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COMBAT EXPOSURE, AGENCY, PERCEIVED THREAT, GUILT, AND
POSTTRAUMATIC STRESS DISORDER AMONG IRAQ AND AFGHANISTAN
WAR VETERANS

BY

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DISSERTATION

Submitted to the Graduate School at the University of Missouri – St. Louis
in partial fulfillment of the requirements for the degree
Doctor of Philosophy in Education with an emphasis in Counseling

July, 2010

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ABSTRACT

This study assessed how various combat experiences related to post-deployment adjustment among 289 Iraq/Afghanistan veterans. The study examined the relationships among three predictor variables (combat exposure, agency, perceived threat), one mediator (guilt), and two criterion factors (posttraumatic stress disorder/PTSD, and psychological wellbeing/PWB). It distinguished agency (e.g., firing or killing) from combat exposure (e.g., being fired at or witnessing). The study sought to: a) examine whether combat exposure differs from agency as constructs of combat experiences; b) determine the contributions of three predictors to the degree of PTSD and PWB; and c) determine whether guilt mediated the relationships between the three predictors and the two criterion factors. Instruments used included the Combat Experiences Subscale, the Post-Battle Subscale, and the Perceived Threat Subscale from the Deployment Risk and Resilience Inventory (DRRI), the Atrocities Exposure Subscale, the Laufer-Parson Guilt Inventory, the PTSD Checklist (PCL – Military), the Satisfaction With Life Scale, the Self-Acceptance Subscale and the Purpose in Life Subscale developed by Ryff (1989). Factor analyses, correlational analyses, hierarchical regression analyses, and Sobel Tests were used to analyze the data. Results indicated that exposure and agency were two constructs with shared commonalties (especially those involving injuring and killing of enemy combatants). Agency-Civilian-Casualties emerged as a new variable that merits further exploration due to the increases in civilian casualties in modern warfare. Atrocity also appeared to be a distinct variable that needs further examination. About 96% of participants reported having been under fire. However, 41% reported never having fired at the enemies. About 72% reported having at least one moderate PTSD

symptom, and 43% could be identified as PTSD positive. All three predictors were highly correlated with guilt, PTSD, and PWB. PTSD was found to be highly (negatively) correlated with PWB. Together, the three predictors accounted for 58% of the total variance for PTSD, and 46% for PWB. When guilt was included in the regression, the four variables accounted for 78% of the total variance for PTSD, and 64% for PWB. Guilt mediated between exposure and PTSD, agency and PTSD, and agency and PWB. Implications of these findings were discussed.

Keywords: PTSD; combat exposure; agency; perceived threat; guilt; military veterans; Operation Iraqi Freedom; OIF; Operation Enduring Freedom; OEF.

DEDICATION

With sincere gratitude I dedicate this dissertation to all the veterans and their families
who made heroic sacrifices to serve our country.

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Thank you Dr. Angela Coker for your ongoing support in my doctoral work. Your cheerful leadership enabled me to take a step back and chill when feeling excessively overburdened. Thank you Dr. Susan Kashubeck-West for your expertise, diligent editing, and availability for questions and problem solving. I have learned so much from you about what it means to be a dedicated scholar and professor. Thank you Dr. Therese S. Cristiani for your unfailing beliefs in me. You were always there to give me the much needed boost when the going got tough. Thank you Dr. Cody Ding for being willing to serve on my dissertation committee. Your statistical feedback certainly expanded the scope of my dissertation study. I am truly grateful to have had my dissertation committee by my side every step of the way through this scholarly marathon. I cannot have hoped for a more supportive committee!

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My study would not have been completed without the generosity of participating veterans who courageously partook in the survey that inquired about very difficult aspects of war zone experiences. Thank you for going above and beyond and taking the time to respond to my research invitations.

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Chapter 1
Introduction

As the soldiers returned home from battle fields of Vietnam, many bore both the physical and psychological wounds of brutality. For seemingly unknown reasons, a number of these veterans exhibited life-long patterns of bad choices and self-destructive behaviors after their return (Schroder & Dawe, 2007). In a particular sample of 1,227 veterans that entered a longitudinal study in 1972, 10.5% of them (n = 129) were lost through suicide/death by 1996, and about 6% of the 841 veterans located and interviewed in 1997 still reported active suicidal ideation. Only about a quarter of these high-risk veterans were under psychiatric care (Price, Chen, Risk, Haden, Widner, Ledgerwood, & Lewis, 2009). Being actively suicidal means the balance of life could be tilted at the next moment. What tormented these war-surviving veterans and drove them to death during peaceful times? Will a new generation of warriors who return from Iraq and Afghanistan suffer similar fates three decades later?

Prevalence, Chronicity, and Comorbidities of PTSD

The prevalence and severity of Post Traumatic Stress Disorder (PTSD) among veterans is well documented. Past research studies demonstrated that about 14-31% of war veterans developed PTSD, presumably as a result of their military duties (Hoge, Castro, Messer, McGurk, Cotting, & Koffman, 2004; Kulka, Schlenger, Fairbank, Hough, Jordan, Marmar, & Weiss, 1990; Schlenger, Kulka, Fairbank, Hough, Jordon, Marmar, & Weiss, 1992). According to the Diagnostic and Statistical Manual of Mental Disorders (4th ed., DSM-IV; American Psychiatric Association, 1994), the diagnosis of PTSD requires exposure to a traumatic event and three resulting symptom clusters: re-experiencing the event, avoidance of traumatic reminders and numbing of

responsiveness, and hyperarousal. In their study of Vietnam veterans, Schlenger et al. (1992) found 27.9% of Hispanics, 20.6% of Blacks, and 13.7% of White/other male veterans suffered current PTSD symptoms 15 years after military service. In the National Vietnam Veterans Readjustment Study, Kulka et al. (1990) assessed the lifetime prevalence of PTSD among Vietnam veterans at 30.9%, with additional 22.5% experiencing partial PTSD symptoms. They estimated that as of 1989, 479,000 veterans met diagnostic criteria for PTSD. Such PTSD prevalence is substantially higher than the rates for their comparable Vietnam generation civilian peers that ranged from 0.3% to 2.5%. Moreover, half of those Vietnam veterans with PTSD continued to have it 15 years later (Marmar, 2009).

Similar results of PTSD prevalence were found among veterans of other recent military missions. Kang, Natelson, Mahan, Lee and Murphy (2003) surveyed 30,000 veterans and found approximately 12% of veterans from the first Gulf War developed PTSD. The research performed by Hoge et al. (2004) noted 15.6 to 17.1% of returned Iraq War veterans in their study (n = 1709) developed PTSD. Additionally, Hoge et al. observed a PTSD baseline rate of 5% in the soldier sample prior to deployment. This baseline rate closely mirrored the 3 to 4% rates of PTSD in the United States general adult population (Narrow, Rae, Robins, & Regier, 2002). In addition, many veterans suffer symptoms of trauma such as flashbacks or hyper-arousal without meeting the full diagnostic criteria of PTSD according to the DSM-IV (American Psychiatric Association, 1994). It is estimated that around 35% of Iraq veterans developed trauma related symptoms as a result of their military services (Mastnak, 2008). Similarly, another recent study of Iraq (n = 2,275) and Afghanistan (n = 1,814) veterans found approximately 44%

of returned soldiers reported clinically significant levels of PTSD or depressive symptoms, or both (Lapierre, Schwegler, & LaBauve, 2008).

Past studies reported high rates of comorbidity between PTSD and other adjustment difficulties and mental disorders, such as depression, anxiety and/or phobias, hostility, dissociation, isolation, aggression, violence, unemployment, substance dependence and abuse, legal difficulties, nicotine addiction, self-destructive behaviors, homelessness, health problems and illnesses, disabilities, and interpersonal, marital, and family discord (Boscarino, 2006; Constans, Lenhoff, & McCarthy, 1997; Glasser, 2006; Jakupcak et al., 2007; Jakupcak, Luterek, Hunt, Conybeare, McFall, 2008; Johnson, Fontana, Lubin, Corn, & Rosenheck, 2004; Jones, 2004; Kirby et al., 2008; Miller, Fogler, Wolf, Kaloupek, & Keane, 2008; Qureshi, Pyne, Magruder, Schulz, & Kunik, 2009; Rosenheck, Frisman, Fontana, & Leda, 1997; Sayers, Farrow, Ross, & Oslin, 2009; Schroder & Dawe, 2007; Shalev, Freedman, Peri, Brandes, Sahar, Orr, & Pitman, 1998; Wagner, Harris, Federman, Dai, Luna, & Humphreys, 2007). Kulka et al. (1990) reported 98.8% of Vietnam veterans with PTSD had a history of other DSM-III disorders, as compared to 40.6% of those without PTSD. Additionally, they found male Vietnam veterans with PTSD had an 80% lifetime prevalence of alcohol abuse and 30% suffered depression. Helzer, Robins, and McEvoy (1987) reported close to 80% of both civilian and veteran respondents with PTSD suffered from other psychiatric disorders as compared to 30% of those without PTSD. Moreover, Vietnam combat veterans with PTSD have been found to manifest higher levels of hostility and aggression compared to combat veterans without PTSD (Beckham, Moore, & Reynolds, 2000). PTSD symptomatology was also found to be “the most significant predictor of depression

severity” among Vietnam veterans (Vasterling, Constans, & Hanna-Pladdy, 2000, p. 448). In a study of 921 male veterans (aged 50-85 yrs), Schnurr and Spiro (1999) found PTSD an important predictor of poorer physical health. Additionally, Vietnam veterans with PTSD were found to have a higher risk for cancer and cardiovascular illnesses (Boscarino, 2006).

Similar results were found among Iraq/Afghanistan War veterans in that those with PTSD reported more anger and hostility than those with sub-threshold PTSD and non-PTSD groups. Also, the anger and hostility level was higher in the sub-threshold PTSD group than in the non-PTSD group (Jakupcak et al., 2007). Moreover, poorer health functioning was found to be significantly associated with PTSD symptom severity among treatment seeking Iraq/Afghanistan veterans (Marmar, 2009; Jakupcak et al., 2008). In a study of 2,863 Iraq War soldiers 1 year after return, Hoge and colleagues found 16.6% still met the diagnostic criteria for PTSD. In addition, PTSD was significantly associated with poorer general health, more sick call visits, more physical symptoms, more missed workdays, and high somatic symptom severity (Hoge, Terhakopian, Castro, Messer, & Engel, 2007).

The prevalence and chronicity of PTSD as well as the comorbidity of PTSD with other mental and physical illnesses certainly make PTSD a difficult illness to effectively treat (Johnson et al., 2004; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Koenen, Stellman, Stellman, & Sommer, 2003). Empirical studies examining the effectiveness of inpatient and outpatient PTSD treatment programs repeatedly have demonstrated the tenacity of PTSD symptomatology among veterans (Johnson et al., 2004). More than one third of PTSD patients fail to recover, regardless of whether they received treatment

(Kessler et al., 1995). With limited treatment effects, the persistence of PTSD symptoms has been associated with high mortality rates among veterans with PTSD. In a sample of 111 Vietnam veterans with PTSD, Erwin et al. (1996) (as cited in Johnson et al., 2004) found a mortality rate of 16% within an 8 year span. Johnson et al. (2004) reported a 17% mortality rate over a 6 year period among 51 treatment-seeking male Vietnam veterans with combat-related PTSD. The mortality rate is 5 times higher than expected, when compared to the general population within the same age range (age 45-54). Given the literature, researchers may conclude that the quality of life for veterans who continue to live with and battle the symptoms of PTSD may have been significantly compromised. It is an ethical imperative that mental health professionals/counselors better understand the risk factors related to PTSD to aid in the prevention and clinical treatment of PTSD.

Risk and Resilience Factors for Veterans with PTSD

Over the past two decades, research studies have examined risk factors for PTSD. Numerous studies found strong correlations between combat exposure and PTSD (Clancy et al., 2006; Dirkzwager, Bramsen, & Van Der Ploeg, 2005; Fontana & Rosenheck, 2004; Hoge et al., 2004; Kessler et al., 1995; Koenen et al., 2003; Kulka et al., 1990; Mazzeo, Beckham, Charlotte, Feldman, & Shivy, 2002; Stein, Tran, Lund, Haji, Dashevsky, & Baker, 2005; Vogt & Tanner, 2007). In fact, studies have established a dose-response relation between combat exposure and PTSD wherein the higher magnitude of exposure, the more severe the PTSD symptoms (Koenen, Stellman, Dohrenwend, Sommer, & Stellman, 2007). However, exposure alone cannot fully explain why veterans develop PTSD (Brewin, Andrews, & Valentine, 2000; Schlenger et al., 1992). For example, Hoge et al. (2004) found over 90% of Iraq veterans in their study (n = 1691) reported having

been fired upon while “only” 15.6 to 17.1% of participants developed PTSD within 3 to 4 months after deployment. The question remains as to why, in the face of traumatic circumstances such as combat exposure, some people develop PTSD while others do not? Further, what are the other risk factors that contribute to PTSD?

