mindfulness and self-compassion are related to posttraumatic stress primarily through experiential avoidance. In other words, an individual who exhibits low levels of mindfulness and self-compassion may exhibit higher levels of posttraumatic stress due to

their tendency to employ avoidance strategies towards unwanted thoughts, emotions, and sensations. Vujanovic and colleagues (2011) had a similar hypothesis suggesting that engagement in mindfulness exercises over time tend to decrease the avoidance factors typically found in posttraumatic stress.

Thus, these findings seem more consistent with the experiential avoidance literature and the argument that PTSD is primarily a disorder of experiential avoidance (Batten et al., 2005; Orsillo & Batten, 2005; Foa & Kozak, 1986). Experiential avoidance has been associated with exacerbating or maintaining symptoms of PTSD over time (Kumpula, Orcutt, Bardeen, & Varkovitsky, 2011; Marx & Sloan, 2005; Tull, Gratz, Salters, & Roemer, 2004; Craske et al., 2008) which suggests that it serves as one of the underlying mechanisms of the disorder. Initial avoidance from trauma-related cues is a natural response and can be helpful in the short-term. However, it has been suggested that avoidance strategies over time can prevent extinction of the fear response associated with the trauma and reinforce the posttraumatic reactions (Ehlers & Clark, 2000).

Findings Related to the Model with Psychological Distress as an Outcome Variable

The model with psychological distress as the outcome variable resulted in an overall good fit. Both the indirect effects and the total effects for mindfulness and self-compassion were significant. In addition, experiential avoidance was found to fully mediate the relationship between both mindfulness and self-compassion with overall psychological distress. The results suggest a strong relationship between mindfulness and

self-compassion with overall psychological distress that is fully explained by experiential avoidance.

These findings are consistent with the literature highlighting the strong relationship between experiential avoidance and anxiety, depression (Bond et al., 2011; Kashdan et al, 2006; Marx & Sloan, 2002), and several other negative mental health outcomes (Hayes et al., 2006). When examined with overall psychological distress, experiential avoidance was found to mediate the relationship between maladaptive coping and anxiety (Kashdan, 2006). These results suggest that experiential avoidance is not only a mechanism of PTSD, but possibly underlies a broader range of mental disorders as well (Hayes et al., 2006).

Similar to the previous model, experiential avoidance accounted for the relationship between mindfulness and self-compassion with psychological distress. As previously discussed, both mindfulness (Shapiro et al., 2008; Baer et al., 2006; Brown & Ryan, 2003) and self-compassion (MacBeth & Grumley, 2012; Neff, 2003b) have strong empirical evidence of being linked to negative mental health outcomes and psychological distress. Thus, results from this study seem to suggest that experiential avoidance serves as the mechanism underlying the relationships between mindfulness and self-compassion with psychological distress among combat veterans.

When examined separately, the results for self-compassion seemed to suggest a stronger relationship with psychological distress than mindfulness. This finding is consistent with past studies where self-compassion was a significantly greater predictor of anxiety and depression than mindfulness (Neff & Germer, 2013; Van Dam et al.,

2011). However, when examining perceived stress, Neff and Germer (2013) found mindfulness to be a marginally stronger predictor than self-compassion. Since stress was measured as part of a latent variable for overall psychological distress in this study, results may have been different if each scale was measured in isolation.

The difference in the relationship between mindfulness and self-compassion may also be attributed to measurement and statistical limitations. In the analysis, the mindfulness latent variable demonstrated a Heywood case which may have impacted the strength or direction of this variable on the outcome variable (Kline, 2011). Although this effect does not seem to be present in other models, it is worth considering it as an alternative explanation for the findings.

Findings Related to the Model with Functionality as an Outcome Variable

The model with Functionality as the outcome variable resulted in overall good fit. The direct, indirect, and total effects for self-compassion were significant, whereas, only the direct and total effects were significant for mindfulness. Tests of mediation indicated that experiential avoidance partially mediated the relationship between self-compassion and functionality. These results suggest that there is a strong direct relationship between self-compassion and functionality which is partially explained by experiential avoidance.

These findings are consistent with the literature examining experiential avoidance and quality of life (Kashdan, 2009), with lowers levels of experiential avoidance predicting higher life satisfaction. In studies that have examined posttraumatic symptoms by clusters, researchers found that lower avoidance/numbing symptoms were significantly related to improvements in all areas of quality of life in a veteran sample

(Lapierre et al., 2007; Lunney & Schnurr, 2007; Olatunji et al., 2007; Gladis et al., 1999). The benefit of this analysis is that overall quality of life as well as disability in multiple life domains is examined together. Measuring these variables in combination allows from a comprehensive assessment of an individual's life satisfaction and level of functioning in multiple life domains. Most studies that examine quality of life use a brief screening measure that assesses perceptions of overall life satisfaction (Olatunji et al., 2007) without looking at specific domains or also including measures of functioning.

Results are also consistent with the literature examining the relationship between mindfulness (Brown & Ryan, 2003; Lakey et al., 2007, Shapiro et al., 2008) and self-compassion (Neff, 2003b) with life satisfaction. A mindfulness intervention conducted with a group of veterans with PTSD (Kearney et al., 2013) found significant improvements in mental-health related quality of life. The results from this study are not surprising given the attitudinal foundations that are fostered in mindfulness and self-compassion (Neff, 2003a; Kabat-Zinn, 1990). Qualities such as openness, curiosity, encouragement, and kindness promote improved functioning and well-being despite emotional distress. Mindfulness and self-compassion do not necessarily aim to reduce physical or mental symptomology but work to change how the individual relates to that pain. Thus, symptoms of a disorder may continue to persist but mindfulness and self-compassion help in reducing the suffering associating with those symptoms.

It is important to note that the results from this study indicated that self-compassion has a stronger direct and indirect relationship with functionality than mindfulness. Results are consistent with previous research (Van Dam et al., 2011)

showing self-compassion to be a significantly greater predictor of quality of life than mindfulness. This finding may be due to how mindfulness and self-compassion vary in regards to relatedness towards experiences. Self-compassion focuses on approaching events in a balanced and healthier way, rather than just being aware of thoughts and feelings that arise (Neff, 2003a). This distinction can impact how an individual relates to their present moment experience, particularly if it is negative. Self-compassion also adds the element of turning kindness inwards during moments of distress and connecting with others who are also suffering. Thus, when an individual is experiencing upsetting physical or psychological symptoms, self-compassion aims to reduce their suffering and improve overall functioning. Research shows that self-compassion is positively linked to overall positive well-being (Neff, 2009).

As mentioned previously, differences in self-compassion and mindfulness may also be attributed to the mindfulness measure that was used in this study. Since the MAAS examines only one facet of mindfulness, present moment awareness, results may have been different if the measure included acceptance-based domains as well. However, since self-compassion focuses on accepting not only the experience but the person as well, individuals with high levels of self-compassion likely function better in their daily lives.

Findings Related to Experiential Avoidance as a Mediator

Since experiential avoidance was found to be a partial or full mediator in all three of the analyzed SEM models, it is worth discussing this construct in more detail. In this study, experiential avoidance was a significant variable that explained a majority of the

relationships between mindfulness and self-compassion with the outcome variables. Experiential avoidance fully explained the relationship between mindfulness and self-compassion with each PTSD and psychological distress. When functionality was examined, experiential avoidance partially explained the relationship with self-compassion.

Hayes and colleagues (1996) have described experiential avoidance as a functional diagnostic dimension that is often unrecognized as a mechanism across multiple disorders and problematic behaviors. Some theoretical perspectives tend to focus on avoidance of thoughts (CBT; Beck, 1976) or avoidance of emotions (ie. affect phobia; McCullough et al., 2003), whereas it can be argued that thoughts, emotions, and memories are intermingled and greatly influence one another. Experiential avoidance broadly captures the urge to avoid unwanted thoughts, emotions, sensations, memories, and behaviors as well as the attempts made to alter that distressing experience (Hayes et al.).

Experiential avoidance has also been recognized as a mechanism that is present across various psychopathologies. For example, the self-medication hypothesis of substance abuse disorders (Khantzian, 1997) argues that many problems surrounding alcohol and substance abuse stem from avoidance of feeling painful affective states. In addition, some anxiety disorders stem from a fear of having a panic attack, for example, or avoidance surrounding a specific phobia. In PTSD, avoidance of trauma-related thoughts or feelings is a common symptom that is required for diagnosis of the disorder (APA, 2000). Despite the commonalities, it is not believed that experiential avoidance

underlies all disorders or maladaptive behaviors. There seems to be support for the theory that the presence of experiential avoidance in a subset of individuals tends to be a critical component in the etiology and maintenance of the disorders (Hayes et al., 1996). Given these findings, results from this study are consistent with theories present in the literature that experiential avoidance partially or fully explains the relationship between mindfulness and self-compassion with PTSD symptoms, psychological distress, and functionality.

Findings Related to Posttraumatic Growth

Results indicated that the relationship of mindfulness and self-compassion with posttraumatic growth was non-significant. This research question was exploratory as the links between mindfulness and self-compassion and posttraumatic growth have never before to this author's knowledge been examined together. Similar to significant findings, non-significant findings can also offer valuable information about the constructs and how they may or may not relate to each other (Tabacknick & Fidell, 2011). As a review, posttraumatic growth involves positive changes and a strengthening of character following trauma (Janoff-Bulman, 2006). Some research with veterans has found a positive association between PTG and posttraumatic stress symptoms (Solomon & Dekel, 2007; Tedeschi & Calhoun, 1995), whereas other studies have associated PTG with lower levels of posttraumatic stress (Aldwin & Levenson, 2005; Aldwin, Levenson, & Spiro, 1994). Pietrzak and colleagues (2009) found that social support was positively associated with PTG even after taking into account combat exposure and symptom severity.

There are several reasons that may explain the lack of relationship between PTG with mindfulness and self-compassion. Posttraumatic growth involves deliberate self-reflection to allow for a re-structuring of core beliefs. A sample that reports medium to high levels of experiential avoidance may have not yet reached that stage of trauma processing. Tedeschi (2011) highlights that in order for individuals to experience PTG, they have to have an understanding of the natural trauma response and believe that certain reactions are typical following a traumatic experience. Unless veterans are seeking treatment for PTSD, they may not be exposed to psychoeducation regarding traumatic responses. In addition, most of the PTG research with veterans is conducted several years post-deployment giving individuals many years to process and make meaning out of their combat experience (Solomon & Dekel, 2007; Maguen, Vogt, King, King, & Litz, 2006; Dohrenwend et al., 2004). The sample used in this study may have been too close out from their deployments to process any positive impact. Lastly, the measure specifically asks for participants to rate the applicability of the statements "as a result of military experience" (Tedeschi & Calhoun, 1996). It may be the case that even if the veterans have experienced positive changes following a traumatic event, they may not attribute those changes to their military experience.

Findings Related to Alcohol Misuse

Results from the regression indicate that mindfulness significantly predicted problematic alcohol use. The findings are consistent with the literature linking mindfulness and problematic alcohol use (Fernandez et al., 2010; Gallagher, Hudepohl, & Parrott, 2010). These findings suggest that individuals who approach situations with

more present moment awareness tend to engage in less problematic drinking behaviors. Alcohol misuse can be perceived as a form of avoidant coping (Hayes et al., 2006), so it makes sense that problematic drinking behaviors have a negative relationship with mindfulness and self-compassion. An individual who is more mindful will likely be able to cope better with adverse life events and not turn to maladaptive avoidant coping strategies.

A finding not consistent with the literature (Brooks et al., 2012; Rendon, 2007) is the lack of influence self-compassion has on problematic alcohol use. It would seem that an individual who would treat themselves with harsh criticism and self-judgment would be more inclined to engage in alcohol misuse. In addition, given the significant relationship with mindfulness, it would be useful to examine what is distinct about the two variables in order to explore reasons for the findings. Self-compassion is more focused on how an individual relates to negative experiences as well as how they perceive their reactions to those experiences. It is possible that since the sample overall did not exhibit high levels of alcohol misuse, the variables were not related. Although it has never been formally examined, it seems plausible that self-compassionate individuals may engage in healthy drinking behaviors that are not associated with problematic use or negative affective states. Thus, self-compassion may be related to significant alcohol misuse (Brooks et al., 2012; Rendon, 2007), but relationship may disappear if alcohol use is not problematic.

Even though the findings are significant for mindfulness, both mindfulness and self-compassion together only accounted for 6% of the variance above and beyond

combat exposure in problematic alcohol use. In addition, the data was positively skewed indicating that most of the participants reported minimal, if any, problems related to drinking. The distribution of the scores on this variable may be due to sample characteristics or not wanting to disclose drinking behaviors to VA providers. A study examining service utilization in OEF/OIF veterans (Erbes et al., 2007) found that alcohol problems are related to underutilization of mental health services at the VA. Thus, although rates of problematic alcohol use have been consistently found in OEF/OIF veterans (Seal et al., 2011; Thomas et al., 2010; Erbes et al., 2007), it is possible that those individuals are not as represented in the sample who voluntarily participated in a VA research study.

Findings Related to Acceptance of Chronic Pain

Results from the study indicate that self-compassion contributed significantly to the explanation of acceptance of chronic pain. These findings are consistent with the limited findings that have examined the association between self-compassion and chronic pain (Costo & Pinto-Gouveia, 2011; Wren et al., 2012).

The strong relationship between self-compassion and acceptance of chronic pain highlights the importance that willingness and self-kindness play in physical symptoms. A self-compassionate individual will be more likely to acknowledge their pain and turn comfort inwards during moments of suffering. In contrast, an individual with low self-compassion is more likely to form tension and resistance around their pain and exhibit more self-judgment and isolation. This pattern of relatedness was evidenced in a previous study (Costo & Pinto-Gouveia, 2011) where participants with chronic pain who engaged

in more activities and exhibited more willingness to pain also had higher levels of kindness, common humanity, and mindfulness. In addition, when self-compassion was the focus of an expressive writing intervention with patients suffering from a terminal illness (Imrie & Troop, 2012), they endorsed higher self-soothing and self-esteem than patients who just wrote about their stress.

It is surprising that mindfulness was not a significant predictor of acceptance of chronic pain. Mindfulness-based interventions have consistently shown positive outcomes in medical settings with chronic pain (Baer, 2003; Grossman et al., 2004). For example, a study found that mindfulness and acceptance reduced fear and avoidance in chronic pain (McCracken & Keogh, 2009). One reason for these inconsistent findings may be due to the use of self-compassion in the model. Self-compassion accounted for a significantly large amount of the variance of acceptance of chronic pain. These results suggest that self-soothing and common humanity may serve a more important role in how an individual relates to their pain. In addition, just simply being aware and paining attention to chronic pain may not result in acceptance.

` These findings highlight the importance of exhibiting compassion towards the self and demonstrating acceptance, rather than avoidance, of physical pain. In addition, self-compassion involves balanced awareness of painful thoughts, emotions, and sensations so that they are not avoided but approached with kindness and an understanding of the shared experiences of suffering (Neff, 2003b).

To the author's knowledge, this is the first study that has examined the relationship between mindfulness and self-compassion with acceptance of chronic pain in

a sample of OEF/OIF veterans. Studies examining acceptance of chronic pain have primarily used community primary care samples (Costo & Pinto-Gouveia, 2011; McCracken and Eccleston, 2005; McCracken, 1998; McCracken, Spertus, Janeck, Sinclair, & Wetzel, 1999). However, studies using OEF/OIF veteran samples reported prevalence rates as high as 45% screening positive for pain (Haskell et al., 2010). Thus, it is important to explore these relationships further in the veteran population.

Implications for Treatment

The goal of this study was to provide information describing relationships between mindfulness, self-compassion, and experiential avoidance with various functional and psychological outcomes. In the primary analyses, all three of the SEM models showed adequate to good fit indicating the strength of the relationship between these variables in an OEF/OIF veteran sample. In addition, these relationships were all partially or fully explained by experiential avoidance, highlighting the importance of targeting interventions to address this behavior.