Researchers have identified three main categories of factors (pretrauma, trauma, and posttrauma) that are thought to contribute to PTSD, even though studies differed on the specific factors that were included in each category and the level of association between the factors and PTSD (Brewin et al., 2000; Clancy et al., 2006; King, King, Foy, Keane, & Fairbank, 1999; King et al., 2003; Johnson et al., 2004; Schlenger et al., 1992; Shalev, 1996; Vogt & Tanner, 2007). Pretrauma vulnerability includes: age, gender, race, relational status, education, existence of previous trauma, family history of psychiatric illnesses, childhood abuse or traumatization, early family relations, genetic factors, and personality traits. Trauma factors include: stressor magnitude, exposure intensity, pre-exposure/deployment preparation, and coping responses. Posttrauma factors include lack of social and family support, negative responses of the community, and additional life stresses or negative events in the postwar period. Negative homecoming experiences have been found to relate to severity of PTSD (Fontana & Rosenheck, 1994; Johnson, Lubin, Rosenheck, Fontana, Southwick, & Charney, 1997; McCranie & Hyer, 2000). Hayman, Sommers-Flanagan, and Parsons (1987) also observed how the speed of modern transportation may negatively impact psychological adjustment. Instead of the slower return by ship like soldiers in World War I or II did, modern veterans could be transported from the war zone to their living room at home in

36 hours, which does not provide for sufficient recovery and processing time to adjust to drastic changes.

In their meta-analysis of PTSD among traumatized adults, Brewin et al. (2000) found trauma factors to be stronger predictors than pretrauma factors. Depending on the studies, the strength of predictability among pretrauma factors such as family psychiatric history and personal psychiatric history varied, with childhood abuse reportedly having uniform predictive effects. Factors including gender, age at trauma, race, and education predicted PTSD to a varying extent depending on the populations (e.g., civilians or military) and the methods used. It was suggested that a person's race, especially minority race, was a factor in some studies with military samples because minority veterans might have had higher levels of pre- or posttrauma risk factors or have been assigned to high combat roles (Koenen et al., 2003). Gender was a risk factor for veterans because women often suffered additional traumas such as rape, assaults, or sexual harassment while in service which intensified their feeling of being unsafe (Goldzweig, Balekian, Rolon, Yano, & Shekelle, 2006; Kessler et al., 1995; Katz, Bloor, Cojucar, & Draper, 2007). In a study of 18 female Iraq/Afghanistan War veterans, 10 reported (56%) reported military sexual trauma during deployment; of these 3 reported completed assault or rape, and 6 (33% of the sample) reported unwanted physical advances (Katz et al.). In studies with military samples, it was found that being younger, single, and less educated put one at a higher risk for PTSD (Dirkzwager et al, 2005). Ikin et al. (2007) also found low rank strongly associated with PTSD.

The studies of PTSD risk factors among veterans have further clarified, specified, and expanded the trauma (or deployment) factor category beyond just combat exposure.

Beckham, Feldman, and Kirby (1998) found veterans' involvement in atrocities correlated with severity of PTSD. King et al. (2003) greatly expanded the trauma factor (also called deployment or war zone factor) to include additional deployment stressors, such as difficult living conditions, general or sexual harassment, perceived threat of danger, and aftermath exposure. Other studies also found combat related injuries to be a risk factor for PTSD (Hoge et al., 2004; Koren, Norman, Cohen, Berman, & Klein, 2005; Macgregor, 2007).

In addition to risk factors, increasing attention has been devoted to exploring resilience or resource factors. For example, while a difficult childhood family environment could be a risk factor, a positive one could mean more availability of postdeployment social and family support, which in turn could moderate the severity of PTSD symptoms (King et al., 1999; Vogt & Tanner, 2007). In other words, both childhood environment and social support serve as resilience/resource factors that mediate as well as moderate between current trauma factors and posttraumatic symptomatology (King et al., 1999; Vogt & Tanner, 2007). Card (1987) found being married and a churchgoer was associated with reduced levels of PTSD. Conversely, PTSD symptoms appeared more frequently among veterans who lived alone, were single, separated, or divorced (Murray, 1992). Other studies also indicated the importance of factors such as personal coping styles based on appraisal of situations (Lazarus, 1993), or personality hardiness (conceptualized as the personal characteristics of stress resistance according to Kobasa, 1979) in the face of war-related traumatic experiences (Bartone, 1999; King, King, Fairbank, Keane, & Adams, 1998; Kobasa, 1979; Kobasa, Maddi, & Kahn, 1982).

Critique of Existing Literature

The review of above studies on risk and resilience factors of PTSD among veterans leads to three observations. First, there is no uniformity in the definition and operationalization of risk factors, which makes comparison of studies difficult (Brewin et al., 2000). Secondly, most studies focused on circumstantial risk factors without in depth exploration or discussion of psychological factors, such as guilt. This leaves a gap between studies of risk factors and clinical issues in practice. In the treatment of PTSD, clients/veterans often struggle with sense of control, responsibilities, guilt, loss of identity, and loss of faith and meaning (David, Kutcher, Jackson, & Mellman, 1999; Fontana & Rosenheck, 2004; Mastnak, 2008; Silver & Rogers, 2002; Tick, 2005). Current studies have not addressed sufficiently how identified risk factors are related to these psychological issues in treatment.

Third, studies assessed the symptoms of PTSD, but did not explore the contents of the PTSD symptoms. For example, PTSD assessment instruments such as the 17-item PTSD Checklist (PCL – Military) (Weathers, Litz, Herman, Huska, & Keane, 1993) and the 35-item Mississippi Scale for Combat-Related PTSD (M-PTSD) (Keane, Caddell, & Taylor, 1988) inquire whether participants have had flashbacks or nightmares, but do not ask participants to identify the contents of their flashbacks/nightmares. While such an inquiry enables researchers to assess the quantity/severity of symptoms, it does not provide necessary clinical materials for treatment. In other words, the inquiry indicates that a certain number of veterans may have PTSD and will need treatment, but it does not shed light on what aspects of the war related traumas are most disturbing to them nor does it point to those images that involuntarily intrude in their mind through flashbacks

and nightmares. Such a lack of specificity may partially explain why PTSD treatments have not been particularly effective (Kubany, Abueg, Kilauano, Manke, & Kaplan, 1997).

Last, the current use of combat exposure as a construct often does not distinguish between “passive” exposures and “active” involvement. In warfare, one is not only exposed to combat; oftentimes one is forced to act in order to survive or protect self and others. Regardless of intentions, such actions may often lead to harm or destruction to self or others. Most studies evaluated the construct of combat exposure, but failed to examine or discuss the moral and psychological construct of killing or injuring others. For example, in one sample group (n = 894), Hoge et al. (2004) found 97% of surveyed Iraq War veterans (Marines) reported having come under fire while 87% reported “shooting or directing fire at the enemy,” 65% reported “being responsible for the death of an enemy combatant” and 28 % reported “being responsible for the death of a noncombatant” (p. 18). It is likely that these four experiences imply different moral and psychological impact. However, Hoge et al. did not explore the significance of such implications. One cannot help but wonder whether being responsible for the death of another placed these veterans at a higher risk of developing PTSD and other difficulties such as a loss of meaning, depression, or suicidality.

King, King, Gudanoski, and Vrevren (1995) commented on the attempt in past studies to “exclude any personal interpretations or subjective judgments” about circumstances in the trauma/exposure category (p. 186). It was not uncommon for studies to assess combat experiences without inquiring whether respondents were directly involved in injuring or killing of others. As Tick (2005) observed, it seems there is a

tendency among researchers to avoid talking about killing and injuring others because, in a war, killing of enemies is justified or even glorified. Such avoidance may minimize the moral and psychological implications and significance of a veteran's role in being the direct or indirect cause of harm, often against one's personal values and moral convictions. According to Lazarus and Folkman (1984), coping is a result of interactions between persons and the environment. To exclusively focus on stimuli from the environment is insufficient in understanding the complexity of trauma stressors resulting from the interactions between war zone stressors and personal responses (Fontana, Rosenheck, & Brett, 1992). Individuals' successful coping is greatly affected by their appraisals of situational threats as well as adequacy of personal responses. It is precisely the guilt resulting from having injured or killed others that drove veterans to seek treatment years after their deployment (Fontana & Rosenheck, 2004; Mastnak, 2008; Singer, 2004; Silver & Rogers, 2002; Tick, 2005). It is such a soul wound, as Tick named it, that these veterans battle silently, long after memories of the war have faded in the minds of the general population. To better address the complex treatment needs of veterans with PTSD, it is imperative that the moral and psychological dynamics involved in combat duties be examined and understood in more depth.

Theoretical Framework

Stress and Coping Theory

The stress and coping theory was first developed by Lazarus (1981, 1993, & 1999) and later elaborated with Folkman and other colleagues (Lazarus & Folkman, 1984; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Coping is defined as "ongoing cognitive and behavioral efforts to manage specific external and/or internal

demands that are appraised as taxing or exceeding the resources of the person” (Lazarus, 1993, p. 234). Or simply, “coping consists of cognitive and behavioral efforts to manage psychological stress” (Lazarus, p. 234). Instead of understanding coping styles as personal dispositions / traits or characteristics that presumably transcend the influence of situational context, Lazarus specifically emphasized coping as a process of on-going interactions between the environment and the individuals. For Lazarus, individuals’ coping strategies “are probably the result of a fluid, contextually sensitive struggle to appraise what is happening in a way that is responsive to the realities of a situation” (1993, p. 238). When coping strategies are adaptive, individuals have found a way to create a desired outcome with a certain level of stability. Nonadaptive coping refers to symptomatic outcomes that undermine one’s physical, psychological, and relational well-being. However, Lazarus (1993) emphasized that coping strategies are not fixed in stone and change over time as external threats change. He argued that to fully understand an individual’s coping style, researchers have to examine the consistencies and inconsistencies of how an individual copes “over time and cross stressful encounters” (p. 236).

The stress and coping theory (Lazarus, 1981, 1993, & 1999) proposed that there are two major forms of coping: problem-focused and emotion-focused. Problem-focused coping seeks to change the environment or oneself to improve the outcomes, while emotion-focused coping attempts to change the relational meaning of what is happening even though the actual conditions have not changed. An individual’s cognitive appraisal of the situation will assess the level of threats and determine what coping strategies are used. While optimistic appraisal of situations and outcomes could indicate more adaptive

coping, an exaggerated attempt to appraise a negative situation in a more benign or less threatening way could also mean denial or distancing (Lazarus, 1993).

In western cultures, problem-focused coping is often more prized than emotion-focused coping (Lazarus, 1993). However, Lazarus (1993) argued that there are circumstances in which nothing useful can be done to change the situation, and emotion-focused coping would seem the best choice. In other words, when nothing can be done about a situation, it is the meaning (cognitive appraisal) of a particular encounter constructed by the person that determines the effectiveness of coping (Lazarus, 1999; Folkman et al., 1986). As Lazarus proposed: “When stressful conditions are viewed by a person as refractory to change, emotion-focused coping predominates; when they are appraised as controllable by action, problem-focused coping predominates” (p. 239). The coping theory links efficacy of coping to “the quality of the fit between the coping strategy, its execution, and the adaptational requirements of the encounter. This fit will surely depend on the appraisal that is made, as well as on the extent to which the encounter provides viable coping options” (p. 240).

Lazarus’ emphasis on contexts, cognitive appraisals, and meaning making in the process of coping is particularly helpful when it comes to coping with war zone related traumas. It can be argued that war zone traumas more often than not fall into the “nothing can be done” category and exhaust individuals’ problem-focused coping strategies. It is then when the importance of appraisal and meaning take precedence and determine the effectiveness of coping. As Lazarus (1993) stated “I am confident that personal meanings are the most important aspects of psychological stress with which the person must cope, and they direct the choice of coping strategy” (244). Such an

understanding of the importance of meaning is in agreement with the experience of Viktor Frankl (1984), survivor of the Auschwitz concentration camp and founder of logotherapy, who observed that a sense of hope and meaning helped some of his co-prisoners survive the extreme cruelty and horrors of the Holocaust. As veterans face the destruction of war, their ability to cope may be dependent on what meanings they derive in the circumstances as well as their actions. The author of this dissertation study, therefore, hypothesizes and argues that the difficulties of deriving positive meaning out of war zone traumas lie beneath the ensuing mental disorders and adjustment problems among combat veterans. In particular, veterans who emerge out of wars overburdened with a sense of guilt would be at a higher risk of developing PTSD and compromising psychological well-being.

Denial of Collective Guilt

A note of caution is in order here. Summerfield (1995) protested against viewing PTSD as a mental disorder caused by an individual-centered event. By diagnosing and classifying war-related traumas as a psychological disorder that afflicts individual veterans, the society as a whole minimizes the moral implications of war and places the burden of struggling with the meaning of war on the shoulders of the veterans who have witnessed and experienced the horrors. Summerfield cited the homecoming experiences of U. S. Vietnam veterans who returned home to find their own nation and families blaming them for the war, thereby disowning collective guilt for the war. In this situation, veterans are left to struggle with the guilt, shame, betrayal, and maybe a sense of wasted sacrifice. As indicated previously, negative homecoming experiences, negative reception of the community, and the resulting withdrawal of social support are associated

with increased severity of PTSD symptoms (Fontana & Rosenheck, 1994). In fact, studies found homecoming stress the most significant predictor of PTSD, even superseding combat exposure, and childhood traumas (Johnson et al., 1997). Conversely, a positive reception and homecoming contribute to better adjustment among veterans (with peace-keeping missions) (Bolton, Litz, Glenn, Orsillo, & Roemer, 2002). It can be argued that the prolonged symptoms of PTSD and other adjustment difficulties among Vietnam combat veterans are partially the result of the collective denial of societal guilt.

Viewed from this perspective, one can see that Lazarus' coping theory (1981, 1993) is primarily individualistic in its approach. While the theory is useful in understanding the role of emotional meaning in coping when faced with unchangeable stressors, it fails to address the collective responsibilities of a society or social structure in the making and meaning making of contextual stressors such as wars. The emotional meanings that combat veterans derive from their war experiences very likely may be impacted by the collective interpretations for the war. Therefore, the current author argues that the prevalence of PTSD and other war-related mental disorders is an indication of how society has failed to support the returned warriors, leaving them to privately struggle with the horrors of wars in homes, counseling offices or hospital rooms. The guilt individual veterans wrestle with is societal guilt; it attests to the country's abandonment and betrayal of her soldiers and the myth of the modern warriors.

Modern Warrior Myth

The archetype of a warrior is not new to the modern society. Even before the mass recruitment of soldiers during the Greek and Roman empires, in every country and tribe, there has existed a special band of people who are given the duty to guard and

protect their communities. These special people often have gone through strenuous selection processes and intensive training. They symbolize ultimate physical strength and embodiment of virtues, including loyalty, honor, fortitude, duties, and perseverance (Lifton, 1973). They are called forth to face the challenges that ordinary people cannot and their return is often celebrated with marked excitement. Such a hero's welcome often provides relief from guilt felt from killing and destruction not normally tolerated by society (Siassi, 1973). For their sacrifices and victories, they are hailed as heroes and rewarded with honor, glory, and, at times, privileges.

However, in modern societies, both war and warriors have taken on new complexities of meaning. First, killing is no longer a part of every day life, especially in the urban environment. Unlike traditional farming communities where death and killing of animals were seen as normal aspects of life, modern society delegates the killing process to a limited number of professions (e.g., butchers) while most others are able to enjoy the results of such delegation without having to participate. Therefore, for the most part, modern men and women have an aversion to killing, let alone killing on a massive scale. While sophisticated conditioning and desensitization to overcome this aversion is an important part of military training, the effects often wear off. Soldiers' tolerance for combat stressors is compounded by repeated deployments. The development of PTSD and related numbing symptoms may attest to the psychological costs for veterans resulting from their military training and combat experiences (Grossman, 1996).

Second, modern warfare wages tremendous amounts of damage and destruction, and causes increasing number of casualties. According to studies conducted for the International Symposium of Children and War in 1983, civilians consisted of 5% of all

casualties in WWI, 50% in WWII, and over 80% in the Vietnam War (as cited in Summerfield, 1995). The line between civilians and enemy fighters is blurred and combatants are often left to deal with their own reactions towards causing civilian casualties.

Last, when a country wages a war full of controversy, the soldiers oftentimes do not receive a warm welcome upon returning; they may even be criticized or blamed for their involvement in the war (Hobfoll, London, & Orr, 1988; Laufer, Gallops, & Frey-Wouters, 1984; Murray, 1992). Again, the conflicts that the society as a whole, fails to resolve, fall upon the shoulders of a few. Therefore, some authors call for separating the war from the warrior (Matsakis, 2007). For over 30 years, Lifton (1973, 1992, 2005) has been writing to dismantle the warrior myth. In recent years, Lifton (2005) especially highlighted the similarities of experiences between Iraq/Afghanistan and Vietnam veterans, and how, ironically, a number of Iraq/Afghanistan veterans are the sons and daughters of Vietnam veterans. The meaning making of these wars/conflicts are not just political, but very personal to these intergenerational warriors.

Consequently, after witnessing the horrors and destruction of wars, some veterans decided to take personal action and expressed their opposition to the Iraq/Afghanistan war (Laufer, 2006). In recent years, organizations established by returning veterans, including Iraq Veterans Against the War or Winter Soldier, have helped educate the public about the true cost of the war, advocated for rights of returning soldiers, and pushed for an end to the Iraq occupation (Steele-Saccio, 2006). This study is conducted in honor of these veterans who live out the true warrior spirit by testifying and calling all

of us to bear witness to the damage and cost of human-made war-related trauma and tragedies.

Purpose of the Study

The purpose of this study was to assess the relationships between levels of combat exposure/involvement and post-deployment adjustment among soldiers who have served in Iraq and Afghanistan. To date, according to a PsycINFO search, more than 5,200 articles have been published since 1967 on the subject of military veterans. The majority of these articles focused on Vietnam War veterans. Only about 180 articles addressed issues faced by Iraq/Afghanistan War veterans. However, about 1.6 million American soldiers have been deployed to Iraq or Afghanistan. It is estimated that more than 300,000 of these veterans/service members may have PTSD or depression (Tanielian & Jaycox, 2008). There is a definite need to better understand what aspects of war zone traumas may relate the most to the development of PTSD so that timely interventions can be provided to distressed veterans.

To achieve this goal, this study strove for specificity, seeking to explore in depth how various contents of war zone traumas may be most debilitating to returned veterans. The study incorporated both circumstantial factors (e.g., combat exposure) and psychological factors (e.g., guilt) as well as examined how these factors differentially related to the development of PTSD and the psychological well-being (PWB) of returning veterans. The study included three predictors (exposure, perceived threat, and agency), one mediating factor (guilt), and two criterion factors (PTSD and PWB). The use of exposure and perceived threat provided an assessment of circumstantial stresses while the rest of the variables evaluated psychological indicators. The study sought to: (a) examine

whether combat exposure differs from agency as constructs of combat experiences; (b) determine the contribution of three risk factors (perceived threat, exposure, and agency) to the degree of PTSD and PWB; and (c) determine whether guilt mediates the relationships between the three predictors and the two criterion factors.

Hypotheses

It was hypothesized that: 1) higher perceived threat, exposure, and agency would be related to greater severity of PTSD and lower PWB; 2) agency would account for most of the variance for PTSD and PWB, followed by perceived threat and then combat exposure; and 3) guilt would mediate the relationships of agency with PTSD and PWB.

Delimitations

Due to the scope of this study, many important risk factors in the pre-trauma (e.g., history of trauma) and post-trauma categories (e.g., social support) will not be investigated. Moreover, the risk factors for chronic PTSD may differ from those for brief PTSD episodes (Brewin et al., 2000). The nature of this study does not allow for longitudinal comparison of risk factors of chronic versus brief PTSD. In addition, because the predictor variables could not be manipulated, the study was descriptive in nature. It explored whether correlational relationships existed among all the variables.

Definition of Terms

Exposure

Exposure is defined simply as coming in contact with or witnessing. Combat exposure is defined as witnessing or being in the midst and/or aftermath of armed battles (King et al., 2006). As discussed previously, studies have established a dose-response relation between combat exposure and PTSD; the more magnitude of exposure, the more

severe the PTSD symptoms (Clancy et al., 2006; Fontana & Rosenheck, 2004; Ikin et al., 2007; Koenen et al., 2007; Rona et al., 2009; Taft, Schumm, Panuzio, & Proctor, 2008). In fact, exposure to a traumatic event is the prerequisite to the diagnosis of PTSD according to the DSM-IV. However, the sources of war zone exposure are numerous. Deployment and redeployment experiences often consist of multiple exposures to traumatic incidents. For example, aftermath experiences such as handling human remains and witnessing the destruction of communities have been found to correlate with PTSD (King, King, Vogt, Knight, & Samper, 2006). Exposure to atrocities, understood as inflicting harm beyond the normal expectations of warfare (King et al, 1995), was also found to be associated with PTSD (Beckham et al., 1998; King et al., 1995).

Thus, to better account for the multiplicity of traumatic experiences, all three categories of exposure will be used: combat exposure, aftermath, and atrocities. However, only “passive” exposure experiences will be included in this construct. Any experience involving active participation of causing harm to another will be included in the agency construct.

Perceived Threat

Perceived threat are defined as personal assessments of potential threats of harm or danger to self or others (King et al., 1995). As discussed previously, exposure alone cannot account for the development of PTSD. In fact, some studies found perceived threat had a stronger effect on trauma symptoms than direct exposure (King et al. 2003; King et al., 2006; Vogt & Tanner, 2007). This construct stresses the importance of personal interpretations of or feelings about war zone experiences (King et al., 1995). The inclusion of perceived threat is consistent with DSM-IV’s reformulation of PTSD

that requires both the subjective and objective dimensions of trauma exposure (Vogt & Tanner, 2007). Moreover, this construct is in line with the previously discussed stress and coping theory proposed by Lazarus and Folkman, who emphasized that in addition to environmental stimuli, an individual's cognitive appraisal of a particular encounter with the environment is also a crucial element to stress reactions (Dirkzwager et al., 2005; Folkman et al., 1986; Lazarus, 1981, 1999).

Agency

The construct of agency was proposed by Fontana and Rosenheck (1992, 2004). They found that killing others and failing to prevent the death of others were two combat experiences particularly associated with guilt and PTSD. Their construct of "Agent" included three experiences: "killing others", "enjoying killing others", and "participating in atrocities" (2004, p. 580). Fontana and Rosenheck used agent to capture "attempts to kill or injure others" (1992, p. 751). The conceptualization of agency was an important step toward the distinction between "passive" combat exposures and "active" involvement as the cause of harm. However, the three experiences used for the construct seem to be insufficient when conveying the full scope of this construct since they did not distinguish among various outcomes of harming (e.g., injuring versus killing).

In this study, agency is defined as being the cause of harm to others, whether directly through one's actions or indirectly because of one's decision making. Such a construct encompasses both the objective aspect of cause as well as the subject interpretation of being "responsible" for harm. Moreover, this study includes and makes a distinction among various outcomes of harming enemy combatants, harming civilians, harming fellow soldiers (e.g., due to friendly fire), and harming children in order to

examine potentially different moral and psychological implications. Additionally, following the conceptualization of Fontana and Rosenheck (2004) in their AGENT construct, activities involving atrocities were also included in this study.

Guilt

Studies have documented the severity of guilt reported by combat veterans with PTSD (Beckham et al., 1998; Beckham et al., 2000; David et al., 1999; Fontana & Rosenheck, 2004; Glover, 1988; Hendin & Haas, 1991; Kubany, Haynes, Abeug, Manke, Brennan, & Stahura, 1996; Silver & Rogers, 2002; Singer, 2004; Tick, 2005; Wilson, Drozdek, & Turkovic, 2006). Hendin and Haas (1991) found guilt related to combat actions was the most significant predictor of both suicide preoccupation and suicide attempts. King et al. (1995) first proposed the mediating effect of guilt between atrocities–abusive violence and PTSD even though it was not tested. Fontana and Rosenheck (2004) conducted one of the few studies on guilt and PTSD and found associations between guilt, loss of faith, and PTSD. They advocated for the inclusion of spirituality in the treatment of PTSD to better address existential questions resulting from traumatic combat experiences.

In this study, guilt is defined as a sense of wrongdoing and difficulties reconciling with such failings. This definition emphasizes the subjective and personal moral interpretation of right or wrong as well as reconciliation of one's failures. Even though they were doing what was expected by the military, many veterans internalized a sense of guilt when their actions conflicted with personal moral values (Hendin & Haas, 1991; Kubany et al., 1996; Silver & Rogers, 2002; Tick, 2005). Better understanding of the

role guilt plays in the development of PTSD and other difficulties may bear important treatment implications.

PTSD

According to the DSM-IV, PTSD describes the resulting characteristic symptoms following a traumatic event. The diagnosis of PTSD requires: 1) exposure or witness to an extreme traumatic, and potentially life-threatening, event; 2) consequent intense reactions of fear and hopelessness; and 3) at least one symptom from each of the three resulting symptom clusters: reexperiencing the event, avoidance of traumatic reminders and numbing of responsiveness, and hyperarousal. In this study, the severity of PTSD would be assessed according to the DSM-IV clusters of symptoms to evaluate what PTSD symptoms the participating veterans most struggle with.

PWB

The construct of psychological well-being in this study consists of three aspects: self acceptance (having a positive attitude towards oneself), purpose in life, and satisfaction with life. Combat veterans reported struggling with a loss of identity, difficulty in forgiving themselves, and being haunted by self perceptions of having become a murderer because of combat experiences (Tick, 2005). Some struggled with interpersonal relationships and violence (Kessler et al., 1995; Shalev et al., 1998). Others experienced a loss of purpose in life (Fontana & Rosenheck, 2004) and engaged in high risk behaviors that resulted in mortality (Johnson et al., 2004).