Since experiential avoidance seems to play such a large role in emotional functioning and well-being following exposure to trauma, then it seems plausible that acceptance-based strategies would assist with adjustment following traumatic events (Thompson et al., 2011). A challenge that is identified in the literature is the lack of cohesive definition of acceptance (Block-Lerner, Salters-Pedneault, & Tull, 2005). In addition, often acceptance is defined as what it is not (i.e. experiential avoidance) rather than what it is, which can make it difficult to address in treatment. For instance, encouraging someone to “not avoid” his or her unwanted thoughts or feelings is not very

helpful or therapeutic. Sanderson and Linehan (1999) have suggested that acceptance is defined as “the developed capacity to fully embrace whatever is in the present moment” (p. 200). With this understanding, acceptance can be fostered by learning skills and repeatedly practicing the techniques.

Two acceptance-based therapies that are currently being widely used to treat veterans in the Veterans Affairs (VA) Healthcare System are Acceptance and Commitment Therapy (ACT; Batten & Hayes, 2005) and Dialectical Behavior Therapy (DBT; Linehan, 1993). Evidence has been positive for a brief ACT-based workshop that was conducted as part of an OEF/OIF postdeployment reintegration program (Blevins et al., 2011); however, much more research is needed. DBT has shown positive results in women veterans (Koons et al., 2001) but the study addressed treatment of Borderline Personality Disorder. Although both ACT and DBT have strong empirical support in the literature, they are considered behavioral interventions that have a different focus than treatments developed around mindfulness or self-compassion. For example, DBT uses skills training to help improve interpersonal effectiveness, emotional regulation, and distress tolerance, whereas ACT strives to move participants towards their values-based goals. Both interventions incorporate mindfulness exercises into the protocol but are more focused on behavioral change. Results from this study suggest that mindfulness and self-compassion are two constructs that are strongly related to experiential avoidance and improved psychological and functional outcomes.

Mindful Self-Compassion (MSC; Neff & Germer, 2011) is an intervention that teaches both mindfulness and self-compassion skills and can address the experiential

avoidance that may be prevalent in the combat veteran population. MSC not only targets avoidance by focusing on acceptance of present moment experiences, but also includes self-soothing skills to help individuals better tolerate negative thoughts and emotions. In addition, developing self-compassion can help target feelings of guilt or shame that may interfere with other trauma-focused treatments (Orsillo & Batten, 2005).

Due to the fostering of self-acceptance, self-compassion may also address the stigma that veterans perceive in receiving mental health treatment (Hoge et al., 2004). A recent study examining barriers to seeking mental health treatment in OEF/OIF veterans (Stecker, Shiner, Watts, Jones, & Conner, 2013) found that 35% reported emotional readiness for treatment, 40% reported concerns about treatment, and 16% identified stigma as a reason to not participate in mental health care. Utilizing more compassionate and acceptance-based strategies when a veteran initially engages in treatment may target some of the perceived barriers that were identified in that study. In addition, Hoge and colleagues (2004) highlight that while deployed soldiers typically identify with a "warrior" role. Upon returning home, if society perceives them as having a disorder rather than experiencing natural reactions from combat, then it could have a negative impact on a veteran's view of self.

Within the VA, Prolonged Exposure and Cognitive Processing Therapy are the primary treatments used for PTSD. While exposure therapy has strong empirical support, it has been criticized as focusing only on symptom reduction rather than other problematic areas of functioning (Lombardo & Gray, 2005). In addition, it is suggested to not be as effective in populations that exhibit underlying self-criticism, guilt, and shame

(Orsillo & Batten, 2005). Craske and colleagues (2008) acknowledge that the underlying effective mechanism in exposure disorders is unknown and that treatments should focus on tolerance of unwanted experiences, rather than reduction of the fear response. This theory suggests that improvements in exposure therapy may be due to an increased ability to accept and tolerate fear responses rather than habituation of the fear response. A recent study that compared group cognitive behavioral therapy to adapted MBSR for anxiety disorders (Arch et al., 2013) found that although both interventions were effective at reducing severity of anxiety symptoms, MBSR showed greater improvements on symptoms of and other comorbid disorders.

These findings suggest that it would be beneficial to include interventions focusing explicitly on developing mindfulness and self-compassion, rather than as a component of another treatment (e.g. ACT, DBT). This is not to suggest that mindfulness and self-compassion are recommended as the sole treatment for PTSD and/or comorbid disorders but more as a complementary treatment to other interventions that are more symptom-focused. More research is recommended to determine whether mindfulness and self-compassion interventions would be beneficial in a veteran population. Preliminary findings with MBSR and veterans had promising results (Kearney et al., 2013) but much more evidence is needed. To the author's knowledge, there have been no studies examining compassion-based interventions in veterans. Due to the findings from this study as well as theoretical support from the literature, future studies should assess the impact of a compassion-based intervention in a veteran sample.

Study Strengths, Limitations, and Future Directions

A primary strength of this study is the examination of variables that have never been examined together with a combat veteran sample – mindfulness, self-compassion, and experiential avoidance. Acceptance-based approaches are widely used throughout the VA as treatment for PTSD, mood disorders, and substance abuse (Vujanovic et al., 2011) but little is known about how these variables relate with one another in this population. This study provides evidence that both mindfulness and self-compassion are related to psychological and functional outcomes primarily through experiential avoidance. Thus, future research should expand upon these findings and examine interventions that can target experiential avoidance in combat veterans.

In addition, another strength is the use of latent variable SEM as the primary analysis in the study. SEM provides the advantage of creating latent variables that allow the use of several indicators. This method of operationalizing a construct leads to greater reliability and construct validity. SEM also accounts for measurement error by including specific measurement error variables that correspond to the observed variables. Thus, relationships between constructs are not impacted by measurement error and are assumed to have perfect reliability. SEM also allows for the testing of complex models, with multiple mediating or outcome variables that can be examined simultaneously. While other methods would require the several separate analyses to be conducted. Lastly, SEM uses a confirmatory approach and provides comparison testing of equivalent models. Model improvements are also facilitated by the production of modification indices (Tomarken & Waller, 2005).

There are also several limitations to this study that warrant explanation. First of all, the study relied on the use of self-report measures to reflect thoughts, emotions, and behaviors related to the intended constructs. As with any study using self-report measures, the results are subject to the participants' awareness, ability, and willingness to accurately reflect their own experiences. A concern with using self-report mindfulness and acceptance-based measures is the potential differences in interpretation of the language in those measures (Grossman, 2008). For instance, individuals who are not familiar with mindfulness practice may not be aware of how mindful or mindless they are being in everyday life. In addition, mindfulness and acceptance-based constructs are difficult to measure and there has been much debate in the literature concerning a consistent way to operationalize them. Several measures of mindfulness have been created that all seem to have distinct qualities identifying difference facets of mindfulness (Baer et al., 2004). Thus, it would interesting to examine the relationships between the variables used in this study with a different measure of mindfulness. However, as discussed previously, the MAAS allows for a "pure" measure of present-moment awareness which allow for more distinction from the SCS and AAQ-II.

In addition, the AAQ-II does not seem to measure experiential avoidance as conceptualized by Hayes and colleagues (2006) per se, but more of a lack of acceptance and psychological inflexibility. Meyer and colleagues (2013) acknowledge that instead of examining the actual presence of unwanted internal experiences, the measure seems to be more reflective of examining the outcomes of having unwanted thoughts and emotions. The AAQ-II is also a brief, unidimensional measure and recent literature has suggested

that experiential avoidance be measured using a multifaceted scale (Gámez et al., 2011). Future research should provide stronger construct validity for the AAQ-II and attempt to use other methods and measures to assess experiential avoidance (Meyer et al.).

Using an OEF/OIF veteran sample from Central Texas impacts the generalizability of the findings. These results may not generalize to veterans from other areas of the country or other war genres. Also, due to the repeated exposure to trauma combat veterans typically face, these results may not be applicable to other populations who have been exposed to single-incident trauma. Future studies should examine the generalizabilty of these results with other veterans as well as other participants with trauma histories. Also, this sample was primarily male so conducting studies with a more female-represented sample would provide more information on the relationships between these variables.

Another limitation is the cross-sectional design of the study. Only baseline data was used, so causal relationships cannot be determined. Since these constructs have never before been examined together with a veteran sample, the research questions were primarily exploratory. However, future research should expand on these findings and measure changes in these factors over time. Additionally, examining these constructs pre- and post-intervention would provide more information about the mechanisms that underlie any changes from the treatment.

Despite the previously described strengths of SEM, there are some limitations that should be addressed. The first limitation is the recommendation of utilizing a large sample size (i.e. > 200; Kline, 2011) when conducting SEM. However, reviews have

concluded that there is no one recommended minimal sample size that is appropriate for all contexts. The impact of the sample size is argued to depend on the complexity of the model and the number of parameter estimates (Tomarken & Waller, 2005). Nonetheless, this study utilized a sample of 118 which is smaller than typically recommended for this kind of statistical analysis. Even though preliminary power analyses revealed adequate values for the sample size, the parameter estimates may have been impacted (e.g. the presence of Heywood cases).

Another limitation that is critical in any SEM analysis is the omission of variables that may have significant influence over the causal processes of the model (Kline, 2011). An erroneous assumption often made with SEM is that if the model fits well, then it includes all the variables that are relevant in the model. Even though the fit indices tend to be sensitive to omitted variables, there are some contexts where they may display good fit indices despite the presence of critical omitted variables. Thus, future research should include other variables that have strong support in the literature as being risk factors for the development of PTSD and other mental health disorders (e.g. history of childhood trauma, social support, peritrauma reactions; Brewin et al., 2000).

Conclusion

Despite the limitations and need for the future research in this area, this study can inform future research directions and treatment interventions for OEF/OIF combat veterans. Overall, the findings of this study highlight the important impact that mindfulness, self-compassion, and experiential avoidance may have on psychological and functional outcomes in trauma exposed OEF/OIF veterans, including problematic alcohol

use and acceptance of chronic pain. Together, these results highlight the importance of examining factors that underlie psychological and physical well-being in OEF/OIF combat veterans. This may help us understand how treatment interventions can improve outcomes for veterans, and also identify the underlying mechanisms that influence outcomes. The present findings suggest that acceptance-based interventions that increase mindfulness and self-compassion could potentially positively impact psychological functioning and quality of life for the increasing number of veterans who are returning home.

Appendix A: Demographic Questionnaire

1. **What is your gender?**
   O Female O Male O Transgender (F to M) O Transgender (M to F)

2. **How old are you?** _____ years

3. **What is your month and year of birth (MM/YYYY)?** _____/_____

4. **Which of the following best describes your <u>current</u> relationship status?**

   O Single, not dating
   O Single, in casual relationship
   O Single, in serious relationship
   O Engaged to be married
   O Married, living with spouse
   O Married, geographically separated
   O Married, separated
   O Divorced
   O Widowed

5. **Do you currently live with your intimate/romantic partner?**
   O No O Yes O Not applicable (not currently in intimate/romantic relationship)

6. **Which of the following best describes your highest level of education?**

   O some High School
   O High School Diploma or GED
   O some College, no degree
   O Associates Degree
   O Technical School Certification
   O Bachelor's Degree
   O some Graduate School
   O Graduate Degree (please specify): _____

7. **How many years of education have you <u>completed</u>?**
   (Note: HS/GED = 12; AA = 14; BA/BS = 16; MA/MS = 18) _____ years

8. **Which of the following best describes your <u>current</u> employment status?**

   O Employed (Full-Time)
   O Employed (Part-Time)
   O Disabled
   O Retired
   O Full-Time Student
   O Full-Time Homemaker
   O Unemployed (looking for work)
   O Unemployed (not actively looking for work)

9. **On average, how many hours per week have you worked in the last 3 months?** _____ hours

10. **What is your current (or most recent if not currently employed) occupation?**
_____

11. **What is your current annual income (last 12 months)?**

O $0 - $14,999 O $15,000 - $29,999 O $30,000 - $44,999 O $45,000 - $59,999
O $60,000 - $74,999 O $75,000 - $89,999 O $90,000 or higher

12. **Are you Hispanic/Latino?** O No O Yes (please specify below, select all that apply)

O Cuban O Dominican O Mexican/Mexican American/Chicano O Puerto Rican
O Spanish/Basque O other (please specify): _____

13. **What is your Race? (please select all that apply)**

O American Indian or Alaska Native O Asian or Asian-American
O Black or African-American O Native Hawaiian or other Pacific Islander
O White or Caucasian O Other (please specify): _____

Military History

1. **When did you enlist in the military?** _____ Age Date: _____/_____ *(month/year)*

2. **In which branch(es) of the military did you serve?** (select all that apply)
O Air Force O Army O Marine Corps O National Guard O Navy

3. **How long have you served in the military? Please complete the table below:**

			Years	Months
Active Duty	O YES	O NO		
Reserves	O YES	O NO		
National Guard	O YES	O NO		

4. **When were you discharged from the military?**
_____Age Date: _____/_____*(month/year)*

5. Was there a period of time in between your original enlistment and final discharge dates listed above that you were not in the military (i.e., did you re-enlist after taking time off)?

O NO O YES – how long? _____ Years & _____ Months

6. What is your discharge status? (select all that apply)

O Honorable O General O Medical O Retired O Dishonorable
O Other (please specify): _____

7. What was your discharge rank?

O E1-E4 O E5-E6 O E7-E9 O O1-O3 O O4-O9 O WO1-WO5

8. How many times were you deployed for OEF/OIF? _____

9. To what military theatres/countries/war zones were you deployed as part of OEF/OIF? (select all that apply)

O Afghanistan O Iraq O Others (please specify): _____

10. Please list dates (month/year) and areas of OEF/OIF deployment below (if more than 6, continue on back of form):

Deployment #1: Left: ____/____ Returned: ____/____
Country(ies):_____
Deployment #2: Left: ____/____ Returned: ____/____
Country(ies):_____
Deployment #3: Left: ____/____ Returned: ____/____
Country(ies):_____
Deployment #4: Left: ____/____ Returned: ____/____
Country(ies):_____
Deployment #5: Left: ____/____ Returned: ____/____
Country(ies):_____
Deployment #6: Left: ____/____ Returned: ____/____
Country(ies):_____

11. Prior to OEF/OIF, did you serve in a warzone or peacekeeping mission?

O No O Yes O If yes, how many times? _____
If yes, for which conflicts/missions?
O Vietnam O Desert Storm/Shield O Bosnia O Somalia
O Other _____

12. Please rate your experience and perceptions of the OEF/OIF conflicts on each of the dimensions listed below.

	Not at all	A little bit	Moderately	Quite a bit	Extremely
a. Important	O	O	O	O	O
b. Necessary	O	O	O	O	O
c. Worthy of Resources	O	O	O	O	O
d. Justified	O	O	O	O	O
e. Mission accomplished	O	O	O	O	O

13. Were you physically injured while you were in the service? O No O Yes (answer below)

a. Briefly describe the injury(ies) you received:

_____

b. When were you physically injured? O during combat O during non-combat active duty O during training O other (please specify): _____

c. How did your physical injury affect your ability to perform your duties?
O No effect, I was able to continue my duties as required.
O Some effect, I was able to stay with my unit but my duties were modified until I fully recovered.
How long: _____ (circle time period) days weeks months years
O Moderate effect, I was evacuated/removed from my unit and/or given a new job until I fully recovered: _____ (circle time period)
days weeks months years
O Severe effect, I was unable to return to my unit/job within the military or was awarded a medical discharge.

d. To what extent would you say you have recovered from your physical injury?
O 100% - No lasting effects from the injury at all.
O Some lingering effects, but they do not interfere with my daily living.
O Significant effects remain, have an impact on my quality of life (e.g., pain).
O I am disabled from my physical injuries.