On the other hand, studies also found positive effects after traumatic events. As discussed previously, Lazarus (1993) found the ability to reappraise the outcome positively (e.g., I have grown as a result of this experience) tended to be a stable coping

strategy in given persons. Such strategies may lead to more successful emotional coping, especially under situations that cannot be changed. Positive self concept (e.g., feeling more confident), improved social relations, and perception of personal growth have been reported to follow stressful events (Updegraff & Taylor, 2000) such as peace keeping missions (Dirkzwager, 2005; Schok, Kleber, Elands, & Weerts, 2008). The assessment of PWB in the above three aspects provides a more comprehensive understanding of the interplay between specific risk factors and post-deployment adjustment issues.

Significance of the Study

The current study seeks to make its unique contribution to the current literature on PTSD among Iraq/Afghanistan War veterans by clarifying and delineating circumstantial factors from psychological factors. Specifically, the inclusion and expansion of the agency construct distinguishes veterans' "active" involvement in combat from "passive" exposure. The guilt construct assesses personal sense of responsibilities. While guilt has been hypothesized to possibly mediate the relationship between combat and PTSD (King et al., 1995), very few studies have been conducted to directly examine the mediation hypothesis (Marx, Foley, Feinstein, Wolf, Kaloupek, & Keane, 2010). By incorporating issues encountered in treatment through examining the mediating effects of guilt, the study aims to bridge the gap between research and clinical practice in the understanding of PTSD and PWB among veterans. Investigating effects of guilt may also provide support to Lazarus' coping theory (1993) that emphasized the importance of emotional meaning in coping with stressful encounters. Last, future researchers are encouraged to explore whether the conceptualization and findings of this study can be applied to other

professional sectors, such as the police force, firefighters, or medical professions that may involve higher exposure and involvement in potentially traumatic situations.

Chapter 2

Review of Related Literature

This chapter reviews related literature in the following 10 sections: (a) history of PTSD, (b) pervasive chronicity of PTSD symptoms, (c) combat exposure and impact, (d) perceived threat, (e) agency, (f) war zone trauma related guilt, (g) what Iraq/Afghanistan war veterans face, (h) implications of PTSD among recent veterans, (i) treatment approaches for PTSD and other war zone related psychological distresses, and (j) psychological well-being. This literature review provides the contextual information regarding all constructs examined in this study.

History of PTSD

Since the publication of DSM-III by the American Psychiatric Association in 1980, the name PTSD has been used as the official diagnosis for the clusters of symptoms (such as nightmares, flashbacks, and hyper-alert) experienced by combat soldiers. However, these symptoms were long observed in returning soldiers throughout history. Over the years, different names were given to what is currently identified as PTSD. In the Civil War era, soldiers complained of heart pain with no known evidence of cardiac disease. Jacob Mendes Da Costa termed the condition irritable heart (Kinzie & Goetz, 1996). It was later called soldier's heart. During World War I (WWI), PTSD symptomology was known as Shell Shock because of the belief that the problem was caused by air pressure changes from exploding bombs. By World War II (WWII), psychiatrists identified the emotional distress war veterans experienced as combat or war neurosis, indicating the belief that a normal personality could undergo any type or amount of war trauma without problems (Shapiro & Forrest, 1997). Furthermore, it was

believed that those who manifested symptoms indicated cowardice (Hayman et al., 1987). The stigmatizing views of trauma distresses deterred veterans from talking about their symptoms and pain for fear of being seen as weak.

During WWII, Combat Fatigue became the new label, given the understanding that “‘breakdown’ could occur to anybody who was in battle long enough” (Hansel, Steidle, Zaczek, & Zaczek, 1995, p. 1). Additionally, the term posttrauma concussion syndrome was used to describe ongoing disturbance of consciousness without obvious pathologic change in the brain (Jones, Fear, & Wessely, 2007). During the Korean Conflict, the first DSM (American Psychiatric Association, 1952) was published which included “gross stress reactions” as a diagnosis for symptoms resulting from exposure to extreme stressors (Friedman, Resick, & Keane, 2007). For the most part, it was believed that post-combat symptoms were transient, and would resolved on their without leading to morbidity (Grieger & Benedek, 2006). Incidentally, the DSM-II (American Psychiatric Association, 1968), published at the height of the Vietnam War, eliminated the category. It was suspected that political motivations accounted for the sudden disappearance of the diagnosis (Friedman et al., 2007).

As reports of trauma symptoms increased post Vietnam conflict, there was a call to put the diagnosis back to the DSM. Additionally, during that time, the women’s movement also raised public awareness towards child sexual abuse, battery of women, domestic violence, and rap traumas. The strong support from veterans and feminist advocacy groups made the recognition of trauma a historical imperative. There was an increased awareness and interest in the long-tem effects of trauma. In 1980, DSM-III included PTSD as an official diagnosis, and the next revision, DSM-III-R (American

Psychiatric Association, 1987), developed the main diagnostic criteria of PTSD that exist today. As Friendman and colleagues (2007) commented, “PTSD emerged from converging social movements rather than academic, clinical, or scientific initiatives. As a result, PTSD received an ambivalent, if not hostile, reception in many prominent psychiatric quarters when it was first introduced in 1980” (p. 12).

Additionally, in 1980 when the Veterans Administration (VA) authorized compensatory payment for veterans suffering from chronic combat-related PTSD, many Vietnam veterans, and a few Korea and WWII veterans, who continued to experience recurrent flashbacks of battlefield horrors stepped forward to make claims. Inevitably some instances of symptom fabrication occurred in the rush of claiming for compensation (Murray, 1992). Efforts to clarify and validate the new PTSD diagnostic category catalyzed studies on war-related stressors. What followed was a period of rigorous research to test “the legitimacy of PTSD as a diagnosis” (Friendman et al., 2007, p.12). Findings substantiated PTSD as distinct from other diagnosis such as depression or anxiety. Additional medication research also provided evidence to the differentiation of PTSD from diagnosis such as anxiety or depression (Murray). For example, it was discovered hospitalized veterans experiencing PTSD had significantly lower mean cortisol levels than those with diagnoses of bipolar depression or undifferentiated schizophrenia (Yehuda, Southwick, Nussbaum, Wabby, Giller, & Mason, 1990). Also, PTSD combat veterans had higher heart response and increased heart rates than that of the comparison group when given stimuli relevant to combat (Blanchard, Kolb, Gerardi, Ryan, & Pallmeyer, 1986). While there continues to be debates about whether symptoms such as avoidance and numbing should be grouped together in a cluster, or whether the

current PTSD diagnostic criteria sufficiently encompasses symptoms of complex trauma (Herman, 1992), the legitimacy of PTSD as a diagnosis is no longer in question (Friendman et al.).

To date, PTSD has come to represent the long-lasting physical and psychological impacts of overwhelming events such as war or natural disasters. It is understood that anyone could develop symptoms of PTSD given the magnitude of trauma, despite psychological resources of the victims or survivors (Hansel et al., 1995). The dose-response relationship is one of the most robust findings no matter whether the trauma was natural disaster, war zone exposure, sexual assault, or terrorist attack (Friedman et al., 2007).

Pervasive Chronicity of PTSD Symptoms

Matsakis (2007) described the pervasive nature of PTSD symptoms beautifully: From the beginning of time, warriors have come home only to find the war they left behind still raging in their hearts and minds. For some, the impact of combat begins on the battlefield or soon after coming home; for others, it manifests itself years or even decades later; for still others, it never surfaces in any recognizable form, yet it leaves an indelible stamp upon their lives and the lives of those who love them (p. 20).

Even though returned veterans have physically left the battlefield, oftentimes traumatic memories follow them as if the war continues, now in their body and mind, thousand of miles away from the battlefield. There may be intrusive images of combat trauma during the day, or in nightmares and vivid dreams in the night that awaken veterans in sweat. These images (flashbacks) and dreams are often recurrent, not

dissimilar to broken records that continue to play the same notes over and over, seemly stuck. The images are unique and specific to each individual, signaling aspects of their war zone experiences that were most disturbing them. Sounds from a passing plane or helicopter, the backfire of a car, and exploding fireworks could trigger hyperventilation, causing veterans to feel or act as if they were back in battle (Hansel et al., 1995).

Triggers such as these interfere with daily functioning, causing veterans to be in hyperarousal constantly, unable to relax, like a pressure cooker ready to explode. At times, they may inhibit veterans' ability to return to their previous civilian job responsibilities. For example, the current author worked with a returned veteran who was unable to continue with his police duties because he could not practice shooting in the range without getting triggered. Or returned veterans reported unable to drive safely on the highway because of the defensive driving they got used to during war to avoid ambush and bomb explosion (Matsakis, 2007).

Sometimes, the traumatic memories are fragmented, making it difficult for veterans to pinpoint specific triggers or how present anxiety connects to certain wartime experiences. The veterans know something is wrong, but they often cannot explain what is wrong and why (Hansel et al., 1995). The mysterious, pervasive, and intrusive nature of PTSD symptoms contributes to veterans' feelings of powerlessness and loss of control. These veterans may resort to numbing and emotional distancing, which may not have been their characteristic coping strategies before the war. As proposed by Lazarus (1993), people's coping strategies change in the process of stressful encounters depending on the context and intensity of the events. Numbing, avoidance, and distancing could become the primary coping mechanisms when one becomes too

overwhelmed. While these coping mechanisms may have been important survival defenses that served the combatants well during and after their war zone engagement, continuing to rely on these coping strategies may be detrimental to their emotional and relational adjustment post-war.

Studies have found the withdrawal/numbing and arousal/lack of control symptoms related to effects of combat exposure negatively impacted family adjustment (Galovski & Lyons, 2004; Taft et al., 2008). Additional findings suggest emotional numbing may be the PTSD component most closely linked to interpersonal impairment among war zone veterans (Ruscio, Weathers, King, & King, 2002). In comparison of two groups of veterans (n = 20 each), one with combat experience but no PTSD, and the other with combat exposure and PTSD, combat veterans with PTSD were found to have more difficulties disclosing their intimate feelings and were ill adjusted in marital relations (Carroll, Rueger, Foy, & Donahoe, Jr., 1985).

The prolonged symptoms of PTSD place a heavy burden on distressed veterans' partners and families. A study of 89 cohabitating female partners of male veterans in outpatient PTSD treatment found high levels of psychological distress among these female partners, with elevations on clinical scales at or exceeding the 90th percentile (Manguno-Mire et al., 2007). In a longitudinal study of 348 Gulf War veterans, Benotsch, Brailey, Vasterling, Uddo, Constans, and Sutker (2000) found the chronicity of PTSD places additional demands on limited and depleting coping resources as the veterans and their families attempted to the debilitation emotional and psychological stresses of PTSD symptoms. Consequently, at the 13 month follow up assessment, the veterans reported fewer personal resources and more PTSD symptoms.

In summary, PTSD symptoms are often mysterious, pervasive, intrusive, and chronic. Consequently, veterans may resort to emotional numbing or withdrawal to cope with the relentless presence of these symptoms. The pervasiveness and chronicity of PTSD symptoms place stressful demands on already strained resources of veterans and their families.

Combat Exposure and Impact

As discussed in Chapter 1, studies have established a dose-response relation between combat exposure and PTSD; the greater the magnitude of exposure, the more severe the PTSD symptoms (Clancy et al., 2006; Fontana & Rosenheck, 2004; Ikin et al., 2007; Koenen et al., 2007; Rona et al., 2009; Taft, Schumm, Panuzio, & Proctor, 2008). Helzer et al. (1987) found PTSD syndrome in Vietnam veterans who had participated in combat, were wounded, or saw others killed or wounded. Even the rigorous military training of Special Forces did not lessen the impact of Vietnam combat exposure on PTSD (Chemtob, Bauer, Neller, Hamada, Glisson, & Stevens, 1990).

In the National Vietnam Veterans Readjustment Study, Kulka et al. (1990) assessed the lifetime prevalence of PTSD among Vietnam combat veterans was 30.9%, and additional 22.5% experienced partial PTSD symptoms. The study also found a 10% lifetime prevalence of depression, and a 50% of lifetime rate of alcohol abuse among those who went through intense combat. In their study of 131 referred Gulf War veterans, Labbate, Cardena, Dimitreva, Roy, Engel (1998) found 69% had DSM III-R axis I conditions. Additionally, in a study of 120 Gulf War veterans, Stein et al. (2005) found combat exposure and avoidant coping contributed to PTSD symptom severity.

Their results also indicated that combat exposure moderated the direction and strength of PTSD's relationships with avoidant coping and childhood trauma.

To cope with the stressors of combat and war zone traumas, soldiers may resort to the use of alcohol or other substances as a way of calming their nerves. High use of heroin and other substances were reported among combat veterans in the later stages of the Vietnam War. Serious violence directed toward Vietnamese civilians as well as superior officers were also noted (Boman, 1982).

As discussed previously, soldiers in Operation Iraqi Freedom (OIF) experience high level of combat exposure. Over 97% veterans (Marines) reported being shot at, over 94% saw dead bodies / human remains, and over 87% reported knowing someone seriously injured or killed (Hoge et al., 2004). It is not surprising that similar results of substance use among soldiers in OIF have been reported. The Mental Health Advisory Team under the U. S. Army surveyed 2,279 active duty combatants in Iraq and found 8% of these soldiers reported using alcohol in theatre, and 1.4% reported using illicit substances. Since alcohol consumption is banned in theatre with severe penalties accrued for the illegal possession of alcohol or drugs, the incidents are likely to be under-reported (Sammons & Batten, 2008). In a study of 120 OIF/OEF (Operation Enduring Freedom) veterans six months after their return, Erbes, Westermeyer, Engdahl, & Johnsen (2007) reported problematic drinking levels were elevated to 33%. Other studies also attested to how substance abuse has become a common problem affecting returning combatants and their families (Batten & Pollack, 2008; Erbes, Polusny, MacDermid, & Compton, 2008).