14. Have you been granted a Physical Service-Connected disability?
O No O Yes _____ %

15. Have you been granted a Mental Health Service-Connected disability?
O No O Yes _____ %

16. Are you currently seeking a Service-Connected disability? O No O Yes

17. Based on your current status in the military (e.g. Active Reserves, Non-Active Reserves, National Guard, fully retired, and so forth), how likely do you think it is that you will be deployed again to a warzone?

O Very likely	O Somewhat Likely	O Moderately Likely	O Somewhat Unlikely	O Very Unlikely	O Not at all Likely

18. How do you feel about the possibility of being deployed again to a warzone?

O Very positive	O Fairly Positive	O Neutral	O Fairly Negative	O Very negative	O Not applicable

19. Currently, how much stress does the possibility of your being deployed again to a war zone cause you?

O None	O A little bit	O Moderate Amount	O Quite a bit	O Extreme amount	O Not applicable

Appendix B: Treatment Involvement Form

INSTRUCTIONS: Please answer the following questions based on any treatment that you have received during the last **4 months**. For each item, report the number of times you have received each form of treatment. Then fill in the appropriate bubble as to whether you are currently still receiving those services. For example, if you are still attending individual psychotherapy services you would fill in the bubble for "Yes", but if you are no longer participating in groups you would fill in the bubble for "No" for that item.

In the last 4 months, how many times have you…	**Number of times:**	**Current?**	
1. gone to the doctor/hospital for any physical condition (e.g., illness, injury, routine check-up, medication management)?	_____	O No	O Yes
2. gone to your doctor or a psychiatrist for medication management of a psychological condition?	_____	O No	O Yes
3. attended an individual psychotherapy appointment?	_____	O No	O Yes
4. attended a group psychotherapy appointment?	_____	O No	O Yes
5. attended a self-help group (for example AA or NA)?	_____	O No	O Yes
6. read self-help material (e.g., books, tapes, on-line material)?	_____	O No	O Yes
7. sought counseling from a priest, minister, or other religious figure?	_____	O No	O Yes
8. received other forms of treatment (please specify on 2 lines below as needed):			
a. _____	_____	O No	O Yes
b. _____	_____	O No	O Yes

Appendix C: Full Combat Experiences Scale

		Never	1 Time	2-4 Times	5-9 Times	10+ Times
1.	Being attacked or ambushed	O	O	O	O	O
2.	Seeing destroyed homes and villages	O	O	O	O	O
3.	Receiving small arms fire	O	O	O	O	O
4.	Seeing dead bodies or human remains	O	O	O	O	O
5.	Handling or uncovering human remains	O	O	O	O	O
6.	Witnessing an accident which resulted in serious injury or death	O	O	O	O	O
7.	Witnessing violence within the local population or between ethnic groups	O	O	O	O	O
8.	Seeing dead or seriously injured Americans	O	O	O	O	O
9.	Knowing someone seriously injured or killed	O	O	O	O	O
10.	Participating in de-mining operations	O	O	O	O	O
11.	Working in areas that were mined	O	O	O	O	O
12.	Having hostile reactions from civilians	O	O	O	O	O
13.	Disarming civilians	O	O	O	O	O
14.	Being in threatening situations where you were unable to respond because of rules of engagement	O	O	O	O	O
15.	Shooting or directing fire at the enemy	O	O	O	O	O
16.	Calling in fire on the enemy	O	O	O	O	O
17.	Engaging in hand-to-hand combat	O	O	O	O	O
18.	Clearing/searching homes or buildings	O	O	O	O	O
19.	Clearing/searching caves or bunkers	O	O	O	O	O
20.	Witnessing brutality/mistreatment toward non-combatants	O	O	O	O	O
21.	Being wounded/injured	O	O	O	O	O
22.	Seeing ill/injured women/children who you were unable to help	O	O	O	O	O
23.	Receiving incoming artillery, rocket, or mortar fire	O	O	O	O	O
24.	Being directly responsible for the death of an enemy combatant	O	O	O	O	O
25.	Being directly responsible for the death of a non-combatant	O	O	O	O	O
26.	Being responsible for the death of US or ally personnel	O	O	O	O	O
27.	Having a member of your own unit become a casualty	O	O	O	O	O
28.	Had a close call: dud land near you	O	O	O	O	O
29.	Had a close call: was shot or hit but protective gear saved you	O	O	O	O	O
30.	Had a buddy shot or hit who was near you	O	O	O	O	O
31.	Improvised explosive device (IED)/booby trap explode near you	O	O	O	O	O

32.	Provided aid to the wounded	O	O	O	O	O
33.	Saved the life of a soldier or civilian	O	O	O	O	O
34.	Other (e.g. friendly fire): _____	O	O	O	O	O

Appendix D: Self-Compassion Scale

INSTRUCTIONS: This survey asks about how you typically act towards yourself in difficult times. Please read each statement carefully before answering. To the right of each item, indicate how often you behave in the stated manner, using the following scale:

		Almost never				Almost always
1.	I'm disapproving and judgmental about my own flaws and inadequacies.	O	O	O	O	O
2.	When I'm feeling down I tend to obsess and fixate on everything that's wrong.	O	O	O	O	O
3.	When things are going badly for me, I see the difficulties as part of life that everyone goes through.	O	O	O	O	O
4.	When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.	O	O	O	O	O
5.	I try to be loving towards myself when I'm feeling emotional pain.	O	O	O	O	O
6.	When I fail at something important to me I become consumed by feelings of inadequacy.	O	O	O	O	O
7.	When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.	O	O	O	O	O
8.	When times are really difficult, I tend to be tough on myself.	O	O	O	O	O
9.	When something upsets me I try to keep my emotions in balance.	O	O	O	O	O
10.	When I feel inadequate in some way, I try to remind myself that feelings of	O	O	O	O	O

	inadequacy are shared by most people.					
11.	I’m intolerant and impatient towards those aspects of my personality I don't like.	O	O	O	O	O
12.	When I’m going through a very hard time, I give myself the caring and tenderness I need.	O	O	O	O	O
13.	When I’m feeling down, I tend to feel like most other people are probably happier than I am.	O	O	O	O	O
14.	When something painful happens I try to take a balanced view of the situation.	O	O	O	O	O

15.	I try to see my failings as part of the human condition.	O	O	O	O	O
16.	When I see aspects of myself that I don’t like, I get down on myself.	O	O	O	O	O
17.	When I fail at something important to me I try to keep things in perspective.	O	O	O	O	O
18.	When I’m really struggling, I tend to feel like other people must be having an easier time of it.	O	O	O	O	O
19.	I’m kind to myself when I’m experiencing suffering.	O	O	O	O	O
20.	When something upsets me I get carried away with my feelings.	O	O	O	O	O
21.	I can be a bit cold-hearted towards myself when I'm experiencing suffering.	O	O	O	O	O
22.	When I'm feeling down I try to approach my feelings with curiosity and openness.	O	O	O	O	O
23.	I’m tolerant of my own flaws and inadequacies.	O	O	O	O	O
24.	When something painful happens I tend to blow the incident out of proportion.	O	O	O	O	O
25.	When I fail at something that's important to me, I tend to feel alone in my failure.	O	O	O	O	O
26.	I try to be understanding and patient towards those aspects of my personality I don't like.	O	O	O	O	O

Appendix E: Mindful Attention and Awareness Scale

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what *really reflects* your experience rather than what you think your experience should be. Please treat each item separately from every other item.

		Almost Always	Very Frequently	Somewhat Frequently	Somewhat Infrequently	Very Infrequently	Almost Never
1.	I could be experiencing some emotion and not be conscious of it until sometime later.	O	O	O	O	O	O
2.	I break or spill things because of carelessness, not paying attention, or thinking of something else.	O	O	O	O	O	O
3.	I find it difficult to stay focused on what's happening in the present.	O	O	O	O	O	O
4.	I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	O	O	O	O	O	O
5.	I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	O	O	O	O	O	O
6.	I forget a person's name almost as soon as I've been told it for the first time.	O	O	O	O	O	O
7.	It seems I am "running on automatic," without much awareness of what I'm doing	O	O	O	O	O	O

8.	I rush through activities without being really attentive to them.	O	O	O	O	O	O
9.	I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.	O	O	O	O	O	O
10.	I do jobs or tasks automatically, without being aware of what I'm doing.	O	O	O	O	O	O
11.	I find myself listening to someone with one ear, doing something else at the same time.	O	O	O	O	O	O
12.	I drive places on 'automatic pilot' and then wonder why I went.	O	O	O	O	O	O
13.	I find myself preoccupied with the future or the past.	O	O	O	O	O	O
14.	I find myself doing things without paying attention	O	O	O	O	O	O
15.	I snack without being aware that I'm eating.	O	O	O	O	O	O

Appendix F: Acceptance and Action Questionnaire - II

INSTRUCTIONS: Below you will find a list of statements. Please rate how true each statement is for you by filling in the bubble that best describes your answer. Use the scale below to make your choice.

1.	My painful experiences and memories make it difficult for me to live a life that I would value.						
	O never true	O very seldom true	O seldom true	O sometimes true	O frequently true	O almost always true	O always true
2.	I'm afraid of my feelings.						
	O never true	O very seldom true	O seldom true	O sometimes true	O Frequently true	O almost always true	O always true
3.	I worry about not being able to control my worries and feelings.						
	O never true	O very seldom true	O seldom true	O sometimes true	O Frequently true	O almost always true	O always true
4.	My painful memories prevent me from having a fulfilling life.						
	O never true	O very seldom true	O seldom true	O sometimes true	O Frequently true	O almost always true	O always true
5.	Emotions cause problems in my life.						
	O never true	O very seldom true	O seldom true	O sometimes true	O frequently true	O almost always true	O always true
6.	It seems like most people are handling their lives better than I am.						
	O never true	O very seldom true	O seldom true	O sometimes true	O frequently true	O almost always true	O always true
7.	Worries get in the way of my success.						
	O never true	O very seldom true	O seldom true	O sometimes true	O frequently true	O almost always true	O always true

Appendix G: PTSD Checklist – Military Version

INSTRUCTIONS: Below is a list of problems and complaints that veterans sometimes have in response to stressful military experiences. Please read each one carefully, then select the answer to the right to indicate how much you have been bothered by that problem in the past month.

		Not at all	**A little bit**	**Moderately**	**Quite a bit**	**Extremely**
1.	Repeated, disturbing *memories, thoughts,* or *images* of a stressful military experience?	O	O	O	O	O
2.	Repeated, disturbing *dreams* of a stressful military experience?	O	O	O	O	O
3.	Suddenly *acting* or *feeling* as if a stressful military experience *were happening again* (as if you were reliving it)?	O	O	O	O	O
4.	Feeling *very upset* when *something reminded you* of a stressful military experience?	O	O	O	O	O
5.	Having *physical reactions* (e.g., heart pounding, trouble breathing, sweating) when *something reminded you* of a stressful military experience?	O	O	O	O	O
6.	Avoiding *thinking about* or *talking about* a stressful military experience or avoiding *having feelings* related to it?	O	O	O	O	O
7.	Avoiding *activities* or *situations* because they *reminded you* of a stressful military experience?	O	O	O	O	O
8.	Trouble *remembering important parts* of a stressful military experience?	O	O	O	O	O

9.	*Loss of interest* in activities that you used to enjoy?	O	O	O	O	O
10.	Feeling *distant* or *cut off* from other people?	O	O	O	O	O
11.	Feeling *emotionally numb* or being unable to have loving feelings for those close to you?	O	O	O	O	O
12.	Feeling as if your *future* will somehow be cut short?	O	O	O	O	O
13.	Trouble *falling* or *staying asleep*?	O	O	O	O	O
14.	Feeling *irritable* or having *angry outbursts*?	O	O	O	O	O
15.	Having *difficulty concentrating*?	O	O	O	O	O
16.	Being *"super alert"* or watchful or on guard?	O	O	O	O	O
17.	Feeling *jumpy* or easily startled?	O	O	O	O	O

Appendix H: Depression Anxiety Stress Scale – 21

Please read each statement and choose the answer that indicates how much the statement applied to you OVER THE LAST WEEK. There are no right or wrong answers. Do not spend too much time on any statement. Blacken the appropriate bubble under each statement using the following rating scale:

		Did not apply to me at all	Applied to me to some degree or some of the time	Applied to me considerable degree, or a good part of the time	Applied to me very much, or most of the time
1.	I found it hard to wind down.	O	O	O	O
2.	I was aware of dryness of my mouth.	O	O	O	O
3.	I couldn't seem to experience any positive feelings at all.	O	O	O	O
4.	I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion).	O	O	O	O
5.	I found it difficult to work up the initiative to do things.	O	O	O	O
6.	I tended to over-react to situations.	O	O	O	O
7.	I experienced trembling (e.g., in the hands).	O	O	O	O
8.	I felt that I was using a lot of nervous energy.	O	O	O	O
9.	I was worried about situations in which I might panic and make a fool of myself.	O	O	O	O
10.	I felt that I had nothing to look forward to.	O	O	O	O
11.	I found myself getting agitated.	O	O	O	O
12.	I found it difficult to relax.	O	O	O	O
13.	I felt down-hearted and blue.	O	O	O	O
14.	I was intolerant of anything that kept me from getting on with what I was doing.	O	O	O	O
15.	I felt that I was close to panic.	O	O	O	O
16.	I was unable to become enthusiastic about anything.	O	O	O	O
17.	I felt that I wasn't worth much as a person.	O	O	O	O
18.	I felt that I was rather touchy.	O	O	O	O

19.	I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat).	O	O	O	O
20.	I felt scared without any good reason.	O	O	O	O
21.	I felt that life was meaningless.	O	O	O	O

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Appendix I: Quality of Life Scale

INSTRUCTIONS: Please read each item and select the answer that best describes how satisfied you have been **DURING THE LAST FOUR MONTHS**. Please answer each item even if you did not participate in an activity or have a relationship. You can be satisfied or dissatisfied with not doing the activity or having the relationship.

	Delighted	Pleased	Mostly Satisfied	Mixed	Mostly Dissatisfied	Unhappy	Terrible
1. Material comforts, home, food, conveniences, financial security.	O	O	O	O	O	O	O
2. Health – being physically fit and vigorous.	O	O	O	O	O	O	O
3. Relationships with parents, siblings & other relatives – communicating, visiting, helping.	O	O	O	O	O	O	O
4. Having and rearing children.	O	O	O	O	O	O	O
5. Close relationships with spouse or significant other.	O	O	O	O	O	O	O
6. Close friends.	O	O	O	O	O	O	O
7. Helping and encouraging others, volunteering, giving advice.	O	O	O	O	O	O	O
8. Participating in organizations and public affairs.	O	O	O	O	O	O	O

9.	Learning – attending school, improving understanding, getting additional knowledge.	O	O	O	O	O	O	O
10.	Understanding yourself – knowing your assets and limitations – knowing what life is about.	O	O	O	O	O	O	O
11.	Work – job or in home.	O	O	O	O	O	O	O
12.	Expressing yourself creatively.	O	O	O	O	O	O	O
13.	Socializing – meeting other people, doing things, parties, etc.	O	O	O	O	O	O	O
14.	Reading, listening to music, or observing entertainment.	O	O	O	O	O	O	O
15.	Participating in active recreation.	O	O	O	O	O	O	O
16.	Independence, doing for yourself.	O	O	O	O	O	O	O

Appendix J: World Health Organization Disability Assessment Scale – II

INSTRUCTIONS: This questionnaire asks about difficulties due to health conditions. Health conditions include diseases or illnesses, other health problems that may be short or long lasting, injuries, mental or emotional problems, and problems with alcohol or drugs. Think back over the **LAST 30 DAYS** and answer these questions thinking about how much difficulty you had doing the following activities. For each question, please fill in only one response.

		Very Good	Good	Moderate	Bad	Very Bad
1.	How do you rate your overall health in the past 30 days?	O	O	O	O	O

In the last 30 days, how much difficulty did you have in:

	Understanding and communicating	None	Mild	Moderate	Severe	Extreme/ Cannot Do
2.	Concentrating on doing something for ten minutes?	O	O	O	O	O
3.	Remembering to do important things?	O	O	O	O	O
4.	Analyzing and finding solutions to problems in day to day life?	O	O	O	O	O
5.	Learning a new task, for example, learning how to get to a new place?	O	O	O	O	O
6.	Generally understanding what people say?	O	O	O	O	O
7.	Starting and maintaining a conversation?	O	O	O	O	O

	Getting around	None	Mild	Moderate	Severe	Extreme/ Cannot Do
8.	Standing for long periods such as 30 minutes?	O	O	O	O	O
9.	Standing up from sitting down?	O	O	O	O	O
10.	Moving around inside your home?	O	O	O	O	O
11.	Getting out of your home?	O	O	O	O	O
12.	Walking a long distance such as a kilometre (or equivalent)?	O	O	O	O	O

In the last 30 days:

	Self care	**None**	**Mild**	**Moderate**	**Severe**	**Extreme/ Cannot Do**
13.	Washing your whole body?	O	O	O	O	O
14.	Getting dressed?	O	O	O	O	O
15.	Eating?	O	O	O	O	O
16.	Staying by yourself for a few days?	O	O	O	O	O

	Getting along with people	**None**	**Mild**	**Moderate**	**Severe**	**Extreme/ Cannot Do**
17.	Dealing with people you do not know?	O	O	O	O	O
18.	Maintaining a friendship?	O	O	O	O	O
19.	Getting along with people who are close to you?	O	O	O	O	O
20.	Making new friends?	O	O	O	O	O
21.	Sexual activities?	O	O	O	O	O

	Life activities	**None**	**Mild**	**Moderate**	**Severe**	**Extreme/ Cannot Do**
22.	Taking care of your household responsibilities?	O	O	O	O	O
23.	Doing most important household tasks well?	O	O	O	O	O
24.	Getting all the household work done that you needed to do?	O	O	O	O	O
25.	Getting your household work done as quickly as needed?	O	O	O	O	O

IF YOU WORK (PAID, NON-PAID, SELF EMPLOYED) OR GO TO SCHOOL, COMPLETE QUESTIONS 26-29 BELOW. OTHERWISE, SKIP TO QUESTION 30.

In the last 30 days, how much difficulty did you have in:

		None	Mild	Moderate	Severe	Extreme/ Cannot Do
26.	Your day to day work/school?	O	O	O	O	O
27.	Doing your most important work/school tasks well?	O	O	O	O	O
28.	Getting all the work done that you need to do?	O	O	O	O	O
29.	Getting your work done as quickly as needed?	O	O	O	O	O

	Participation in Society	None	Mild	Moderate	Severe	Extreme/ Cannot Do
30.	How much of a problem did you have in joining in community activities (for example, festivities, religious or other activities) in the same way as anyone else can?	O	O	O	O	O
31.	How much of a problem did you have because of barriers or hindrances in the world around you?	O	O	O	O	O
32.	How much of a problem did you have living with dignity because of the attitudes and actions of others?	O	O	O	O	O
33.	How much time did you spend on your health condition, or its consequences?	O	O	O	O	O
34.	How much have you been emotionally affected by your health condition?	O	O	O	O	O
35.	How much has your health been a drain on the financial resources of you or your family?	O	O	O	O	O
36.	How much of a problem did your family have because of your health problems?	O	O	O	O	O
37.	How much of a problem did you have in doing things by yourself for relaxation or pleasure?	O	O	O	O	O

		Not at all	Mildly	Moderately	Severely	Extremely
38.	Overall, how much did these difficulties interfere with your life?	O	O	O	O	O
39.	Overall, in the past 30 days, how many days were these difficulties present?	_____ days (0-30)				
40.	In the past 30 days, for how many days were you totally unable to carry out your usual activities or work because of any health condition?	_____ days (0-30)				
41.	In the past 30 days, not counting the days that you were totally unable, for how many days did you cut back or reduce your usual activities or work because of any health condition?	_____ days (0-30)				

Appendix K: Post-Traumatic Growth Inventory

INSTRUCTIONS: Indicate for each of the following statements the degree to which the change reflected in the question is true in your life as a result of your traumatic military experiences, using the following scale:

No change = I did not experience this change as a result of my traumatic military experiences
Very small change = I experienced this change to a very small degree as a result of my traumatic military experiences
Small change = I experienced this change to a small degree as a result of my traumatic military experiences
Moderate change = I experienced this change to a moderate degree as a result of my traumatic military experiences
Great change = I experienced this change to a great degree as a result of my traumatic military experiences
Very great change = I experienced this change to a very great degree as a result of my traumatic military experiences

		No change	Very small change	Small change	Moderate Change	Great change	Very great change
1.	My priorities about what is important in life.	O	O	O	O	O	O
2.	I'm more likely to try to change things which need changing.	O	O	O	O	O	O
3.	An appreciation for the value of my own life.	O	O	O	O	O	O
4.	A feeling of self-reliance.	O	O	O	O	O	O
5.	A better understanding of spiritual matters.	O	O	O	O	O	O
6.	Knowing that I can count on people in times of trouble.	O	O	O	O	O	O
7.	A sense of closeness with others.	O	O	O	O	O	O
8.	Knowing I can handle difficulties.	O	O	O	O	O	O
9.	A willingness to express my emotions.	O	O	O	O	O	O
10.	Being able to accept the way things work out.	O	O	O	O	O	O
11.	Appreciating each day.	O	O	O	O	O	O
12.	Having compassion for others.	O	O	O	O	O	O
13.	I'm able to do better	O	O	O	O	O	O

	things with my life.						
14.	New opportunities are available which wouldn't have been otherwise.	O	O	O	O	O	O
15.	Putting effort into my relationships.	O	O	O	O	O	O
16.	I have a stronger religious faith.	O	O	O	O	O	O
17.	I discovered that I'm stronger than I thought I was.	O	O	O	O	O	O
18.	I learned a great deal about how wonderful people are.	O	O	O	O	O	O
19.	I developed new interests.	O	O	O	O	O	O
20.	I accept needing others.	O	O	O	O	O	O
21.	I established a new path for my life.	O	O	O	O	O	O

Appendix L: Chronic Pain Acceptance Questionnaire

<u>INSTRUCTIONS</u>: BELOW YOU WILL FIND A LIST OF STATEMENTS. PLEASE RATE THE TRUTH OF EACH STATEMENT AS IT APPLIES TO YOU. USE THE FOLLOWING RATING SCALE TO MAKE YOUR CHOICES. FOR INSTANCE, IF YOU BELIEVE A STATEMENT IS 'ALWAYS TRUE,' YOU WOULD FILL IN THE CIRCLE THAT CORRESPONDS WITH THAT RESPONSE OPTION.

	Never True	Very Rarely True	Seldom True	Sometimes True	Often True	Almost Always True	Always True
1. I am getting on with the business of living no matter what my level of pain is.	O	O	O	O	O	O	O
2. My life is going well, even though I have chronic pain.	O	O	O	O	O	O	O
3. It's OK to experience pain.	O	O	O	O	O	O	O
4. I would gladly sacrifice important things in my life to control this pain better.	O	O	O	O	O	O	O
5. It's not necessary for me to control my pain in order to handle my life well.	O	O	O	O	O	O	O
6. Although things have changed, I am living a normal life despite my chronic pain.	O	O	O	O	O	O	O
7. I need to concentrate on getting rid of my pain.	O	O	O	O	O	O	O
8. There are many activities I do when I feel pain.	O	O	O	O	O	O	O

9.	I lead a full life even though I have chronic pain.	O	O	O	O	O	O	O
10.	Controlling pain is less important than any other goals in my life.	O	O	O	O	O	O	O
11.	My thoughts and feelings about pain must change before I can take important steps in my life.	O	O	O	O	O	O	O
12.	Despite the pain, I am now sticking to a certain course in my life.	O	O	O	O	O	O	O
13.	Keeping my pain level under control takes first priority whenever I'm doing something.	O	O	O	O	O	O	O
14.	Before I can make any serious plans, I have to get some control over my pain.	O	O	O	O	O	O	O
15.	When my pain increases, I can still take care of my responsibilities.	O	O	O	O	O	O	O

16.	I will have better control over my life if I can control my negative thoughts about pain.	O	O	O	O	O	O	O
17.	I avoid putting myself in situations where my pain might increase.	O	O	O	O	O	O	O
18.	My worries and fears about what pain will do to me are true.	O	O	O	O	O	O	O
19.	It’s a relief to realize that I don’t have to change my pain to get on with my life.	O	O	O	O	O	O	O
20.	I have to struggle to do things when I have pain.	O	O	O	O	O	O	O

Appendix M: Rutger's Alcohol Problem Index

INSTRUCTIONS: During the **last 4 months**, indicate how many times the following things happened to you while you were drinking alcohol or because of your alcohol use.

		Number of Times				
		0	1-2	3-5	6-10	>10
1.	Not able to do your homework or study for a test.	O	O	O	O	O
2.	Got into fights, acted badly, or did mean things.	O	O	O	O	O
3.	Missed out on other things because you spent too much money on alcohol.	O	O	O	O	O
4.	Went to work or school high or drunk.	O	O	O	O	O
5.	Caused shame or embarrassment to someone.	O	O	O	O	O
6.	Neglected your responsibilities.	O	O	O	O	O
7.	Relatives avoided you.	O	O	O	O	O
8.	Felt that you needed more alcohol than you used to use in order to get the same effect.	O	O	O	O	O
9.	Tried to control your drinking by trying to drink only at certain times of the day or in certain places.	O	O	O	O	O
10.	Had withdrawal symptoms (i.e. felt sick because you stopped or cut down on drinking).	O	O	O	O	O
11.	Noticed a change in your personality.	O	O	O	O	O
12.	Felt that you had a problem with alcohol.	O	O	O	O	O
13.	Missed a day (or part of a day) of school or work.	O	O	O	O	O
14.	Tried to cut down or quit drinking.	O	O	O	O	O
15.	Suddenly found yourself in a place that you could not remember getting to.	O	O	O	O	O
16.	Passed out or fainted suddenly.	O	O	O	O	O
17.	Had a fight, argument, or bad feelings with a friend.	O	O	O	O	O
18.	Had a fight, argument, or bad feelings with a family member.	O	O	O	O	O
19.	Kept drinking when you promised yourself not to.	O	O	O	O	O

20.	Felt you were going crazy.	O	O	O	O	O
21.	Had a bad time.	O	O	O	O	O
22.	Felt psychologically or physiologically dependent on alcohol.	O	O	O	O	O
23.	Was told by a friend or neighbor to stop or cut down drinking.	O	O	O	O	O

Table 1

Descriptive Statistics and Correlations Among Variables of Interest

	Mean	(SD)	1	2	3	4	5	6	7	8	9	10	11
1. Full Combat Exposure Scale (FCES)	39.86	(27.60)	-										
2. Self-Compassion Scale (SCS)	77.93	(21.08)	-.15	-									
3. Mindful Attention and Awareness Scale (MAAS)	54.27	(17.05)	-.24*	.63**	-								
4. Acceptance and Action Questionnaire – II (AAQ-II)	25.54	(11.85)	.35**	-.75**	-.64**	-							
5. PTSD Symptom Checklist – Military (PCL-M)	46.63	(19.79)	.45**	-.67**	-.59**	-.82**	-						
6. Depression, Anxiety, and Stress Scale-21 (DASS-21)	2.99	(2.34)	.34**	-.67**	-.58**	.80**	.78**	-					
7. Quality of Life Scale (QLS)	71.71	(19.51)	-.14	.66**	.53**	-.66**	-.64**	-.56**	-				
8. WHO Disability Assessment Scale – II (WHO-DAS-II)	2.15	(0.74)	.29**	-.69**	-.66**	.69**	.78**	.77**	-.51**	-			
9. Post-Traumatic Growth Inventory (PTGI)	53.72	(23.31)	.12	-.10	-.13	.01	.02	.04	.42	-.06	-		
10. Rutger's Alcohol Problem Index (RAPI)	6.24	(10.9)	.20*	-.13	-.25*	.26**	.28**	.33**	-.38**	.18	-.07	-	
11. Chronic Pain Acceptance Questionnaire	2.93	(.96)	-.19	.53**	.26*	-.53**	-.52**	-.55**	.45**	-.54**	.22	-.19	-

Note. * $p < .05$, ** $p < .01$

Table 2

Comparison of PTSD Models

Model	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*	AIC	PCFI	RMSEA
Initial	65.21	47			.04	127.21	.70	.06
No Mindfulness	66.94	48	1.73	1	.04	126.94	.72	.06
No Self-Compassion	66.67	48	1.46	1	.04	126.67	.72	.06
Full Mediation	70.31	49	5.10	2	.03	128.31	.57	.06

Note. AIC = Akaike Information Criterion; PCFI = Parsimony comparative fit index; RMSEA = root mean square estimate of approximation

Table 3

Standardized Effects of Structural Equation Model with PTSD as the Outcome Variable

	FCES	MAAS	SCS	AAQ-II
DIRECT EFFECTS				
Experiential Avoidance (AAQ-II)	.21***	-.17*	-.68***	-
Posttraumatic Stress Disorder (PTSD)	.20***	-	-	.80***
	FCES	MAAS	SCS	AAQ-II
INDIRECT EFFECTS				
Posttraumatic Stress Disorder (PTSD)	.17***	-.14*	-.54***	-
	FCES	MAAS	SCS	AAQ-II
TOTAL EFFECTS				
Experiential Avoidance (AAQ-II)	.21***	-.17*	-.68***	-
Posttraumatic Stress Disorder (PTSD)	.37***	-.14*	-.54***	.80***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4

Comparison of Psychological Distress Models

Model	χ^2	*df*	$\Delta\chi^2$	Δdf	*P*	AIC	PCFI	RMSEA
Initial	77.81	37			.00	135.81	.65	.09
No Mindfulness	77.83	38	0.02	1	.00	133.83	.67	.09
No Self-Compassion	79.96	38	2.15	1	.00	133.83	.67	.09
Full Mediation	80.83	39	3.02	2	.00	134.13	.68	.09

Note. AIC = Akaike Information Criterion; PCFI = Parsimony comparative fit index; RMSEA = root mean square estimate of approximation

Table 5

Standardized Effects of Structural Equation Model with Psychological Distress as the endogenous variable

	FCES	MAAS	SCS	AAQ-II
DIRECT EFFECTS				
Experiential Avoidance (AAQ-II)	.21***	-.18*	-.66***	-
Psychological Distress	.03	-	-	.87***

	FCES	MAAS	SCS	AAQ-II
INDIRECT EFFECTS				
Psychological Distress	.19***	-.16*	-.58***	-

	FCES	MAAS	SCS	AAQ-II
TOTAL EFFECTS				
Experiential Avoidance (AAQ-II)	.21***	-.18*	-.66***	-
Psychological Distress	.22**	-.16*	-.58***	.87***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6

Comparison of Functionality Models

Model	χ^2	*df*	$\Delta\chi^2$	Δdf	*P*	AIC	PCFI	RMSEA
Initial	44.22	29			.04	96.22	.64	.06
No Mindfulness	57.87	30	13.65	1	.00	107.87	.65	.09
No Self-Compassion	56.86	30	12.64	1	.00	106.86	.65	.09
Full Mediation	83.92	31	39.70	2	.00	131.92	.66	.12

Note. AIC = Akaike Information Criterion; PCFI = Parsimony comparative fit index; RMSEA = root mean square estimate of approximation

Table 7

Standardized Effects of Structural Equation Model with Functionality as the endogenous variable

	FCES	MAAS	SCS	AAQ-II
DIRECT EFFECTS				
Experiential Avoidance (AAQ-II)	.21***	-.17*	-.67***	-
Functionality	.02	.32***	.43***	-.36**