Koller, Marmar, and Kanas (1992) observed that combatants often had (a) a profound sense of aloneness and alienation, feeling set apart from their civilian peers who

had not experienced war traumas; (b) various sorts of guilt for acts of commission or omission or for simply surviving while others perished; and (c) an overwhelming sense of powerlessness realizing that survival and fate are not self-determined. Combat veterans continuously have to cope with the extreme affects of fear, rage, guilt, and grief. As discussed in Chapter 1, often the combatants are left to deal with these psychological burdens on their own without much support from the larger society. It is no wonder numerous adjustment difficulties are noted among combat veterans. In addition to PTSD, substance abuse, and violence, combat veterans also struggle with a host of other psychological and health problems, including depression, anxiety and/or phobias, hostility, dissociation, isolation, unemployment, disabilities, and interpersonal, marital, and family discord (Boman, 1982; Boscarino, 2006; Constans et al., 1997; Glasser, 2006; Jakupcak et al., 2007; Jakupcak et al., 2008; Johnson et al., 2004; Jones, 2004; Kessler et al., 1995; Kirby et al., 2008; Kulka et al., 1990; Marciniak, 1986; Miller et al., 2008; Qureshi et al., 2009; Rosenheck et al., 1997; Sayers et al., 2009; Schroder & Dawe, 2007; Shalev et al., 1998; Wagner et al., 2007).

Moreover, combat exposure does not only impact veterans or even their partners, as researchers also found intergenerational effects of combat exposure on veterans' families. Rosenheck and Fontana (1998b) conducted two studies that compared two groups of veterans with PTSD: one group whose fathers also served in combat and the other group whose veteran fathers did not. The results indicated those whose fathers were in combat had more severe PTSD symptoms, guilt, suicidality, and loss of religious faith. Other studies also found evidence of secondary traumatization in combat veterans' families. Suozzi and Motta (2004) found affective responses of adult children of combat

veterans toward combat related stimuli impacted by level of combat intensity reported by their parent-veterans. Galovski and Lyons (2004) identified the mediating the effect of PTSD between veterans' combat experience on the family. Their results indicated that veterans' arousal/numbing symptoms are especially predictive of family distress. Moreover, veterans' anger is also related to troubled family relationships and secondary traumatization of family members.

In sum, the severity of PTSD symptoms is strongly related to the degree of combat exposure. Substance abuse seems to have become a prevalent problem affecting active service member as well as returning veterans and their families as they cope with the direct and/or vicarious intergenerational effects of combat trauma.

Perceived Threat

In modern warfare, one does not need to be in direct combat to experience life threats. Chemical and or biological weapons can expose soldiers to harm and cause damage to health. The constant fear of being exposed unknowingly to such agents certainly heightens the anxiety of deployed soldiers and increases the risk of developing PTSD and/or anxiety disorder. Additionally, the beliefs of being exposed could also have psychological and physical impacts.

Results from a study of 44,168 Gulf War veterans indicated those veterans who reported more exposures to potentially toxic agents also reported more physical symptoms during the war and were more likely to report poorer current health status and be diagnosed with a mental disorder (Stuart, Ursano, Fullerton, Norwood, & Murray, 2003). The study provided evidence for the impact of perceived threat because the U.S. military issued repeated statements to clarify that there has been little evidence on the

exposure of chemical agents for large groups of military service members during the Persian Gulf War (Stuart et al., 2003).

In an attempt to understand why Gulf War veterans believed they were exposed to toxic agents in spite of reassuring statements from the U. S. military, Brewer, Lillie, and Hallman (2006) conducted a study with 1,009 veterans (including Gulf War and non-Gulf War veterans), and found only 6% of non-Gulf War veterans reported exposure to chemical or biological warfare, while (64%) of Gulf War veterans reported exposure. The most commonly reported reasons for such a belief were due to receiving an alert (37%), having physical symptoms (23%), and being told to wear protective gear (21%). Brewer et al. articulated that the media coverage warning of possible exposure and the military's extensive training and alters to such dangers probably contributed to the belief of exposure to the point of interpreting physical symptoms as result of chemical or biological exposures.

Even when one is not in combat, the constant anticipation of the threats of enemy fire keeps soldiers in hyperarousal states and increases the level of psychological stress. Confirming Lazarus' stress theory (1981), Solomon, Mikulincer, and Benbenishty (1989) found greater appraisal of threat predicted the severity of PTSD symptoms. King et al. (1999) found perceived threat of death or bodily harm a major mediator accounting for the association between combat experiences and PTSD symptom severity. Additionally, in their study of 376 Vietnam veterans, Orcutt, King, and King (2003) found perceived threat significantly associated with intimate partner violence through the mediation of PTSD. In other words, higher assessment of perceived threat directly correlated to the severity of PTSD, which in turn correlated to the severity of domestic violence.

Agency

As discussed in Chapter 1, while many studies have established a dose-response relation between combat exposure and PTSD (Clancy et al., 2006; Fontana & Rosenheck, 2004; Ikin et al., 2007; Koenen et al., 2007; Rona et al., 2009; Taft, Schumm et al., 2008), few have distinguished the “active” involvement in the war from the “passive” exposure to war traumas. An interesting example mentioned in Chapter 1 was the study by Hoge et al. (2004). Unlike most of the studies that focused mainly on “passive” combat exposure, Hoge et al. included three questions that indicated a certain level of agency: “Shooting or directing fire at the enemy”, “Being responsible for the death of an enemy combatant”, “Being responsible for the death of a noncombatant.” In their survey of three sample groups, Afghanistan army service members (n = 1,962), Iraq army service members (n = 894), and Iraq marines (n = 815), the number and percentages for answering yes to the first question were, respectively, 534/1961 (27%), 672/879 (77%), 692/800 (87%); for the second question were 229/1961 (12%), 414/871 (48%), 511/789 (65%); and for the third question were 17/1961 (1%), 116/861 (14%), 219/794 (28%) (see Table 1 below for easier visual comparison).

	Afghanistan / Army (N = 1962)	Iraq / Army (N = 894)	Iraq / Marines (N = 815)
Being shot at or receiving small arms fire	1302/1962 (66%)	826/886 (93%)	779/805 (97%)
Shooting or directing fire at the enemy	534/1961 (27%)	672/879 (77%)	692/800 (87%)
Being responsible for the death of an enemy combatant	229/1961 (12%)	414/871 (48%)	511/789 (65%)
Being responsible for the death of a noncombatant	17/1961 (1%)	116/861 (14%)	219/794 (28%)

Table 1: Combat Experiences Reported by Members of the U.S. Army and Marine Corps after Deployment to Iraq or Afghanistan (Partially reproduced from Hoge et al., 2004)

Several observations can be made from looking at the numbers provided. First, it is clear that a distinction can be made between combat exposure and combat involvement according to the data provided above: from being attached, to shooting, to causing deaths. Second, a higher number/percentage of Iraq service members fired at the enemy or were responsible for the death of either an enemy or noncombatant. The marines were the most actively involved and had the highest percentage of reporting having caused death. Third, the Afghanistan / Army sample group had only one person who did not respond to the above questions, while the other two groups had more participants who did not respond to the above questions. Interestingly, progressively more participants did not answer the questions as the questions moved from exposure to levels and outcomes of their combat involvement. These observations make one wonder whether different levels of combat involvements may have impacted the development of PTSD or other mental disorders differentially. Also, one wonders why some participants chose not to answer certain questions. However, Hoge et al. (2004) did not discuss any aspect of these observations.

As discussed in Chapter 1, according to studies conducted for the International Symposium of Children and War in 1983, civilians consisted of 5% of all casualties in WWI, 50% in WWII, and over 80% in the Vietnam War (as cited in Summerfield, 1995). What are the psychological impacts of increased civilian casualties on combat veterans? Little research has been conducted to answer such a question. In fact, only a handful of study specifically examined the impact of killing or atrocity.

Using a sample of 1,709 treatment seeking Vietnam veterans, Fontana and Rosenheck (1992) found being a target of killing is most strongly associated with PTSD,

while suicidal thoughts were related to being an agent of killing/injuring, or failure to prevent killing/injuring of others. Fontana and Rosenheck concluded that PTSD seemed to be connected more to traumas with low personal responsibility while suicidality appeared to be associated more with traumas high in personal responsibility.

Murray (1992) reported that witnessing the death of comrades, combat exposure, its duration, and participating in atrocities were the most frequent factors associated with PTSD. Glover (1985) noted that combat soldiers who knowingly killed Vietnamese civilians often experienced later guilt and manifested signs of depression, paranoia, or aggression. Several studies found atrocities related to severity of PTSD and/or guilt (Beckham et al., 1998; Falk, 1982; Vergolias, 1998; Yehuda, Southwick, & Giller, 1992). Another study of 1,323 male Vietnam veterans found combat-related guilt partially mediated the relationship between PTSD and exposure to combat-related abusive violence, but completely mediated the relationship between PTSD and major depression (Marx et al., 2010). A more recent study of 2,797 OIF soldiers found 40% of those in the study reported killing in combat. After controlling for combat exposure, killing still was a significant predictor for PTSD (Maguen et al. 2010).

Schapiro, Glynn, Foy, and Yavorsky (2002) found Vietnam veterans who engaged in war zone atrocities were more likely to report long-standing dissociative symptoms. Even years after the war, Vietnam veterans may continue to exhibit guilt, shame, self-hatred, and a sense of being unforgivable for the atrocities they committed (Singer, 2004). Using data from the National Vietnam Veterans Readjustment Study, MacNair (2002) found the veterans who reported having killed scored higher on PTSD assessment than those who did not. PTSD scores were even higher for those who were

directly involved in atrocities compared to the ones who only witnessed such atrocities. Even those who killed in combat scored high in PTSD. The results remained constant regardless of battle intensity. Additionally, Rosenheck and Fontana (1998a) found adverse transgenerational effects of violence. Children of Vietnam veterans who engaged in abusive violence showed more behavioral disturbance than those whose fathers (also Vietnam veterans) did not.

The above studies may provide preliminary findings that demonstrate combat veterans who actively participated in killing and atrocities may suffer more post-war psychological difficulties. The psychological stressors related to acts of killing and/or atrocities may also contribute to adverse transgenerational effects of violence

War Zone Trauma Related Guilt

Guilt has often been understood as “a consequence of some real or imagined violation of the conscience, as a feeling of culpability for offenses, and as regret accompanied by self attribution” (Opp & Samson, 1989, p. 159). Studies and clinical vignettes have documented the debilitating severity of guilt reported by combat veterans with PTSD (Beckham et al., 1998; Beckham et al., 2000; David et al., 1999; Fontana & Rosenheck, 2004; David, Kutcher, Jackson, & Mellman, 1999; Gilmartin & Southwick, 2004; Glover, 1988; Hendin & Haas, 1991; Henning & Frueh, 1997; Kubany et al., 1996; Kubany et al., 1997; Ramchandani, 1990; Shatan, 1974; Silver & Rogers, 2002; Singer, 2004; Sonnenberg, 1996; Tick, 2005; Westwood, Black, Kammhuber, & McFarlane, 2008; Wilson et al., 2006). War zone trauma related guilt was an especially prevalent problem for Vietnam veterans. In a mixed sample of 74 treatment and non-treatment seeking Vietnam veterans ranging from 40 to 64 years old, nearly 65% reported moderate

guilt, and 32% reported guilt in the extreme range (Kubany et al., 1996; Kubany, 1997). The percentage is even higher among the treatment seeking subgroup (n = 45), with 82% reporting moderate guilt, and 51% reporting an extreme range of guilt (Kubany et al., 1996; Kubany, 1997).

As Lifton (1973) wrote, "The American survivor of Vietnam carries within himself the special taint of war. His taint has to do with guilt evoked by death. His most disturbing images are of particular encounters with the dead and dying" (p. 99). Clinicians treating PTSD in combat veterans consistently encounter the pervasive, unrelenting effect of guilt in the veterans' lives and its resistance to treatment. In fact, guilt was understood as such an integral part of PTSD (Parson, 1986) that DSM-III listed survivor guilt as one of diagnostic criteria of PTSD. It was later removed in the DSM-IV (Glover, 1984). Interestingly, even though clinicians encounter guilt as one of the most debilitating factor of post-war adjustment, not much attention has been paid to this important psychological construct. While there are more than 5,200 articles published since 1967 on military veterans according to PsycINFO, only about 130 articles, or 2.6% of what has been published, addressed war-related guilt in some form. The lack of attention to guilt indicates a gap between clinical observations and research studies.