	FCES	MAAS	SCS	AAQ-II
INDIRECT EFFECTS				
Functionality	-.08*	.06	.24**	-

	FCES	MAAS	SCS	AAQ-II
TOTAL EFFECTS				
Experiential Avoidance (AAQ-II)	.21***	-.17*	-.67***	-
Functionality	-.06	.39***	.67***	-.36**

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 8

Results from Hierarchical Regression Analyses

Step	Variables	Posttraumatic Growth			Alcohol Misuse			Chronic Pain Acceptance		
		β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
1			.07	.07		.07**	.07		.02	.02
	Combat	.26			.27*			-.12		
2			.09	.03		.13*	.06*		.37	.36***
	Mindfulness	.11			-.28**			-.19		
	SelfCompassion	-.21			.05			.70***		

*p <.10; **p<.05; ***p<.01

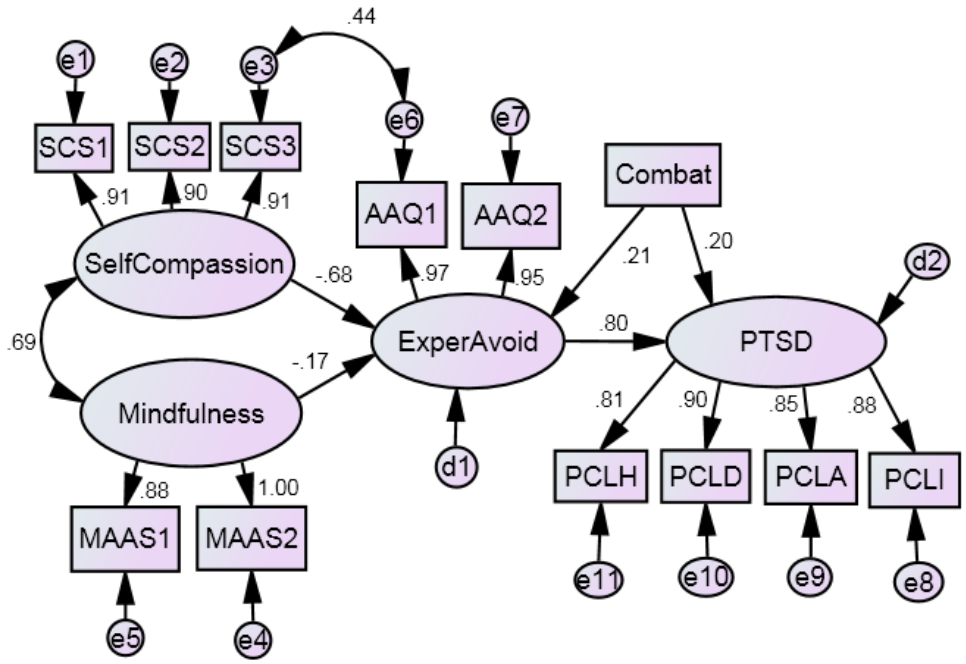

Figure 1. Structural equation fully mediated model with Posttraumatic Stress as the Outcome Variable

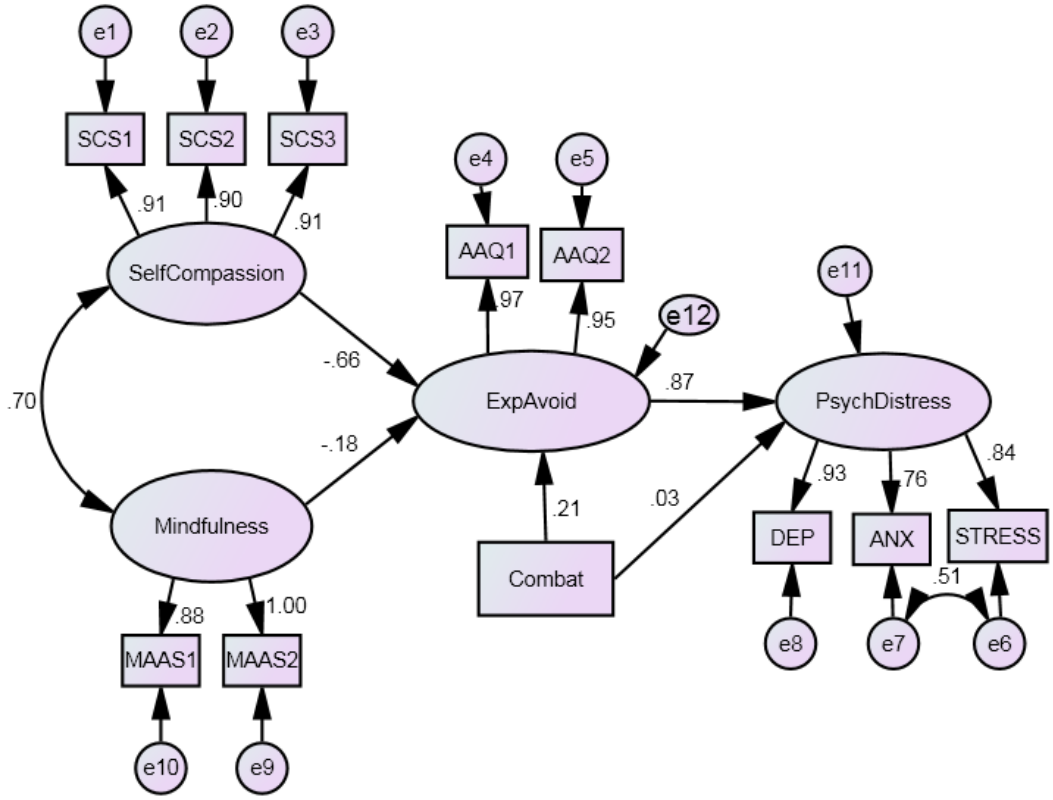

Figure 2. Structural equation fully mediated model with Psychological Distress as the endogenous variable

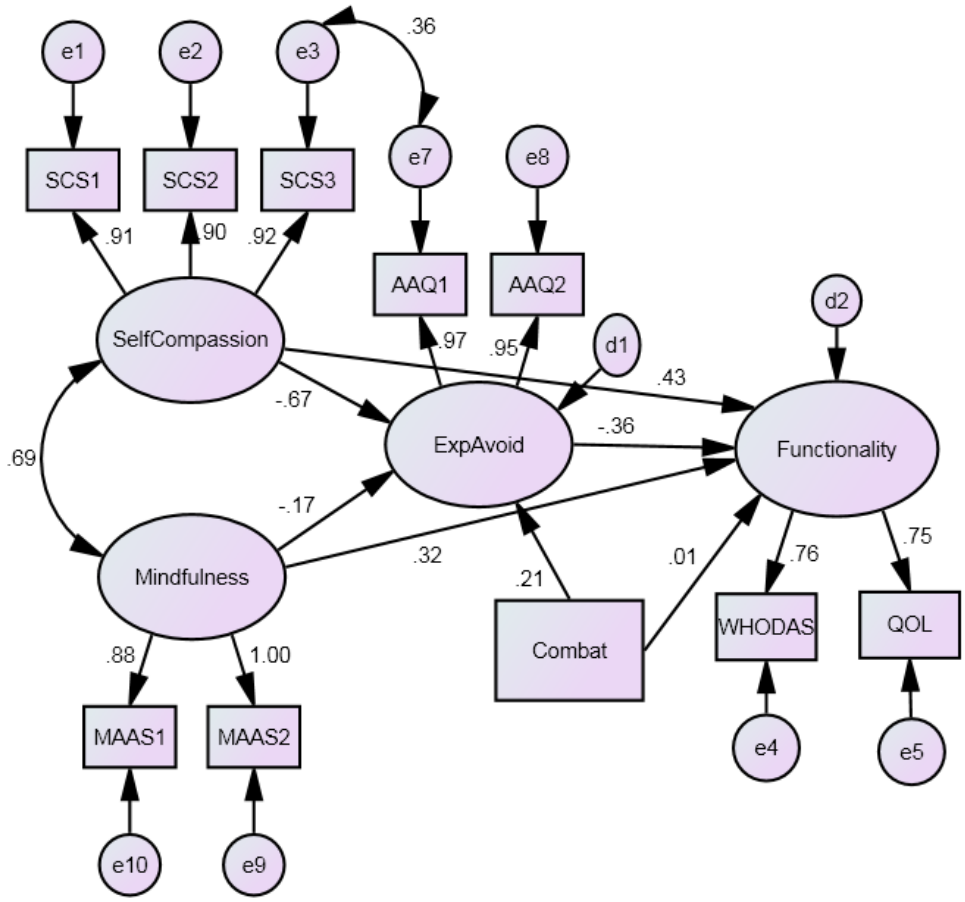

Figure 3. Structural equation partially mediated model with Functionality as the endogenous variable

References

Aldwin, C. M., & Levenson, M. R. (2004). Posttraumatic growth: A developmental perspective. *Psychological Inquiry*, *15*(1), 19-21.

Aldwin, C. M., Levenson, M. R., & Spiro, A. (1994). Vulnerability and resilience to combat exposure: can stress have lifelong effects? *Psychology and aging*, *9*, 34-34.

Allen, A. B., Goldwasser, E. R., & Leary, M. R. (2012). Self-compassion and wellbeing among older adults. *Self and Identity*, DOI: 10.1080/15298868.2011.595082.

Allen, A. B., & Leary, M. R. (2010). Self-compassion, stress, and coping. *Social and Personality Psychology Compass*, 4(2), 107-118.

Álvarez, I., Bados, A., & Peró, M. (2010). Factorial structure and validity of the Multicultural Quality of Life Index. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care & Rehabilitation*, 19(2), 225-229.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders: DSM-IV-TR*. Washington, DC: Author.

Ames, G., & Cunradi, C. (2004). Alcohol use and preventing alcohol-related problems among young adults in the military. *Alcohol Research & Health*, *28*(4), 252-257.

Anthony, M.M, Bieling, P.J. Cox, B.J., Enns, M.W., & Swinson, R.P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychological Assessment*, 10(2), 176-181.

Arbuckle, J.L. (2006). *Amos 7.0 user's guide.* Chicago: Smallwaters.

Arch, J. J., Ayers, C. R., Baker, A., Almklov, E., Dean, D. J., & Craske, M. G. (2013). Randomized clinical trial of adapted mindfulness based stress reduction versus group cognitive behavioral therapy for heterogeneous anxiety disorders. *Behaviour research and therapy*.

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.

Arch, J. J., & Craske, M. G. (2008). Acceptance and commitment therapy and cognitive behavioral therapy for anxiety disorders: Different treatments, similar mechanisms?. *Clinical Psychology: Science and Practice*, *15*(4), 263-279.

Asmundson, G. G., Coons, M. J., Taylor, S., & Katz, J. (2002). PTSD and the Experience of Pain: Research and Clinical Implications of Shared Vulnerability and Mutual Maintenance Models. *The Canadian Journal of Psychiatry / La Revue canadienne de psychiatrie*, 47(10), 930-937.

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

Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of Mindfulness by Self-Report: The Kentucky Inventory of Mindfulness Skills. *Assessment*, 11(3), 191-206.

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using Self-Report Assessment Methods to Explore Facets of Mindfulness. *Assessment*, 13(1), 27-45.

Batten, S.V., & Hayes, S.C. (2005). Acceptance and commitment therapy in the treatment of comorbid substance abuse and posttraumatic stress disorder: A case study. *Clinical Case Studies*, *4*, 246-262.

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* (pp. 241-269). New York: Springer.

Beck, J., & Clapp, J. D. (2011). A different kind of comorbidity: Understanding posttraumatic stress disorder and chronic pain. *Psychological Trauma: Theory, Research, Practice, and Policy*, 3(2), 101-108.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York: New American Library.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory-II*. San Antonio: Psychological Corporation.

Becker, C., & Zayfert, C. (2001). Integrating DBT-based techniques and concepts to facilitate exposure treatment for PTSD. *Cognitive and Behavioral Practice*, *8*, 107-122.

Benotsch, E.G., Brailey, K., Vasterling, J.J., Udo, M., Constans, J.I., & Stuker, P.B. (2000). War zone stress, personal and environmental resources, and PTSD symptoms in Gulf War veterans: A longitudinal perspective. *Journal of Abnormal Psychology*, *109*, 205-213.

Bentler, P.M. (2000). Rites, wrongs, and gold in model testing. *Structural Equation Modeling*, *7*, 82-91.

Bernstein, A., Tanay, G., & Vujanovic, A. A. (2011). Concurrent relations between mindful attention and awareness and psychopathology among trauma-exposed adults: Preliminary evidence of transdiagnostic resilience. *Journal of Cognitive Psychotherapy*, 25(2), 99-113.

Birnie, K., Speca, M., & Carlson, L. E. (2010). Exploring self-compassion and empathy in the context of mindfulness-based stress reduction (MBSR). *Stress and Health: Journal of the International Society for the Investigation of Stress*, 26(5), 359-371.

Bishop, S., Lau, M., Shapiro, S., Carlson, A., Segal, Z., & Carmody, A., et al. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice*, *11*(3), 230-250.

Bisson, J., Ehlers, A., Matthews, R., Pilling, S., Richards, D., & Turner, S. (2007). Psychological treatment for chronic post-traumatic stress disorder. *British Journal of Psychiatry, 190*, 97 - 104.

Blake, D., Weathers, F. W., Nagy, L. M., & Kaloupek, D. G. (1995). The development of a Clinician-Administered PTSD Scale. *Journal of Traumatic Stress*, 8(1), 75-90.

Blanchard, E.B., Jones Alexander, J., Buckley, T.C., & Forneris, C.A. (1996). Psychometric properties of the PTSD checklist (PCL). *Behavior Research and Therapy, 34*, 669-673.

Blevins, D., Roca, J., & Spencer, T. (2011). Life Guard: Evaluation of an ACT-based workshop to facilitate reintegration of OIF/OEF veterans. *Professional Psychology: Research and Practice*, 42(1), 32-39. doi:10.1037/a0022321

Block-Lerner, J., Salters-Pedneault, K., & Tull, M. T. (2005). Assessing Mindfulness and Experiential Acceptance. In In S. M. Orsillo & L. Roemer (Eds.), *Acceptance and mindfulness-based approaches to anxiety* (pp.71-99). New York: Springer.

Bond, F.W., Hayes, S.C., Baer, R.A., Carpenter, K.M., Guenole, N., Orcutt, H.K. et al. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire – II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy*.

Bowen, S., Chawla, N., & Marlatt, G. (2011). *Mindfulness-based relapse prevention for addictive behaviors: A clinician's guide*. New York: Guilford Press.

Bradley, R., Greene, J., Russ, E., Dutra, L. & Westen, D. (2005). A multidimensional meta-analysis of psychotherapy for PTSD. *American Journal of Psychiatry, 162*, 214-227.

Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal Of Consulting And Clinical Psychology, 68*(5), 748-766. doi:10.1037/0022-006X.68.5.748

Broderick, P. C. (2005). Mindfulness and Coping with Dysphoric Mood: Contrasts with Rumination and Distraction. *Cognitive Therapy and Research*, 29(5), 501-510.

Brooks, G. R. (2001). Counseling and psychotherapy for male military veterans. In G.R. Brooks & G.E. Good (Eds.), *The new handbook of psychotherapy and counseling with men: A comprehensive guide to settings, problems, and treatment approaches.* (pp. 206-225). San Francisco: Jossey-Boss.

Brooks, M., Kay-Lambkin, F., Bowman, J., & Childs, S. (2012). Self-Compassion amongst clients with problematic alcohol use. *Mindfulness*, 3(4), 308-317.

Brown, K., & Ryan, R. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*(4), 822 - 848.

Brown, K., & Ryan, R. (2004). Perils and promises in defining and measuring mindfulness: Observations from experience. *Clinical Psychology: Science and Practice, 11*(3), 242 - 248.

Bucks, R. S., Cruise, K. E., Skinner, T. C., Loftus, A. M., Barker, R. A., & Thomas, M. G. (2011). Coping processes and health-related quality of life in Parkinson's disease. *International Journal of Geriatric Psychiatry*, 26(3), 247-255.

Burckhardt, C. S., & Anderson, K. L. (2003). The Quality of Life Scale (QOLS): Reliability, Validity, and Utilization. *Health & Quality of Life Outcomes*, 160-7.

Burckhardt, C. S., Woods, S. L., Schultz, A. A., & Ziebarth, D. M. (1989). Quality of life of adults with chronic illness: A psychometric study. *Research in Nursing & Health*, 12(6), 347-354.

Cahill, S., Rothbaum, B., Resick, P., & Follette, V. (2008). In E. Foa, T. Keane, J. Friedman, & J. Cohen (Eds.), *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* (2nd ed., pp.139-222). New York: The Guildford Press.

Campbell-Sills, L., Barlow, D. H., Brown, T. A., & Hofmann, S. G. (2006). Effects of suppression and acceptance on emotional responses of individuals with anxiety and mood disorders. *Behaviour Research and Therapy*, 44(9), 1251-1263

Cardaciotto, L., Herbert, J. D., Forman, E. M., Moitra, E., & Farrow, V. (2008). The assessment of present-moment awareness and acceptance: The Philadelphia Mindfulness Scale. *Assessment*, 15(2), 204-223.

Carmody, J., Baer, R., Lykins, E., & Olendzki, N. (2009). An empirical study of the mechanisms of mindfulness in a mindfulness-based stress reduction program. *Journal of Clinical Psychology, 65*(0), 1 - 14.

Chodron, Pema. (1997). *When things fall apart: Heart advice for difficult times*. Boston: Shambala.

Chwastiak, L.A., & Von Korff, M.V. (2003). Disability in depression and back pain: Evaluation of the World Health Organization Disability Assessment Schedule (WHO DAS II) in a primary care setting. *Journal of Clinical Epidemiology*, 56(6), 507-514.

Cohen, J. (1994). The earth is round ($p < .05$). *American Psychologist*, 49, 997-1003.

Cohen, J., Cohen, P., West, S.G., & Aiken, L.S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Hillsdale, NJ: Erlbaum.

Costa, J. & Pinto-Gouveia, J. (2011). Acceptance of pain, self-compassion and psychopathology: Using the Chronic Pain Acceptance Questionnaire to identify patients' subgroups. *Clinical Psychology and Psychotherapy*, 18, 292 – 302.

Costa, J. & Pinto-Gouveia, J. (2011). Mediation effects of experiential avoidance between coping and psychopathology in chronic pain. *Clinical Psychology and Psychotherapy*, 18, 34-47.

Coyne, J. C., & Racioppo, M. W. (2000). Never the twain shall meet? Closing the gap between coping research and clinical intervention research. *American Psychologist*, 55(6), 655-664.

Craske, M. G., Kircanski, K., Zelikowsky, M., Mystkowski, J., Chowdhury, N., & Baker, A. (2008). Optimizing inhibitory learning during exposure therapy. *Behaviour Research and Therapy*, *46*(1), 5-27.

Creamer, M., Burgess, P., & Pattison, P. (1992). Reaction to trauma: A cognitive processing model. *Journal of Abnormal Psychology*, 101(3), 452-459.

Creswell, J., Way, B. M., Eisenberger, N. I., & Lieberman, M. D. (2007). Neural correlates of dispositional mindfulness during affect labeling. *Psychosomatic Medicine*, 69(6), 560-565.

Davidson, P., & Parker, K. (1990). Eye movement desensitization and reprocessing (EMDR): A meta-analysis. *Journal of Consulting and Clinical Psychology*, *69*(2), 305-316.

Dedert, E. A., Green, K. T., Calhoun, P. S., Yoash-Gantz, R., Taber, K. H., Mumford, M., & ... Beckham, J. C. (2009). Association of trauma exposure with psychiatric morbidity in military veterans who have served since September 11, 2001. *Journal of Psychiatric Research*, 43(9), 830-836.

Dillon, W. R., Kumar, A., & Mulani, N. (1987). Offending estimates in covariance structure analysis: Comments on the causes of and solutions to Heywood cases. *Psychological Bulletin*, *101*(1), 126-135. doi:10.1037/0033-2909.101.1.126.

Dohrenwend, B., Neria, Y., Turner, J., Turse, N., Marshall, R., Lewis-Fernandez, R., et al. (2004). Positive tertiary appraisals and posttraumatic stress disorder in U.S. male veterans of the war in Vietnam: The roles of positive affirmation, positive reformulation, and defensive denial. *Journal of Consulting and Clinical Psychology, 72*, 417-433.

Engelkemeyer, S. M., & Marwit, S. J. (2008). Posttraumatic growth in bereaved parents. *Journal of traumatic stress, 21*(3), 344-346.

Epstein, M. (1995). *Thoughts without a thinker: Psychotherapy from a Buddhist perspective*. Cambridge, MA: Basic Books.

Epstein, M. (1999). Mindfulness practice. *Journal of the American Medical Association, 282*, 833-839.

Erbes, C., Westermeyer, J., Engdahl, B., & Johnsen, E. (2007). Post-traumatic stress disorder and service utilization in a sample of service members from Iraq and Afghanistan. *Military Medicine, 172*(4), 359-363.

Feldman, G., Hayes, A., Kumar, S., Greeson, J., & Laurenceau, J.P. (2007). Mindfulness and emotion regulation: The development and initial validation of the Cognitive and Affective Scale - Revised (CAMS-R). *Journal of Psychopathology and Behavioral Assessment, 29*, 177 - 190.

Fernandez, A. C., Wood, M. D., Stein, L. R., & Rossi, J. S. (2010). Measuring mindfulness and examining its relationship with alcohol use and negative consequences. *Psychology of Addictive Behaviors*, 24(4), 608-616.

Fledderus, M., Voshaar, M. A., ten Klooster, P. M., & Bohlmeijer, E. T. (2012). Further evaluation of the psychometric properties of the Acceptance and Action Questionnaire – II. *Psychological Assessment*, *24*(4), 925 – 936.

Foa, E., Hembree, E., & Rothbaum, B. (2007). *Prolonged exposure therapy for PTSD: Emotional processing of traumatic experiences therapist guide*. New York: Oxford University Press.

Foa, E., Keane, T., Friedman, J., Cohen, J. (2008). In E. Foa, T. Keane, J. Friedman, J. Cohen, (Eds.), *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* (2nd ed., pp.1-22*)*. New York: The Guildford Press.

Foa, E. & Kozak, M. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin*, 99(1), 20-35.

Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology*, 48(1), 150-170.

Freud, S. (1962). *A general introduction to psychoanalysis*. New York: Washington Square Press.

Freud, S., & Breuer, J. (2004). *Studies in hysteria*. trans. N. Luckhurst. London: Penguin Books. (Original work published in 1952)

Gallagher, K. E., Hudepohl, A. D., & Parrott, D. J. (2010). Power of being present: The role of mindfulness on the relation between men's alcohol use and sexual aggression toward intimate partners. *Aggressive Behavior*, 36(6), 405-413.

Gámez, W., Chmielewski, M., Kotov, R., Ruggero, C., & Watson, D. (2011). Development of a measure of experiential avoidance: The multidimensional experiential avoidance questionnaire. *Psychological Assessment*, doi:10.1037/a0023242.

Geiser D, S. Unpublished doctoral dissertation. A comparison of acceptance focused and control-focused psychological treatments in a chronic pain treatment center. University of Nevada-Reno; 1992.

Germer, C. (2009). *The mindful path to self-compassion: Freeing yourself from destructive thoughts and emotions*. New York: The Guildford Press.

Gilbert, P. (Ed.). (2005). *Compassion: Conceptualizations, research and use in psychotherapy*. New York: Routledge.

Gilbert, P. (2009). Introducing compassion-focused therapy. *Advances in psychiatric treatment*, 15, 199-208.

Gilbert, P., & Procter, S. (2006). Compassionate Mind Training for people with high shame and self-criticism: Overview and pilot study of a group therapy approach. *Clinical Psychology & Psychotherapy*, 13(6), 353-379.

Giluk, T. L. (2009). Mindfulness, big five personality, and affect: A meta-analysis. *Personality and Individual Differences*, 47(8), 805-811.

Gironda R.J., Clark M.E., Massengale J.P., & Walker R.L. (2006). Pain among veterans of Operations Enduring Freedom and Iraqi Freedom. *Pain Med*, 7, 339–43.

Gladis, M. M., Gosch, E. A., Dishuk, N. M., & Crits-Christoph, P. (1999). Quality of life: Expanding the scope of clinical significance. *Journal of Consulting and Clinical Psychology*, *67*, 320–33.

Gordon, J., Staples, J., Blyta, A., & Bytyqi, M. (2004). Treatment of posttraumatic stress disorder in postwar Kosovo High School students using mind-body skills groups: A pilot study. *Journal of Traumatic Stress, 17*(2), 143 - 147.

Grossman, P. (2008). On measuring mindfulness in psychosomatic and psychological research. *Journal of Psychosomatic Research, 64*, 405-408.

Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research, 57*, 35-43.

Hägg, O., Burckhardt, C., Fritzell, P., & Nordwall, A. (2003). Quality of life in chronic low back pain: A comparison with fibromyalgia and the general population. *Journal of Musculoskeletal Pain*, 11(1), 31-38.

Hahn, T.H. (1976). *The miracle of mindfulness: A manual of meditation*. Boston: Beacon Press.

Hamblen, J., Schnurr, P., Rosenberg, A., & Eftekhari, A. (2010). Overview of PTSD treatment research. Retrieved May 25, 2010, from http://www.ptsd.va.gov/professional/pages/ overview-treatment-research.asp

Haskell, S. G., Gordon, K. S., Mattocks, K., Duggal, M., Erdos, J., Justice, A., & Brandt, C. A. (2010). Gender differences in rates of depression, PTSD, pain, obesity, and military sexual trauma among Connecticut war veterans of Iraq and Afghanistan. *Journal of Women's Health*, 19(2), 267-271

Hayes, S.C., Luoma, J.B., Bond, F.W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes, and outcomes. *Behavior Research and Therapy*, 44(1), 1-25.

Hayes, S., Strosahl, K., & Wilson, K. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change.* New York: Guilford Press.

Hayes, S. C., Strosahl, K., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., ... & McCurry, S. M. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The psychological record*, *54*(4), 553-578.

Hayes, S., & Wilson, K. (2003). Mindfulness: Methods and practice. *Clinical Psychology: Science and Practice, 10*(2), 161 - 165.

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology*, 64(6), 1152-1168.

Helmer, D. A., Chandler, H. K., Quigley, K. S., Blatt, M., Teichman, R., & Lange, G. (2009). Chronic widespread pain, mental health, and physical role function in OEF/OIF veterans. *Pain Medicine*, *10*(7), 1174-1182.

Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, *44*(2), 227-239.

Herman, J. (1992). *Trauma and recovery: The aftermath of violence - from domestic abuse to political terror*. New York, NY: Basic Books.

Hofmann, S., Sawyer, A., Witt, A., & Oh, D. (2010). The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review. *Journal of Counseling and Clinical Psychology, 78*(2), 169 - 183.

Hoge, C. W. (2010). *Once a Warrior--Always a Warrior: Navigating the Transition from Combat to Home--Including Combat Stress, PTSD, and mTBI*. GPP Life.

Hoge, C., Castro, C., Messer, S., McGurk, D., Cotting, D., & Koffman, R. (2004). Combat duty in Iraq and Afghanistan: Mental health problems, and barriers to care. *The New England Journal of Medicine*, 13 - 22.

Holahan, C. J., & Moos, R. H. (1987). Personal and contextual determinants of coping strategies. *Journal of Personality and Social Psychology*, 52(5), 946-955.

Horowitz, M.J. (2003). *Treatment of stress response syndromes.* Washington, D.C.: American Psychiatric Association.

Hoyle, R.H., & Panter, A.T. (1995). Writing about structural equation models. In R.H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 158-176). Thousand Oaks, CA: Sage.

Hu, L., & Benler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55.

Imrie, S., & Troop, N. A. (2012). A pilot study on the effects and feasibility of compassion-focused expressive writing in Day Hospice patients. *Palliative and Supportive Care*, *1*(1), 1-8.

Jakupcak, M., Hoerster, K. D., Varra, A., Vannoy, S., Felker, B., & Hunt, S. (2011). Hopelessness and suicidal ideation in Iraq and Afghanistan War Veterans reporting subthreshold and threshold posttraumatic stress disorder. *Journal of Nervous and Mental Disease*, 199(4), 272-275.

Jakupcak, M., Luterek, J., Hunt, S., Conybeare, D., & McFall, M. (2008). Posttraumatic stress and its relationship to physical health functioning in a sample of Iraq and Afghanistan war veterans seeking postdeployment VA health care. *The Journal of Nervous and Mental Disease*, *196*(5), 425 - 428.

Janoff-Bulman, R. (2006). Schema-change perspectives on posttraumatic growth. In L. G. Calhoun & R. G. Tedeschi (Eds.), *Handbook of posttraumatic growth* (pp. 81–99). Mahwah, NJ: Erlbaum.

Jordan, B., Marmar, C. R., Fairbank, J. A., Schlenger, W. E., Kulka, R. A., Hough, R. L., et al. (1992). Problems in families of male Vietnam veterans with posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 60(6), 916-926.

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*, 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: Delacorte.

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

Kabat-Zinn, J., Massion, M. D., Kristeller, J., Peterson, L. G., Fletcher, K. E., Pbert, L., et al. (1992). Effectiveness of a meditation-based stress reduction program in the treatment of anxiety disorders. *American Journal of Psychiatry, 149*, 936–943.

Kang, H.K. & Hyams, K.C. (2005). Mental health care needs among recent war veterans. T*he New England Journal of Medicine*, 352(13), 1289.

Kaplan, M. S., McFarland, B. H., Huguet, N., & Newsom, J. T. (2012). Estimating the risk of suicide among US Veterans: How should we proceed from here? *American Journal Of Public Health*, *102*(S1), S21-S23. doi:10.2105/AJPH.2011.300611.

Kashdan, T. B., Barrios, V., Forsyth, J. P., & Steger, M. F. (2006). Experiential avoidance as a generalized psychological vulnerability: Comparisons with coping and emotion regulation strategies. *Behaviour Research and Therapy*, 44(9), 1301-1320.

Kashdan, T. B., Morina, N., & Priebe, S. (2009). Post-traumatic stress disorder, social anxiety disorder, and depression in survivors of the Kosovo War: Experiential avoidance as a contributor to distress and quality of life. *Journal of Anxiety Disorders*, 23(2), 185-196.

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.

Kehle, S. M., Ferrier-Auerbach, A. G., Meis, L. A., Arbisi, P. A., Erbes, C. R., & Polusny, M. A. (2011). Predictors of postdeployment alcohol use disorders in National Guard soldiers deployed to Operation Iraqi Freedom. *Psychology of Addictive Behaviors.*

Keith, T.Z. (2006). *Multiple regression and beyond*. Boston: Pearson.

Khantzian, E. J. (1997). The self-medication hypothesis of substance use disorders: A reconsideration and recent applications. *Harvard Review Of Psychiatry*, *4*(5), 231-244. doi:10.3109/10673229709030550.

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, D.W., King, L.A., & Vogt, D.S. (2003). *Manual for the Deployment Risk and Resilience Inventory (DRRI): A collection of measures for studying deployment-related experiences in military veterans*. Boston, MA: National Center for PTSD.

Kline, R.B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New York: The Guilford Press.

Koons, C. R., Robins, C. J., Lindsey Tweed, J., Lynch, T. R., Gonzalez, A. M., Morse, J. Q., ... & Bastian, L. A. (2001). Efficacy of dialectical behavior therapy in women veterans with borderline personality disorder. *Behavior therapy*, *32*(2), 371-390.