Psychological Impact of Guilt

War zone related guilt raises concerns because of its relationship with other indicators of adjustment difficulties and psychopathology. Glover (1985) noted that combat soldiers who willfully killed Vietnamese civilians often later experienced guilt and manifested signs of depression, paranoia, or aggression. In another study, Glover (1988) discussed the association between guilt and disturbances in interpersonal

relationships, aggression, and alterations in self-concepts. Hyer, McCranie, Woods, and Boudewyns (1990) found survival guilt related to suicidal behaviors. Hendin and Haas (1991) and Hendin (1992) found guilt related to combat actions was the most significant predictor of both suicide preoccupation and attempts. Henning and Frueh (1997) found guilt positively related to PTSD severity and the re-experiencing and avoidance symptoms of PTSD. In their studies of 58 and 74 Vietnam veterans, Kubany and colleagues (1995, 1996) found trauma-related guilt correlated .80 and .72 respectively with Mississippi Scale for Combat-Related PTSD (M-PTSD), and .65 and .69 with the Beck Depression Inventory. Their 1996 study with 74 Vietnam veterans also indicated that trauma-related guilt was highly associated with social avoidance and anxiety (.53), lower self esteem (-.61), and suicidal ideation (.58).

Five Types of Guilt

What do combat veterans feel guilty about? Opp and Samson (1989) identified five types of guilt: survivor, demonic, moral/spiritual, betrayal/abandonment, and superman/superwoman.

Survivor's guilt. Some combat veterans carry a sense that they should have died, or that they do not deserve to live. Survivor guilt is often developed as a result of being one of the only survivors of a battle, having people nearby killed, being a prisoner of war (POW), or having survived because somebody else died to save the person. In life or death situations, combat veterans often deeply bond with one another, knowing individual survival depended upon fellow soldiers. In the events where one loses one's military buddies, there is often the desire to join the dead comrades with the accompanied guilt for having survived. Survivor guilt often prevents veterans from giving themselves

full permission to return to living their own lives. Consequently they may sabotage their own lives consciously or unconsciously, having little interest in living, and experimenting with extreme risk-taking behaviors, pushing their safety to the limits (Opp & Samson, 1989; Silver & Rogers, 2002; Tick, 2005). As Opp & Samson observed:

Suicidal impulses may be expressed through a history of personal or automobile accidents, provocative behavior in bars, fantasies involving their dying while rescuing others, or provoking law enforcement officials into shooting them. Alcohol and drugs are used in low or moderate but consistent doses as self-medication, and there is an increase in dose around anniversary dates or during current stimuli that mimic past traumatic events (p. 160).

These “alternative” forms of suicide may have made it difficult for researchers to accurately assess the suicidal rates among combat veterans.

Demonic guilt. Lifton (1973, 1992, 2005) commented that being a part of warfare makes the warrior aware of the monster in each human being. Demonic guilt may become further intensified when one experiences joy and power from aggressive acts such as killing or atrocities, which relieves one’s sense of powerlessness/helplessness in a combat arena (Opp & Samson, 1989). The combat soldiers who lose control and give in to their destructive impulses, especially in the forms of atrocities, may later be haunted by guilt for having unleashed the demonic power within them (Beckham et al., 1998; Falk, 1982). Veterans who experience this kind of guilt may feel contaminated and fear that others would shun them in disgust or fear if they were to find out what happened (Opp & Samson). They may be filled with self-hatred and feel unforgivable for the violence they committed (Singer, 2004). Veterans may feel as if they were spreading a plague (Lifton,

1973) and end up isolating themselves in order to protect their love ones from their monstrous impulses to hurt others (Opp & Samson; Silver & Rogers, 2002; Tick, 2005).

Moral/spiritual guilt. Most religions condemn killing as evil. Consequently combat veterans bear the societal collective guilt of violating such a command (Opp & Samson, 1989). Tick (2005) called it a spiritual wound and described the agony of a veteran who, instead of seeing himself as a warrior or hero, struggled with a sense of having become a murderer. The violation of spiritual values often resulted in a sense of alienation to one's religion and community, as well as loss of faith (Fontana & Rosenheck, 2004; Opp & Samson). Consequently it also severs the avenue toward forgiveness and spiritual reconciliation. Veterans may struggle with their anger towards God, or completely stop believing in God, further deepening their sense of life's meaninglessness. Some may feel the eternal condemnation for their actions, unable to believe in any possibility for forgiveness.

Betrayal/abandonment guilt. This guilt results from the feeling of not having done enough or not having done one's duties in combat. Veterans may have promised to return or to fulfill some duties but were unable to and ended up feeling the guilt of having betrayed or abandoned their fellow soldiers. Others may have indeed chosen to stay away from heavy combat mission and later felt guilty for having manifested cowardice and not caring enough (Opp & Samson, 1989). While there is some similarity between this guilt and survivor guilt, veterans with betrayal/abandonment guilt may experience more a sense of failure, and less a sense of not deserving to live.

Superman/superwoman guilt. This guilt tends to be an overcompensation to defend against the sense of powerlessness/helplessness. Soldiers at times develop

irrational expectations that they should have been able to foresee or prevent attacks, endowing themselves with infantile and omnipotent magical thinking and superhuman qualities. They feel personally responsible for the safety of the group, and berate themselves for not having been able to prevent catastrophes from occurring. This guilt is also often associated with a sense of failure.

Psychodynamic Functions of Guilt

In some incidents combat veteran guilt is perfectly understandable (e.g., having been the cause of deaths for others); at other times, the guilt expressed may seem illogical or irrational (e.g., feeling guilty about not having done more to save lives). Why do combat veterans hold on to their irrational guilt and why is guilt resistant to treatment? Opp and Samson (1989) summarized four main functions of guilt among veterans: “defending against helplessness, effecting self-punishment, inhibiting impulses, and preventing the event from becoming meaningless” (p. 160). Veterans often are repeatedly put in situations in which they may have to violate internalized social, personal, and religious standards in order to survive. They have to “temporarily disable the self-governing function of guilt” at critical moments of crisis, only to retrospectively condemn themselves “for engaging in the very behaviors required for survival” (p. 160). Also, guilt serves as an important defense against the sense of powerlessness in the face of war horrors. It gives the illusion of control and makes one feel responsible for what happens, for to feel helpless or powerless is more pain than feeling guilty. Consequently, one may engage in self-repugnant behaviors for having failed to fulfill one’s responsibilities. Additionally, guilt may also protect veterans from their murderous rage impulses or a psychotic breakdown. Last, guilt precludes forgetting, thus the incidents or

traumas do not fade from memories easily, and the events do not become meaningless. Opp and Samson suggested that these powerful functions of guilt might explain why some veterans resist therapeutic interventions.

Multiple Sources of Guilt

One of the most thorough research studies of war zone trauma related guilt was conducted by Kubany et al. (1997). In a series of five studies in the development of the Trauma-Related Guilt Survey–War-Zone Version (TRGS-WZ), a 125-item survey systematically assessed sources of guilt across the spectrum of events considered to be potential sources of war zone trauma related guilt. Examples of potential sources of guilt included various forms of violence (e.g., ranging from killing to hurting or assaulting) towards various objects (e.g., ranging from hurting humans to farm animals). They presented several findings in their studies. First, in two of their studies, with a total combined sample of 106 clinical/nonclinical participants, Kubany and colleagues found on average that veterans reported at least moderate guilt on more than 30 sources listed. Based on this finding, Kubany and colleagues concluded that the scope of war-related guilt “is extremely broad” (p. 246).

Second, Kubany et al. (1997) presented six most common sources of guilt, each reported by 60% or more of the 106 veterans in the sample as at least moderate guilt:

- (a) "Not being able to do more for those who were wounded or suffering" (70%);
- (b) "Surviving an incident, battle, or the war when others did not" (65%);
- (c) "Not having a proper way of saying goodbye for someone who died" (65%);
- (d) "Your inability to save lives of or prevent harm to buddies, other Americans, or our allies" (64%);
- (e) "Seeing or hearing about Americans

who had been killed by the enemy" (61%); and (f) "Seeing or hearing about children who had been killed, wounded, or crippled by military actions" (61%) (pp. 245-246).

Kubany et al. (1997) noted that the findings were striking because the responses did not confirm the popular view that deemed the perpetration of trauma (such as killing or brutality) as the most common source of Vietnam-related guilt. In fact, their findings suggested that the most common source of Vietnam-related guilt were about "anguish over not having done more to protect, prevent harm to, and/or alleviate suffering of other Americans and innocent civilians" (p. 246). The findings from Kubany et al. confirmed other clinical observations of survivor's guilt and the guilt from a sense of failure, of not having done more (Silver & Rogers, 2002; Tick, 2005). It is important, however, to note that the most common sources of guilt may not be the same as the most debilitating sources of guilt. In addition, the study did not indicate whether the relatively less reported perpetration guilt was due to not having participated in perpetration, or simply not feeling guilty over perpetration.

Kubaney et al. (1997) emphasized that it is importance for clinicians to identify specific sources of guilt in their treatment of returned veterans. They hoped that the TRGS-WZ be used as a clinical and research tool to more thoroughly identify the kinds of guilt veterans could be struggling with. However, to date, no further studies have been published regarding the use of this instrument. It is possible the sheer number of questions may have discouraged researchers from enthusiastic use of this instrument.

To conclude, studies have pointed out the relationship between war zone related guilt with other indicators of adjustment difficulties, ranging from PTSD, depression,

aggression, to suicidal ideation and attempts. Researchers and clinicians are called upon to understand more in depth the specific sources of guilt individual veterans may be struggling with in order to provide more effective treatment.

What Iraq/Afghanistan War Veterans Face

Going through the day to day routines in the relatively peaceful U. S. terrain, one may forget that the U.S. is at war, far away on the foreign lands of Iraq and Afghanistan. Riding on the righteous anger towards the violent assault on 9/11 on America's soil, the US invaded Afghanistan (Operation Enduring Freedom; OEF) on October 7, 2001, and Iraq (Operation Iraqi Freedom; OIF) on March 20, 2003 (Marmar, 2009). What was anticipated to be a swift attack to end terrorists' threats is now a war well into its eighth year, lasting longer than any active military conflict in American history. Over 4,000 U. S. service members have died, and over 30,000 have been injured in Iraq alone. The cost in Iraqi civilian lives may have exceeded 100,000, not counting the toll due to injuries and other destructions (Sammons & Batten, 2008; Tanielian & Jaycox, 2008). About 1.6 million American soldiers and personnel have been deployed to Iraq or Afghanistan. These combat tours are longer than tours in other wars. Over 90% of deployed veterans were exposed to battles (Hoge et al., 2004). The shortages in military personnel resulted in extensive use of reserve forces and National Guard as well as multiple deployments for many of these service members, disrupting the family lives of these soldiers due to the prolonged and repeated family separation (Grieger & Benedek, 2006).

Researchers also found other important differences that distinguish the Iraq/Afghanistan wars from other military conflicts the U. S. has engaged in before the 1990's, including the nature of combat and exposure, the characteristics of deployed

soldiers, the kind of injuries sustained, and the survival rates from injuries (Grieger & Benedek, 2006). These changes in the nature of the wars in Afghanistan and Iraq pose distinct psychological impact on returned service members.

The Nature of Combat and Exposure

As Sammons and Batten (2008) elaborated:

It is commonly observed that conduct of an unconventional war, with an enemy who cannot be distinguished from civilians, who cannot be readily engaged, and who employs a relatively random and highly lethal technology (improvised explosive device or IED) creates additional psychological risk to combatants.

Less commonly noted, but perhaps of equal significance, is the absence of a front line of combat operations. Service members may perform their entire tour in a zone of active conflict with little respite from the constant vigilance required in such settings. Many larger installations in Iraq, although relatively safe, still receive incoming mortar fire. These attacks tend to be sporadic and of low lethality, but they do not allow service members an experience of refuge and stability away from combat (p. 922).

In addition to predictable sources of weapons such as small arms fire or rocket-propelled grenades, the OEF and OIF service members are faced with extensive use of mortar fire, car bombs, IEDs, and suicide bombers. Their dining areas, living quarters, and day-to-day routine travel routes are all subject to attack. The effects of such prolonged and constant vigilance and arousal are still unclear. However, researchers have begun to observe that in addition to typical PTSD symptoms of re-experiencing,

arousal, and/or avoidance, some veterans exhibited compulsive checking behaviors that appeared to be the results of combat traumas (Tuerk, Grubaugh, Hamner, & Foa, 2009).

The Characteristics of Deployed Soldiers

In their analysis of contemporaneous veterans, Fontana and Ronsenheck (2008) found Iraq/Afghanistan veterans differed in many ways from Vietnam veterans: they tend to be younger, more often working, and more likely to be female. Also, they are less likely to be either married or separated/divorced, to have ever been incarcerated, to report exposure to atrocities in the military, or to be diagnosed with substance abuse disorders. However, they manifested more violent behavior. They also had lower rates of VA disability compensation for PTSD. Fontana and Ronsenheck found that social functioning levels have largely been left intact among recent war veterans with PTSD. They therefore proposed focusing treatment interventions on the preservation of these social assets.