Kudler, H.S., Krupnick, J.L., Blank Jr., A.S., Herman, J.L., & Horowitz, M.J. (2008). In Foa, E., Keane, T., Friedman, J., Cohen, J. (Eds.), *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* (2nd ed., pp.346-369). New York: The Guildford Press.

Kulka, R. A., Schlenger, W. E., Fairbank, J. A., Hough, R. L., Jordan, B. K., Marmar, C. R., & Weiss, D. S. (1990). *Trauma and the Vietnam war generation: Report of findings from the National Vietnam Veterans Readjustment Study* (p. 86139). New York: Brunner/Mazel.

Kumpula, M. J., Orcutt, H. K., Bardeen, J. R., & Varkovitzky, R. L. (2011). Peritraumatic dissociation and experiential avoidance as prospective predictors of posttraumatic stress symptoms. *Journal of abnormal psychology*, *120*(3), 617.

Lakey, C. E., Campbell, W., Brown, K., & Goodie, A. S. (2007). Dispositional mindfulness as a predictor of the severity of gambling outcomes. *Personality and Individual Differences*, 43(7), 1698-1710.

Langer, E. (1989). Minding matters: The consequences of mindlessness-mindfulness. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 22, pp. 137-173). San Diego, CA: Academic Press.

Lapierre, C., Schwegler, A., & LaBauve, B. (2007). Posttraumatic stress and depression symptoms in soldiers returning from combat operations in Iraq and Afghanistan. *Journal of Traumatic Stress*, 20(6), 933-943.

Lattimore, P., Fisher, N., & Malinowski, P. (2011). A cross-sectional investigation of trait disinhibition and its association with mindfulness and impulsivity. *Appetite*, 56(2), 241-248.

Leary, M. R., Tate, E. B., Adams, C. E., Batts Allen, A., & Hancock, J. (2007). Self-compassion and reactions to unpleasant self-relevant events: The implications of treating oneself kindly. *Journal of Personality and Social Psychology*, 92(5), 887-904.

Lew, H.L., Otis, J.D., Tun, C., Kerns, R.D., Clark, M.E., & Cifu, D.X. (2009). Prevalence of chronic pain, posttraumatic stress disorder, and persistent postconcussive symptoms in OEF/OIF veterans: Polytrauma clinical triad. *Journal of Rehabilitative Research & Development*, 46(6), 697-702.

Linehan, M. (1993). *Skills training manual for treating borderline personality disorder.* New York: Guilford Press.

Lombardo, T. & Gray, M. (2005). Beyond exposure for posttraumatic stress disorder (PTSD): Broad-spectrum PTSD treatment strategies. *Behavior Modification*, 29, 3-9.

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 33(3), 335-343.

Lunney, C. A., & Schnurr, P. P. (2007). Domains of quality of life and symptoms in male veterans treated for posttraumatic stress disorder. *Journal of Traumatic Stress*, 20(6), 955-964.

Luoma, J. B., Hayes, S. C., & Walser, R. D. (2007). *Learning ACT: An Acceptance & Commitment Therapy skills-training manual for therapists*. Oakland, CA: New Harbinger Publications.

MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review, 32*, 545-552.

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1(2), 130-149.

MacKillop, J., & Anderson, E. (2007). Further psychometric validation of the Mindful Attention and Awareness Scale (MAAS). *Journal of Psychopathology and Behavioral Assessment, 29*, 289-293.

Maguen, S., Vogt, D., King, L., King, D,, & Litz, B. (2006). Posttraumatic growth among Gulf War veterans: The predictive role of deployment-related experiences and background characteristics. *Journal of Loss and Trauma, 11*, 373-388.

Marcks, B. A., & Woods, D. W. (2005). A comparison of thought suppression to an acceptance-based technique in the management of personal intrusive thoughts: A controlled evaluation. *Behaviour Research and Therapy*, 43(4), 433-445.

Marlett, G.A. (1994). Addiction, mindfulness, and acceptance. In S.C. Hayes, N.S. Jacobson, V.M. Follette, & M.J. Dougher (Eds.), *Acceptance and change: Content and context in psychotherapy* (pp. 175-197). Reno, NV: Context Press.

Marmar, C. R. (2009). Mental health impact of Afghanistan and Iraq deployment: Meeting the challenge of a new generation of veterans. *Depression and Anxiety*, 26(6), 493-497.

Marshall, R. D., Olfson, M., Hellman, F., Blanco, C., Guardino, M., & Struening, E. L. (2001). Comorbidity, impairment, and suicidality in subthreshold PTSD. *American Journal of Psychiatry*, *158*(9), 1467-1473.

Marx, B. P., Foley, K. M., Feinstein, B. A., Wolf, E. J., Kaloupek, D. G., & Keane, T. M. (2010). Combat- related guilt mediates the relations between exposure to combat-related abusive violence and psychiatric diagnoses. *Depression and Anxiety*, *27*(3), 287-293.

Marx, B. P., & Sloan, D. M. (2005). Peritraumatic dissociation and experiential avoidance as predictors of posttraumatic stress symptomatology. *Behaviour Research and Therapy*, 43(5), 569-583.

McCracken, L.M. (1998). Learning to live with the pain: acceptance of pain predicts adjustment in persons with chronic pain. *Pain*, 74(1), 21–27.

McCracken, L. M., & Eccleston, C. (2005). A prospective study of acceptance of pain and patient functioning with chronic pain. *Pain*, *118*(1), 164-169.

McCracken, L. M., & Keogh, E. (2009). Acceptance, mindfulness, and values-based action may counteract fear and avoidance of emotions in chronic pain: An analysis of anxiety sensitivity. *The Journal of Pain*, 10(4), 408-415.

McCracken, L.M., Spertus, I.L., Janeck, A.S., Sinclair, D., & Wetzel, F.T. (1999). Behavioral dimensions of adjustment in persons with chronic pain: pain-related anxiety and acceptance. *Pain*, 80, 283–290.

McCracken, L. M., Vowles, K. E., & Eccleston, C. (2004). Acceptance of chronic pain: Component analysis and a revised assessment method. *Pain*, 107(1-2), 159-166.

McCullough, L., Kuhn, N., Andrews, S., Kaplan, A., Wolf, J., & Hurley, C. L. (2003). *Treating affect phobia: A manual for short-term dynamic psychotherapy*. Guilford Press.

McGrath, J., & Linley, P. (2006). Post-traumatic growth in acquired brain injury: A preliminary small scale study. *Brain Injury*, *20*, 767-773.

Meichenbaum, D. (1974). *Cognitive-behavior modification.* Morristown, NJ: General Learning Press.

Merwin, R. M., Zachary Rosenthal, M. M., & Coffey, K. A. (2009). Experiential avoidance mediates the relationship between sexual victimization and psychological symptoms: Replicating findings with an ethnically diverse sample. *Cognitive Therapy and Research*, 33(5), 537-542.

Meyer, E. C., Morissette, S. B., Kimbrel, N. A., Kruse, M. I., & Gulliver, S. (2013). Acceptance and Action Questionnaire—II Scores as a Predictor of Posttraumatic Stress Disorder Symptoms Among War Veterans. *Psychological Trauma: Theory, Research, Practice, And Policy*, doi:10.1037/a0030178

Michal, M., Beutel, M. E., Jordan, J., Zimmermann, M., Wolters, S., & Heidenreich, T. (2007). Depersonalization, mindfulness, and childhood trauma. *Journal of Nervous and Mental Disease*, 195(8), 693-696.

Mitmansgruber, H., Beck, T. N., Hofer, S., & Schubler, G. (2009). When you don’t like what you feel: Experiential avoidance, mindfulness and meta-emotion in emotion regulation. *Personality and Individual Differences*, *46*, 448–453.

Mogotsi, M., Kaminer, D., & Stein, D. J. (2000). Quality of life in the anxiety disorders. *Harvard Review Of Psychiatry*, *8*(6), 273-282. doi:10.1093/hrp/8.6.273

Moore, S. D., Brody, L. R., & Dierberger, A. E. (2009). Mindfulness and experiential avoidance as predictors and outcomes of the narrative emotional disclosure task. *Journal of Clinical Psychology*, 65(9), 971-988.

Morrill, E., Brewer, N. T., O'Neill, S. C., Lillie, S. E., Dees, E., Carey, L. A., & Rimer, B. K. (2008). The interaction of post-traumatic growth and post-traumatic stress symptoms in predicting depressive symptoms and quality of life. *Psycho-Oncology*, 17(9), 948-953.

Neff, K. D. (2003a). Self-compassion: An alternative conceptualization of healthy attitude towards oneself. *Self and Identity*, 2, 85-102.

Neff, K. D. (2003b). Development and validation of a scale to measure self-compassion. *Self and Identity*, 2, 223-250.

Neff, K. D. (2009). Self-compassion. In M. R. Leary, R. H. Hoyle, M. R. Leary, R. H. Hoyle (Eds.). *Handbook of individual differences in social behavior* (pp. 561-573). New York: Guilford Press.

Neff, K. D & Dahm, K**.** A. (in press) Self-Compassion: What it is, what it does, and how it relates to mindfulness**.** In *Handbook of Mindfulness and Self-Regulation*. Eds. B. Ostafin, M. Robinson, & B. Meier. Springer Press.

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

Neff, K. D., Hsieh, Y., & Dejitterat, K. (2005). Self-compassion, Achievement Goals, and Coping with Academic Failure. *Self and Identity*, 4(3), 263-287.

Neff, K. D., Kirkpatrick, K. L., & Rude, S. S. (2007). Self-compassion and adaptive psychological functioning. *Journal of Research in Personality*, 41(1), 139-154.

Neff, K. D., Pommier, E. (2012). The relationship between self-compassion and other-focused concern among college undergraduates, community adults, and practicing meditators. *Self and Identity*. DOI:10.1080/15298868.2011.649546

Neff, K. D., Rude, S. S., & Kirkpatrick, K. L. (2007). An examination of self-compassion in relation to positive psychological functioning and personality traits. *Journal of Research in Personality*, 41(4), 908-916.

Nemeroff, C.B., Bremner, J.D., Foa, E.B., Mayberg, H.S., North, C.S., & Stein, M.B. (2006). Posttraumatic stress disorder: A state-of-the-art review. *Journal of Psychiatric Research*, *40*, 1-21.

O'Connell, M. J., Kasprow, W., & Rosenheck, R. A. (2008). Rates and risk factors for homelessness after successful housing in a sample of formerly homeless veterans. *Psychiatric Services*, 59(3), 268-275.

Olatunji, B. O., Cisler, J. M., & Tolin, D. F. (2007). Quality of life in the anxiety disorders: A meta-analytic review. *Clinical Psychology Review*, 27(5), 572-581.

Orcutt, H. K., Pickett, S. M., & Pope, E. (2005). Experiential avoidance and forgiveness as mediators in the relation between traumatic interpersonal events and posttraumatic stress disorder symptoms. *Journal of Social and Clinical Psychology*, 24(7), 1003-1029.

Orsillo, S., & Batten, S. (2005). Acceptance and commitment therapy in the treatment of posttraumatic stress disorder. *Behavior Modification*, 29, 95-129.

Osman, A., Downs, W. R., Barrios, F. X., Kopper, B. A., Gutierrez, P. M., & Chiros, C. E. (1997). Factor structure and psychometric characteristics of the Beck Depression Inventory-II. *Journal of Psychopathology and Behavioral Assessment*, 19(4), 359-376.

Owens, G., Steger, M., Whitesell, A., & Herrera, C. (2009). Posttraumatic stress disorder, guilt, depression, and meaning in life among military veterans. *Journal of Traumatic Stress*, *22*(6), 654-657.

Owens, G. P., Walter, K. H., Chard, K. M., & Davis, P. A. (2011). Changes in mindfulness skills and treatment response among veterans in residential PTSD treatment. *Psychological Trauma: Theory, Research, Practice, and Policy*, doi:10.1037/a0024251.

Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: a meta-analysis. *Psychological bulletin*, *129*(1), 52.

Palm, K. M., & Follette, V. M. (2011). The roles of cognitive flexibility and experiential avoidance in explaining psychological distress in survivors of interpersonal victimization. *Journal of Psychopathology and Behavioral Assessment*, 33(1), 79-86.

Pauley, G., & McPherson, S. (2010). The experience and meaning of compassion and self-compassion for individuals with depression or anxiety. *Psychology and Psychotherapy: Theory, Research and Practice*, 83(2), 129-143.

Perls, F.S. (1973). *The Gestalt approach and eyewitness to therapy*. Palo Alto, CA: Science and Behavior Books.

Pietrzak, R., Goldstein, M., Malley, J., Johnson, D., & Southwick, S. (2009). Subsyndromal posttraumatic stress disorder is associated with health and psychosocial difficulties in veterans of Operations Enduring Freedom and Iraqi Freedom. *Depression and Anxiety*, *26*(8), 739-744.

Plumb, J. C., Orsillo, S. M., & Luterek, J. A. (2004). A preliminary test of the role of experiential avoidance in post-event functioning. *Journal of Behavior Therapy and Experimental Psychiatry*, *35*, 245-257.

Polusny, M. A., Rosenthal, M., Aban, I., & Follette, V. M. (2004). Experiential avoidance as a mediator of the effects of adolescent sexual victimization on negative adult outcomes. *Violence and Victims*, 19(1), 109-120.

Pösl, M., Cieza, A., & Stucki, G. (2007). Psychometric properties of the WHODASII in rehabilitation patients. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care & Rehabilitation*, 16(9), 1521-1531.

Preacher, K.J. & Coffman, D.L. (2006). Computing power and minimum sample size for RMSEA. Retrieved August 15, 2011 from http://people.ku.edu/~preacher/rmsea/rmsea.htm.

Preacher, K. J., & Selig, J. P. (2012). Advantages of Monte Carlo confidence intervals for indirect effects. *Communication Methods and Measures*, *6*(2), 77-98.

Przezdziecki, A. et al. (2012). My changed body: breast cancer, body image, distress and self-compassion. *Psycho-Oncology*, DOI: 10.1002/pon.3230

Pullen, L. M. (1994). The relationships among alcohol abuse in college students and selected psychological/demographic variables. *Journal of Alcohol and Drug Education*, 40(1), 36-50.

Raes, F. (2010). Rumination and worry as mediators of the relationship between self-compassion and depression and anxiety. *Personality and Individual Differences*, 48(6), 757-761.

Rapaport, M. H., Clary, C., Fayyad, R., & Endicott, J. (2005). Quality-of-life impairment in depressive and anxiety disorders. *American Journal of Psychiatry*, *162*(6), 1171-1178.

Reber, C. A., Boden, M. T., Mitragotri, N., Alvarez, J., Gross, J. J., & Bonn-Miller, M. O. (2012). A Prospective Investigation of Mindfulness Skills and Changes in Emotion Regulation Among Military Veterans in Posttraumatic Stress Disorder Treatment. *Mindfulness*, 1-7.

Reddy, M. K., Pickett, S. M., & Orcutt, H. K. (2006). Experiential avoidance as a mediator in the relationship between childhood psychological abuse and current mental health symptoms in college students. *Journal of Emotional Abuse*, 6(1), 67-85.

Rendon, K. (2007). Understanding alcohol use in college students: A study of mindfulness, self-compassion and psychological symptoms. *Dissertation Abstracts International Section A*, 68, Retrieved from EBSCO*host*.

Reneman, M. F., Dijkstra, A., Geertzen, J. B., & Dijkstra, P. U. (2010). Psychometric properties of Chronic Pain Acceptance Questionnaires: A systematic review. *European Journal of Pain*, 14(5), 457-465.

Renshaw, K. D., Rodrigues, C. S., & Jones, D. H. (2009). Combat exposure, psychological symptoms, and marital satisfaction in National Guard soldiers who served in Operation Iraqi Freedom from 2005 to 2006. *Anxiety, Stress & Coping: An International Journal*, 22(1), 101-115.

Resick, P. A., & Schnicke, M. K. (1993). *Cognitive processing therapy for rape victims: A treatment manual*. Newbury Park, CA: Sage.

Riggs, D. S., Rothbaum, B. O., & Foa, E. B. (1995). A prospective examination of symptoms of posttraumatic stress disorder in victims of nonsexual assault. *Journal of Interpersonal Violence*, *10*(2), 201-214.

Rogers, C. (1957). The necessary and sufficient conditions of therapeutic personality change. *Journal of Consulting Psychology*, *21*(2), 95-103.

Roemer, L. & Orsillo, S.M. (2002). Expanding our conceptualization of and treatment for generalized anxiety disorder: Integrating mindfulness/acceptance-based approaches with existing cognitive-behavioral models. *Clinical Psychology: Science and Practice*, 9(1), 54-68.

Roemer, L., Orsillo, S. M., & Salters-Pedneault, K. (2008). Efficacy of an acceptance-based behavior therapy for generalized anxiety disorder: Evaluation in a randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 76(6), 1083-1089.

Rona, R. J., Jones, M., Iversen, A., Hull, L., Greenberg, N., Fear, N. T., & ... Wessely, S. (2009). The impact of posttraumatic stress disorder on impairment in the UK military at the time of the Iraq war. *Journal Of Psychiatric Research*, *43*(6), 649-655. doi:10.1016/j.jpsychires.2008.09.006

Salmon, P., Santorelli, S., Sephton, S., & Kabat-Zinn, J. (2009). Intervention elements promoting adherence to mindfulness-based stress reduction programs in clinical behavioral medicine settings. In S. Shumaker, E. Schron, J. Ockene, & W. McBee (Eds.), *Handbook of health and behavior change* (3rd ed., pp. 271-286). New York: Springer.

Salmon, P., Sephton, S., Weissbecke, I., Hoover, K., Ulmer, C., & Studts, J. (2004). Mindfulness meditation in clinical practice. *Cognitive and Behavioral Practice, 11*, 434 - 446.

Sanderson, C. & Linehan, M. M. (1999). Acceptance and forgiveness. In W. R. Miller (Ed.), *Integrating spirituality into treatment: Resources for practitioners*. Washington, DC: American Psychological Association, 199-216.

Sayers, S. L., Farrow, V. A., Ross, J., & Oslin, D. W. (2009). Family problems among recently returned military veterans referred for a mental health evaluation. *Journal of Clinical Psychiatry*, 70(2), 163-170.

Schnider, K. R., Elhai, J. D., & Gray, M. J. (2007). Coping style use predicts posttraumatic stress and complicated grief symptom severity among college students reporting a traumatic loss. *Journal of Counseling Psychology*, 54(3), 344-350.

Schnurr, P. P., Hayes, A. F., Lunney, C. A., McFall, M., & Uddo, M. (2006). Longitudinal analysis of the relationship between symptoms and quality of life in veterans treated for posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 74(4), 707-713.

Schnurr, P., Lunney, C., Bovin, M., & Marx, B. (2009). Posttraumatic stress disorder and quality of life: Extensions of findings to veterans of the wars in Iraq and Afghanistan. *Clinical Psychology Review*, 29(8), 727-735.

Schottenbauer, M. A., Glass, C. R., Arnkoff, D. B., Tendick, V., & Gray, S. (2008). Nonresponse and dropout rates in outcome studies on PTSD: Review and methodological considerations. *Psychiatry: Interpersonal and Biological Processes*, 71(2), 134-168.

Seal, K. H., Cohen, G., Waldrop, A., Cohen, B. E., Maguen, S., & Ren, L. (2011). Substance use disorders in Iraq and Afghanistan veterans in VA healthcare, 2001–2010: Implications for screening, diagnosis and treatment. *Drug and Alcohol Dependence*, 116(1-3), 93-101.

Seal, K., Metzler, T., Gima, K., Bertenthal, D., Maguen, S., & Marmar, C. (2009). Trends and risk factors for mental health diagnoses among Iraq and Afghanistan veterans using Department of Veterans Affairs Health Care, 2002-2008. *American Journal of Public Health*, *99*(9), 1651 - 1658.

Segal, Z., Williams, J., & Teasdale, J. (2002). *Mindfulness-based cognitive therapy for depression*. New York: Guildford Press.

Shapiro, S. L., Astin, J. A., Bishop, S. R., & Cordova, M. (2005). Mindfulness-Based Stress Reduction for health care professionals: Results from a randomized trial. *International Journal of Stress Management*, 12(2), 164-176.

Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2005). Mechanisms of mindfulness. *Journal of Clinical Psychology*, 1-14.

Shapiro, S. L., Oman, D., Thoresen, C. E., Plante, T. G., & Flinders, T. (2008). Cultivating mindfulness: Effects on well-being. *Journal of Clinical Psychology, 64*(7), 840-862.

Shapiro, S.L., Schwartz, G.E., & Bonner, G. (1998). Effects of mindfulness-based stress reduction on medical and premedical students. *Journal of Behavioral Medicine, 21*, 581-599.

Sharp, T. J., & Harvey, A. G. (2001). Chronic pain and posttraumatic stress disorder: Mutual maintenance?. *Clinical Psychology Review*, 21(6), 857-877.

Shay, J. (1994). *Achilles in Vietnam: Combat trauma and the undoing of character*. New York: Scribner.

Shipherd, J.C., Keyes, M., Jovanovic, T., Ready, D.J., Baltzell, D., Worley, V. et al. (2007). Veterans seeking treatment for posttraumatic stress disorder: What about comorbid chronic pain? *Journal of Rehabilitation Research & Development, 44(2)*, 153-166.

Simms, L. J., Watson, D., & Doebbeling, B. N. (2002). Confirmatory factor analyses of posttraumatic stress symptoms in deployed and nondeployed veterans of the Gulf War. *Journal of Abnormal Psychology*, *111*(4), 637-647.

Smith, M. W., Schnurr, P. P., Rosenheck, R. A., & Salzer, M. (2005). Employment outcomes and PTSD symptom severity. *Mental Health Services Research*, 7(2), 89-101.

Solomon, Z., & Dekel, R. (2007). Posttraumatic stress disorder and posttraumatic growth among Isreali ex-POWs, *Journal of Traumatic Stress*, *20*, 303-312.

Solomon, Z., Mikulincer, M., & Flum, H. (1988). Negative life events, coping responses, and combat-related psychopathology: A prospective study. *Journal of Abnormal Psychology*, 97(3), 302-307.

Stanley, E., Schaldach, J., Kiyonaga, A., & Jha, A. (in press). Mindfulness-based Mind Fitness Training: A case study of high-stress predeployment military cohort. *Cognitive and Behavioral Practice*, doi:10.1016/j.cbpra.2010.08.002.

Stecker, T., Shiner, B., Watts, B. V., Jones, M., & Conner, K. R. (2013). Treatment-Seeking Barriers for Veterans of the Iraq and Afghanistan Conflicts Who Screen Positive for PTSD. *Psychiatric Services*, *64*(3), 280-283.

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

Steiger, J.H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioral Research*, 25, 173-180.

Stevens, J. P. (2012). *Intermediate statistics: A modern approach*. Routledge Academic.

Sutker, P.B., Davis, J.M., Uddo, M., & Ditta, S.R. (1995). War zone stress, personal resources, and PTSD in Persian Gulf War returnees. *Journal of Abnormal Psychology*, *104*(3), 444-452.

Tabchnick, B.G., & Fidell, L.S. (2001). *Using multivariate statistics* (4th ed.). Boston: Allyn and Bacon.

Tanaka, M., Wekerle, C., Schmuck, M. L., Paglia-Boak, A., MAP Research Team (2011). The linkages among childhood maltreatment, adolescent mental health, and self-compassion in child welfare adolescents. *Child Abuse & Neglect, 35*, 887-898.

Tanielian, T., & Jaycox, L. (Eds.). (2008). *Invisible wounds of war: Psychological and cognitive injuries, their consequences, and services to assist recovery*. Santa Monica, CA: RAND Corporation.

Teasdale, J., Segal, Z., & Williams, M. (2003). Mindfulness training and problem formulation. *Clinical Psychology: Science and Practice, 10*(2), 157 - 160.

Tedeschi, R.G. (2011). Posttraumatic growth in combat veterans. *Journal of Clinical Psychology in Medical Settings, 18,* 137-144.

Tedeschi, R. G., & Calhoun, L. G. (1995). *Trauma & transformation: Growing in the aftermath of suffering*. Thousand Oaks, CA US: Sage Publications, Inc.

Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*, 9(3), 455-472.

Thomas, J. L., Wilk, J. E., Riviere, L. A., McGurk, D., Castro, C. A., & Hoge, C. W. (2010). Prevalence of mental health problems and functional impairment among Active Component and National Guard soldiers 3 and 12 months following combat in Iraq. *Archives of General Psychiatry*, 67(6), 614-623.

Thompson, R. W., Arnkoff, D. B., & Glass, C. R. (2011). Conceptualizing mindfulness and acceptance as components of psychological resilience to trauma. *Trauma, Violence, & Abuse*, *12*(4), 220-235.

Thompson, B., & Waltz, J. (2010). Mindfulness and experiential avoidance as predictors of posttraumatic stress disorder avoidance symptom severity. *Journal of Anxiety Disorders*, *24*, 409 - 415.

Thompson, B. L., & Waltz, J. (2008). Self-compassion and PTSD symptom severity. *Journal of traumatic stress*, *21*(6), 556-558.

Tomarken, A.J. & Waller, N.G. (2005). Structural equation modeling: Strengths, Limitations, and Misconceptions. *Annual Review of Clinical Psychology*, 1, 31-65.

Triplett, K. N., Tedeschi, R. G., Cann, A., Calhoun, L. G., & Reeve, C. L. (2011). Posttraumatic growth, meaning in life, and life satisfaction in response to trauma. *Psychological Trauma: Theory, Research, Practice, and Policy*, doi:10.1037/a0024204

Tull, M.T., Gratz, K.L., Salters, K., & Roemer, L. (2004). The role of experiential avoidance in posttraumatic symptoms and symptoms of depression, anxiety, and somatization. *The Journal of Nervous and Mental Disease, 192*(11), 754-761.

Twohig, M. (2009). Acceptance and commitment therapy for treatment-resistant posttraumatic stress disorder: A case study. *Cognitive and Behavioral Practice, 16*(3), 243-252.

Van Dam, N. T., Sheppard, S. C., Forsyth, J. P., & Earleywine, M. (2011). Self-compassion is a better predictor than mindfulness of symptom severity and quality of life in mixed anxiety and depression. *Journal of Anxiety Disorders*, 25(1), 123-130.

van der Kolk, B., McFarlane, A., & Weisaeth, L. (1996). The black hole of trauma. In *Traumatic stress: The effects of overwhelming experience on mind, body, and society* (pp. 3 - 21). New York: The Guilford Press.

Vettese, L. C., Dyer, C. E., Li W. L. & Wekerle, C. (2011). Does self-compassion mitigate the association between childhood maltreatment and later emotional regulation difficulties? A preliminary investigation. *International Journal of Mental Health and Addiction, 9*, 480-491.

Vogt, D., Dutra, L., Reardon, A., Zisserson, R., & Miller, M. W. (2011). Assessment of trauma, posttraumatic stress disorder, and related mental health outcomes. In J. Ruzek, P. Schnurr, J. Vasterling, M. Friedman, J. Ruzek, P. Schnurr, M. Friedman (Eds.), *Caring for veterans with deployment-related stress disorders* (pp. 59-85). Washington, DC US: American Psychological Association.

Vogt, D. S., Proctor, S. P., King, D. W., King, L. A., & Vasterling, J. J. (2008). Validation of scales from the Deployment Risk and Resilience Inventory in a sample of operation Iraqi Freedom veterans. *Assessment*, 15(4), 391-403.

Von Korff, M., & Miglioretti, D. L. (2005). A prognostic approach to defining chronic pain. *Pain*, 117(3), 304-313.

Vowles, K. E., McCracken, L. M., McLeod, C., & Eccleston, C. (2008). The Chronic Pain Acceptance Questionnaire: Confirmatory factor analysis and identification of patient subgroups. *Pain*, 140(2), 284-291.

Vujanovic, A. A., Niles, B., Pietrefesa, A., Schmertz, S. K., & Potter, C. M. (2011). Mindfulness in the treatment of posttraumatic stress disorder among military veterans. *Professional Psychology: Research and Practice*, 42(1), 24-31.

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.

Walach, H., Buchheld, N., Buttenmüller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness--The Freiburg Mindfulness Inventory (FMI). *Personality and Individual Differences*, 40(8), 1543-1555.

Walser, R., & Westrup, D. (2007). *Acceptance and commitment therapy for the treatment of post-traumatic stress disorder and trauma-related problems: A practitioner's guide to using mindfulness and acceptance strategies*. Oakland, CA: New Harbinger Publications.

Wegner, D.M., Scheider, D.J., Carter, S.R., & White, T.L. (1987). Paradoxical effects of thought suppression. *Journal of Personality and Social Psychology*, 53(1), 5-13.

Weinstein, N., Brown, K. W., & Ryan, R. M. (2009). A multi-method examination of the effects of mindfulness on stress attribution, coping, and emotional well-being. *Journal of Research in Personality*, 43(3), 374-385.

Weiss, D. S., & Marmar, C. R. (1997). Impact of event scale revised. In J.P. Wilson & T.M. Keane (Eds.). *Assessing psychological trauma and PTSD: A Practitioner's Handbook*. New York, NY: Guilford.

Welford, M. (2010). A compassion focused approach to anxiety disorders. *International Journal of Cognitive Therapy*, 3(2), 124-140.

Weston, R., & Gore, P. r. (2006). A Brief Guide to Structural Equation Modeling. *The Counseling Psychologist*, 34(5), 719-751.

White, H. R., & Labouvie, E. W. (1989). Towards the assessment of adolescent problem drinking. *Journal of Studies on Alcohol*, 50(1), 30-37.

Wilk, J. E., Bliese, P. D., Kim, P. Y., Thomas, J. L., McGurk, D., & Hoge, C. W. (2010). Relationship of combat experiences to alcohol misuse among U.S. Soldiers returning from the Iraq war. *Drug and Alcohol Dependence*, 108(1-2), 115-121.

Wolfe, J., Keane, T. M., Kaloupek, D. G., & Mora, C. A. (1993). Patterns of positive readjustment in Vietnam combat veterans. *Journal of Traumatic Stress*, 6(2), 179-193.

Wolfsdorf, B.A, & Zlotnick, C. (1990). Affect management in group therapy for women with posttraumatic stress disorder and histories of childhood sexual abuse. *Psychotherapy in practice, 57*(2), 169-181.

World Health Organization. *International classification of functioning, disability and health* (ICF). Geneva, Switzerland: World Health Organization; 2001.

Wren, A. A., Somers, T. J., Wright, M. A., Goetz, M. C., Leary, M. R., Fras, A. M., Huh, B. K., Rogers, L. L. (2012). Self-Compassion in patients with persistent musculoskeletal pain: Relationship of self-compassion to adjustment to persistent pain. *Journal of Pain and Symptom Management, 43 (4),*759-770.

Yalom, I. D. (1980). *Existential psychotherapy*. Basic Books (AZ).

Yufik, T. & Simms, L.J. (2010). A meta-analytic investigation of the structure of posttraumatic stress disorder symptoms. *Journal of Abnormal Psychology, 119*(4), 764-776.

Zatzick, D. F., Marmar, C. R., Weiss, D. S., Browner, W. S., Metzler, T. J., Golding, J. M., et al. (1997). Posttraumatic stress disorder and functioning and quality of life outcomes in a nationally representative sample of male Vietnam veterans. *The American Journal of Psychiatry*, 154(12), 1690-1695.