Injuries Sustained and the Survival Rate

In World War II, 22% of America's wounded combat soldiers died of their injuries, and 16% of those injured died in Vietnam. By contrast, 8.8% of those injured Iraq and Afghanistan war veterans died of their wounds (Eastridge, Jenkins, Flaherty, Schiller, & Holcomb, 2006). The lower battle mortality rate is a result of over a half century of advances in emergency medicine at the battlefield and improvements in protective equipment that have drastically reduced life-threatening abdominal and chest injuries (Grieger & Benedek, 2006; Sammons & Batten, 2008). However, the wounded soldiers are "returning with multiple complex injuries in unpredictable patterns" (Brenner, Vanderploeg, & Terrio, 2009, p. 239). Injuries suffered in multiple combinations include open wounds; eye, ear, spinal cord, and musculoskeletal injuries;

traumatic brain; traumatic amputations; and mental health problems. Glasser (2006) estimated the percentage of soldiers undergone amputations is twice that of any previous military conflicts. The term polytrauma was introduced to describe these complex blast-related injuries with an overlap of psychological difficulties (Brenner et al., 2009). As reported by Hoge et al. (2004), PTSD is associated with being physically injured. The implications of an increasing number of soldiers surviving with serious injuries (e.g., loss of limbs) who would have died in previous conflicts are possibly long term disability, chronic mental health issues, and increased needs for physical and psychological care (Mastnak, 2008). Preliminary findings suggested ongoing surveillance and availability of psychiatric care will be needed for returning veterans (Grieger & Benedek, 2006). As Glasser (2006) indicated through the title of his book, *A War of Disabilities: Iraq's Hidden Costs Are Coming Home*, millions of veterans, their families, as well as the larger society will continue to suffer the costs of the Iraq and Afghanistan wars for years to come (Armstrong, Best, & Domenici, 2006; Hendricks & Amara, 2008).

Traumatic Brain Injury

Much attention has been drawn to the traumatic brain injury (TBI), the signature injury of Iraq and Afghanistan Wars due to blast exposure from explosions from roadside bombs and IEDs (Brenner, Vanderploeg, & Terrio, 2009; Martin, French, & Janos, 2010; Moore & Jaffee, 2010; Sammons & Batten, 2008). It is estimated that 75% of combat injuries resulted from such explosive munitions (Owens, Kragh, Wenke, Macaitis, Wade, & Holcomb, 2008). In their study of over 1,900 service members and veterans, Tanielian and Jaycox (2008) estimated that 14% of respondents screened positive for major depression and another 14% for PTSD. Additionally, 19% possibly have experienced a

TBI while deployed. From these data, it is estimated that more than 300,000 Iraq/Afghanistan Wars soldiers may have diagnoses of PTSD or depression and that about 320,000 have experienced a possible TBI.

Assessment and treatment of TBI have emerged as a pressing need for OEF/OIF veterans. However, reliable and standardized and reliable assessments sensitive to emotional and cognitive changes from blast-related head trauma are still in various stages of development. Many soldiers exposed to blast are yet to be assessed for neurocognitive changes. Because little is known about the primary effects of blast, while attempts to delineate diagnostic criteria are underway, it is still difficult to distinguish the physical and psychological effects of blast from other mental disorders that are associated with it (e.g., anxiety disorders, PTSD, or depression resulting from loss of physical integrity) (French & Parkinson, 2008; Sammons & Batten, 2008; Taber & Hurley, 2007; Warden, 2006). Jones et al. (2007) advised against any overly simplistic labeling of a “signature” injury and emphasized that “disorders that cross any divide between physical and psychological require a nuanced view of their interpretation and treatment” (p. 1641). Jones et al. expressed serious reservations about the likelihood of finding a clear-cut distinction between physical and psychological injury because of the often co-existence of the two.

In conclusion, each war is unique. As discussed above, the nature of the Iraq/Afghanistan wars, the characteristics of deployed American soldiers, the types of injuries sustained, and the availability of current advanced medical interventions all contribute to the unique contextual setting of Iraq/Afghanistan war veterans’ experiences. The understanding of such contextual information is important in providing relevant and

effective treatments for post-war adjustment difficulties for the returned soldiers who bear the brunt of the modern warfare.

Implications of PTSD among recent veterans

As discussed in Chapter 1, Hoge et al. (2004) found the rates of PTSD, depression, and anxiety ranged from 15.6 to 17.1% among Iraq War veterans (n = 1,709) and 11.2% among Afghanistan War veterans (n = 1,962). Lew et al. (2008) studied the overlap of mild TBI and mental health conditions in returning OIF/OEF veterans, and reported that about 42% of OEF/OIF veterans with a mild TBI also manifested PTSD symptoms. In a population-based descriptive study of all Marines and Army soldiers who completed the routine post-deployment health assessment between May 1, 2003, and April 30, 2004, on their return from deployment to Afghanistan (n = 16,318) and Iraq (Operation Iraqi Freedom (n = 222,620), Hoge and colleagues (2006) reported 19.1% of returned Iraq war veterans experienced PTSD, in comparison to 11.3% among Afghanistan war veterans, and 8.5% who returned from other deployments (n = 64,967). Moreover, the post-deployment assessment results indicated that mental health problems were significantly associated with combat experiences and attrition from military service.

Milliken, Auchterlonie, and Hoge (2007) gave 88,235 returning Iraq combat soldiers a Post-Deployment Health Assessment immediately following their return from the war zone and a Post-Deployment Health Reassessment three to six months later. They found soldiers reported more mental health concerns at the reassessment. Clinicians identified 20.3% of active service members and 42.4% of all reservists required mental health treatment. Concerns about interpersonal conflict were four times higher at reassessment, indicating the importance of providing additional services for

spouses and family members. Soldiers reported concerns over alcohol use frequently, but very few were referred to substance treatment. Also veterans were more likely to report PTSD symptoms at reassessment, even though 49-59% of those with identified PTSD symptoms at first screening reported improvements at the reassessment. However, there was no direct relationship between referral/treatment and symptom improvements. Milliken et al. concluded that re-screening veterans several months after their return provide better assessment of needs for referrals and treatments.

Additionally, returning from extended (or multiple) deployments, veterans may find the awaiting family drastically changed (Hutchinson, & Banks-Williams, 2006). While reunion is a happy occasion, it also presents adjustment challenges for veterans and their families. In a study of 199 military veterans returned from Iraq/Afghanistan, 75% of the cohabiting /married veterans reported some type of family problem in the previous week. For example, some felt like a guest in their household (40.7%), some reported children not being warm or acting afraid (25.0%), while others felt unsure about their family role (37.2%). Among veterans who recently separated, 53.7% reported conflicts involving shouting, or pushing, and 27.6% reported their partner was afraid of them (Sayers et al., 2009). Disruptions in significant relationships was the most frequent reason cited for seeking mental health care among 27 Iraq and Afghanistan veterans (48%). Veterans felt coerced by their significant others to make and keep their therapy appointment (Snell & Tusaie, 2008).

Treatment Approaches for PTSD and Other War Zone Related Psychological Distresses

In spite of the extreme affects of guilt, fear, grief, and rage that combat veterans struggled with (Koller et al., 1992; Batres, 2003), and the prevalence/comorbidities of

PTSD and other related mental disorders as discussed previously, only a limited number of veterans utilize mental health services. It was estimated that veterans who seek help represent less than 23-40% of those with a diagnosis of PTSD or depression (Hoge et al., 2004). Erbes et al. (2007) found among veterans diagnosed with PTSD about 56% reported using mental health services. However, only 18% of those screening positive for alcohol abuse had sought help. Fear of being seen as weak, fear of hurting their careers, and the stigma of being diagnosed with a mental disorder deterred the distressed veterans from obtaining necessary treatments (Hoge et al., 2004). The historical lack of successes of interventions for PTSD also did not provide veterans reassurance for help seeking.

Some researchers have pointed out that veterans' responses to war experiences are not homogeneous (Egendorf, 1982; Elhai, Frueh, Davis, Jacobs, & Hammer, 2003; Koller et al., 1992; Orcutt, Erickson, & Wolfe, 2004). The clusters of PTSD symptoms often differ among veterans with diagnosed with PTSD (Elhai et al., 2003). While DSM-IV provides the general classifications of PTSD symptoms, it is important to note that the contents of guilt and PTSD symptoms differ for individuals. Often, the recurring memories or nightmares may provide clues to what is most traumatic to the specific individuals. Kulbany (1997) wondered whether the lack of specificity contributed to the limited effectiveness of treatment and called for clinicians to attend more closely to the sources and range of guilt and other symptoms. Similarly, Koller et al. (1992) emphasized that optimal clinical understanding of war zone traumas requires an awareness of the interaction of individuals' personal dynamics with the specific characteristics of their combat situations. Egendorf (1982) advised therapists and

researchers to recognize the diversity of veterans' experiences and responses to combat. He pointed out that even those veterans without a diagnosis can benefit from interventions to assist them with readjustment to civilian life. He stressed the importance of a more subtle conceptualization of stress that includes more varied forms of intervention for the veterans. Fontana and Rosenheck (1992) proposed that exposure therapy with the purpose of desensitization may be most effective in addressing PTSD symptoms of threats. However, they suggested that broader and more comprehensive treatments are needed to address sense of personal responsibility toward inflicting harm or failure to prevent harm. Overall, researchers and practitioners call for integrated services across mental health to address the comorbidities of psychological disorders veterans experience (Sammons & Batten, 2008). Additionally, Sammons and Batten emphasized the importance of identifying treatments that attend to the families and children of Veterans.

Findings of a Treatment Efficacy Study on Hypnotherapy, Psychodynamic, and Cognitive Behavioral Therapies

Foa and Meadows (1997) reviewed studies on using hypnotherapy, psychodynamic treatments, or cognitive behavioral treatments to treat PTSD. They proposed seven "gold standards" to more objectively evaluate treatment outcome studies (p. 453):

1. Clearly defined target symptoms: Foe and Meadows (1997) suggested that for outcome studies, participants should have clearly met the PTSD diagnosis, with inclusion criterion that clearly specifies threshold of symptom severity.

2. Reliable and valid measures: Researchers should use measures with good psychometric properties.
3. Use of blind evaluators: Using blind evaluators reduces biases from expectancy and creates a more solid treatment outcome study.
4. Assessor training: Training assessors ensures consistency in evaluation criteria and enhances inter-rater reliability.
5. Manualized, replicable, specific treatment programs: Manualized treatments are recommended to “ensure consistent treatment delivery across patients and across therapists and afford replicability of the treatment to determine generalizability” (p. 454).
6. Unbiased assignment to treatment: Researchers should utilize random assignment or stratified sampling approach.
7. Treatment adherence: Researchers should use treatment adherence rating to evaluate whether treatments are carried out as planned.

Using the seven gold standards, Fao and Meadows (1997) evaluated numerous treatment studies and concluded:

1. There was no evidence that demonstrated the effectiveness of debriefing and commonly used crisis interventions.
2. Due to the lack of methodological rigor in several studies reviewed, the efficacy of hypnotherapy as a treatment of PTSD was not adequately supported. However, one study conducted by Brom, Kleber, and Defres (1989) did use randomized assignment and standardized measurements, even though blind assessors were not used. The study demonstrated

psychodynamic therapy, hypnotherapy, and desensitization were effective.

Foa and Meadows (1997) acknowledged that although the study did not meet all the gold standards, the study “suggests that hypnotherapy, as well as desensitization and psychodynamic therapy, may somewhat alleviate posttrauma suffering” (p. 458).

3. Studies of psychodynamic psychotherapy “were inflicted with methodological flaws, including lack of controls, lack of adequate assessment of outcome, and vaguely described treatments” (Fao and Meadows, 1997, p. 461). While some studies may indicate the effectiveness of this particular treatment model, the lack of rigorous methodology made results uninterpretable. They concluded that future studies with more rigors are needed to evaluate the efficacy of the psychodynamic treatments for PTSD.
4. Cognitive Behavioral Treatments have been the most researched. The treatment approaches more easily rendered to better treatment adherence and evaluation. Of the studies reviewed, it was concluded that prolonged exposure (PE) (including both imaginal and in vivo exposure) and stress inoculation training (SIT) were effective on all three clusters of PTSD symptoms. In addition, there was consistent evidence supporting the efficacy of both imaginal and in vivo exposure for PTSD treatment.
5. There was some support for the effective of stress inoculation training (SIT). The approach was originally developed by Meichenbaum (1975) for anxious individuals. SIT’s incorporates educational and skills components such as thought stopping, relaxation, and guided self-dialog. While this treatment did

not focus on the full syndrome of PTSD, it targeted the fears, anxiety and avoidance over intrusions and flashbacks.

The analysis of treatment studies conducted by Fao and Meadows (1997) was thorough and informative regarding treatment approaches and effectiveness up to 1997. However, more up to date findings will also be presented here.

Cognitive Behavioral Therapies

Cognitive Behavioral Therapies have been recognized as successful treatment approaches to treating PTSD. The approaches include cognitive therapy, cognitive processing therapy, prolonged exposure, and stress inoculation therapy. CBTs postulate that rather than the event itself, it is the interpretation of the traumatic event that precipitates the symptoms (Friedman et al., 2007). Therefore, CBT treatment often focuses on eliminating irrational thoughts (e.g., “I should have been able to do more”, or feeling like a coward for being scared) resulted from war-related traumas.

Even though CBT interventions have demonstrated successes, in most of the randomized clinical trials that used components of CBT to treat PTSD, only about half of the patients achieve full remission of symptoms, leaving the other half with limited or no improvement after treatment. Friedman et al. (2007) therefore called for future evidence-based research to “investigate systematically which treatment (or combination of treatments) is most effective for which patients with PTSD under what conditions” (p. 9).

Pharmacological Interventions

More advances have been made regarding pharmacological interventions for PTSD. The U. S. Food and Drug Administration (FDA) approved two selective serotonin reuptake inhibitors (SSRIs) as indicated treatments for PTSD. However, randomized

clinical trials demonstrated only 30% of patients reach full remission with SSRIs (Friedman et al., 2007). The effectiveness of pharmacological interventions for PTSD, while hopeful, is still limited.

Eye Movement Desensitization and Reprocess (EMDR)

In spite of controversy and disbeliefs in the past decade regarding its speedy effectiveness, efficacy research has identified EMDR as an empirically supported treatment for PTSD (Chemtob, Tolin, van der Kolk, & Pitman, 2000). The Department of Veterans Affairs & Department of Defense Practice Guidelines (2004) have recognized EMDR as an effective PTSD treatment. Additionally, a recent meta-analysis of PTSD treatments conducted for Cochrane Database of Systematic Reviews 2007 concluded that trauma-focused CBT and EMDR “have the best evidence for efficacy at present and should be made available to PTSD sufferers” (Bisson & Andrew, 2007, p. 16; Silver, Rogers, & Russell, 2008). Other meta-analysis studies also found EMDR as effective as CBT (Seidler & Wagner, 2006). Several case examples and empirical studies provide detailed information about using the integrative approach of EMDR for the treatment of veterans with PTSD and related psychological distresses (e.g., guilt), with PTSD and related symptoms significantly reduced within four to six session (Shapiro & Forrest, 1997; Silver & Rogers, 2002; Silver, Rogers, & Russell, 2008).

Findings of a Recent Efficacy Study

A most recent efficacy study conducted by Cukor, Spitalnick, Difede, Rizzo, & Rothbaum (2009) reviewed several emerging PTSD treatment approaches and examined the evidence for over 20 various treatment approaches, ranging from technological-based interventions to social and family-based treatments. Only three treatment approaches had

some level of empirical evidence that supported their efficacy. For all others, there was insufficient information that confirmed the successes of interventions reviewed. The ones they found with some empirically supported efficacy evidence were:

Imagery rescripting (IR). Introduced by Smucker, Dancu, Foa and Niederee (1995) to enhance prolonged exposure in treatment of sexual abuse survivors, IR shows potential utility in PTSD treatment.

Imagery rehearsal therapy (IRT). There was supportive evidence for the effectiveness of IRT, created by Krakow et al. (2000), on trauma related nightmares. But there is not conclusive evidence on its efficacy for other PTSD symptoms.

Virtual reality (VR) or virtual reality exposure (VRE). VR integrates real time computer graphics and visual displays to allow for a sense of immersion in the virtual environments. The first VR application was known as Virtual Vietnam, developed in 1997 to treat PTSD in Vietnam veterans (Rothbaum et al., 1999). Studies have been conducted since to demonstrate the effectiveness of VR in treatment PTSD (Rizzo, Rothbaum, & Graap, 2007; Rothbaum, Hodges, Ready, Graap, & Alarcon, 2001). In recent years, Virtual Iraq was developed to treat PTSD among OIF/OEF soldiers. It is consisted of virtual scenarios that emulated Middle Eastern surroundings. The therapist can manipulate the environments to bring to a close match of veterans experiences, thus increasing the effectiveness of this exposure treatment.

Several studies have tested the successes of Virtual Iraq. Gerardi, Rothbaum, Ressler, Heekin, and Rizzo (2008) reported a 56% reduction in the Clinician Administered PTSD Scale scores following VRE for an active duty OIF soldier. Reger and Gahm (2008) were able to reduce PTSD and psychological distress in an active duty

army soldier in six sessions of VRE (Reger & Gahm, 2008). Another clinical trial using VRE with 20 active duty personnel with PTSD yielded promising results (Mclay et al., under review; as cited in Cukor et al., 2009). There was a 50% decrease in symptoms, and 16 of 20 participants no longer met DSM criteria for PTSD at posttreatment. Scores on measures of anxiety decreased by 33% and depression decreased nearly 50%. The number of sessions averaged fewer than 11 for this sample (Cukor et al., 2009).

Couples and family treatment. There was insufficient information to draw conclusive observations on whether couples and family treatment were effective for PTSD. However, Cukor et al. (2009) suggested the theoretical basis for its use in the PTSD treatment is strong and recommended that interpersonal treatments be used to augment traditional PTSD treatment.

Other Interventions

Treatment literature also discussed other types of interventions, including: a combination of medication, individual therapy, and group counseling (Dowben, Grant, & Keltner, 2007), art therapy (Collie, Backos, Malchiodi, & Spiegel, 2006), sand play therapy (Moon, 2006), brief exposure therapy (Cigrang, Peterson, & Schobitz, 2006), and prolonged exposure therapy (Tuerk et al., 2009). However, the efficacy of these approaches will need to be studied further.

While the above treatments focused on treating distressed veterans, researchers and practitioners also emphasized the importance of attending to the needs and mental health of veterans' spouses and families, as their lives were impacted by combatants' deployments and experiences (Schroder & Dawe, 2007). Family therapy other interdisciplinary support have been suggested to help veterans and their families cope

with stresses and adjustments issues from deployments, separation, as well as reunion (Erbes et al., 2008; Lincoln, Swift, & Shorteno-Fraser, 2008; Collins & Kennedy, 2008).

Psychological Well-Being

Combat veterans often return home profoundly changed by their experiences and cannot simply pick-up where they left off prior to deployment(s). Since life is no longer the same, they are no longer the same. Some feel damaged, unworthy, and unable to fit into society. Some are haunted by the murderer, executioner, or killer identity (Tick, 2005). Others reported having difficulty reconciling their war zone experiences with their religious faith (Drescher, Smith, & Foy, 2007; Fontana & Rosenheck, 2004), or difficulties forgiving themselves (Witvliet, Phipps, Feldman, & Beckham, 2004). Or they may question the philosophical underpinning of the war, wondering whether their sacrifice had any meaning, adding to the intensity of their inner conflicts (Hayman et al., 1987). The longer veterans were away, the more their community, job, and family have changed (Manderscheid, 2007), as repeated deployments presented significant adjustment challenges for both veterans and their families.

Gilmartin and Southwick (2004) identified four core existential issues combat veterans with PTSD may face: a skewed external locus of control, a foreshortened sense of future, survivor and other guilt, and loss of meaning. Consistent to the additive burden model proposed by Dohrenwend and Dohrenwend (1981), one's sense of control and self-directedness can be negatively affected by compounded stressors over time. The horrors of war traumas may result in an altered world view for the veterans, seeing fate as uncontrollable, and life is devoid of meaning (Fontana & Rosenheck, 2005; Southwick, Gilmartin, Mcdonough, & Morrissey, 2006). The difficulties finding meaning for their

war zone related experiences would also compound veterans coping abilities, as proposed by Lazarus' coping theory (1981, 1993). Researchers and practitioners called for meaning-based therapeutic interventions to help veterans reconstruct their identity, and to reclaim a personal sense of meaning and purpose in life (Bradshaw, Ohlde, & Horne, 1991; Fontana & Rosenheck, 2005; Gilmartin & Southwick, 2004; Silver & Rogers, 2002; Southwick et al., 2006; Tick, 2005).

On the other hand, some veterans may have viewed their war zone experience as an opportunity for growth instead of a threat to security (Bartone, 1999) and emerged from their hardship with a sense of strength, control, and accomplishment. As Sherman (2005) proposed, some veterans who had conducted themselves with dignity and respect in their delimited role as combatants would emerge from their military services with a sense of having been a true warrior.

Chapter 3

Method

The purpose of this study was to examine the relationships between levels of combat exposure and involvement with post-deployment adjustment among soldiers who had served in Iraq and Afghanistan. Specifically, the study included three predictors (exposure, perceived threat, and agency), one mediating factor (guilt), and two criterion factors (PTSD and PWB). The study sought to: (a) examine whether combat exposure differed from agency as constructs of combat experiences; (b) determine the contributions of three risk factors (perceived threat, exposure, and agency) to the degree of PTSD and PWB; and (c) determine whether guilt mediated the relationships between the three risk factors and the two criterion factors. This chapter outlines the methods used to achieve these research goals.

Participants

Targeted participants were veterans or active duty soldiers who served in Iraq and/or Afghanistan. To minimize potential psychological risks to participants, veterans with suicidal ideation in the past 3 months were excluded from the study. Data collection for this study began on March 22, 2010 and concluded seven weeks later on May 10, 2010. A total of 446 cases were downloaded from SurveyMonkey. Among them, 125 were deleted: 30 due to answering yes to suicidal thoughts; 51 did not answer any questions (including about 10 who were decision makers for various veteran organizations who entered the survey to see what it involved before deciding to forward it or not to their members); 39 did not complete the survey sufficiently to allow for any form of analysis (stopped after or shortly after demographic questions); three were

deleted who were not deployed to Iraq or Afghanistan; one was deleted due to random responses of questions (e.g., answering all “5” in the Purpose of Life subscale in spite of reversed questions); and one outlier was deleted. After the initial cleaning of data, there remained a total of 321 cases. From these 321 cases, two different samples were derived and processed.

Sample 1

The first sample was used for the factor analysis of the 50 questions from exposure and agency. An additional 27 cases were deleted due to missing data. The resulting sample (Sample 1) consisted of 294 cases. The demographic characteristics of this sample were as follows: The majority of participants were male ($n = 244$, 83%) with females representing only 16.7% ($n = 49$) of the sample. Ages ranged from 19 to 63 ($mean = 30$) with 66.3% of participants in their 20's. The majority of participants were Caucasians ($n = 199$, 67.7%); African Americans represented 16.7% of the sample ($n = 49$); Latinos represented 5.8% of the sample ($n = 17$); Asian Americans/Pacific Islanders represented 3.1% of the sample ($n = 9$); Native Americans/Alaskan Natives represented 2% of the sample ($n = 6$); and 3.4% of the sample were Multiracial ($n = 10$; with 7 Native American/White, 1 Latino/White, 1 Black/White, and 1 Asian/White).

Regarding their relational status, 47.6% were married ($n = 140$), 37.1% were single ($n = 109$), and 7.5% were divorced ($n = 22$). The majority of the participants (59%) had completed at least a 2-year Junior College degree. About 53% of the participants made less than \$35,000 a year. The participants represented all branches of the military services, with 48% in the Army, 19.4% in the Marines, 10.2% in the Navy, 9.2% in the Air Force, and 13.3% in the Guard Forces. Among them, 78.6% were non-

commissioned. About 63% of participants were involved in Operation Iraqi Freedom (OIF), 54% in Operation Enduring Freedom (OEF), and 7% Operation Desert Storm (ODS), with 22.8% having engaged in at least two of the three missions. About 52.7% of participants were deployed once, 31.3% twice, and close to 15% had been through 3 or more deployments. The length of each deployment ranged from less than six months to more than three years. About 19.4% had returned from their deployment less than 1 year ago, 19.4% between 1-2 years, and another 19% between 2-3 years, with close to 8% having returned more than 6 years ago (see Table 2 at the end of the Chapter for further details).

Sample 2

Sample 2 was used for all other analyses except the factor analysis. From the original 321 cases, 32 cases that were included in sample 1 were deleted here because these participants completed only the questions on exposure and agency, which enabled the data to be used for the factor analyses, but they did not complete the rest of the scales and the data could not be used for the other analyses. The resulting sample consisted of 289 cases. All cases with missing data were kept in the sample (including those 27 cases deleted in sample 1 due to missing values). A pair-wise strategy was used in SPSS to address the missing data. The demographic characteristics of this sample were as follows: The majority of the sample was male ($n = 244$, 84.4%) with females representing 15.6% ($n = 45$) of the sample. Ages ranged from 19 to 60 ($mean = 30$) with 64.7% of participants in their 20's. The majority of participants were Caucasians ($n = 190$, 65.7%); African Americans represented 18.7% of the sample ($n = 54$); Latinos represented 6.2% of the sample ($n = 18$); Asian Americans/Pacific Islanders represented

3.5% of the sample ($n = 10$); Native Americans/Alaskan Natives represented 1.7% of the sample ($n = 5$); and 3.1% of the sample were Multiracial Racial ($n = 9$; with 7 Native American/White, 1 Latino/White, and 1 Asian/White).

Regarding their relational status, 48.8% were married ($n = 141$), 37% were single ($n = 107$), and 8.3% were divorced ($n = 24$). The majority of the participants (59%) had completed at least a 2-year Junior College degree. About 52% of the participants made less than \$35,000 a year. The participants represented all branches of the military services, with 45.7% in the army, 20.4% in the marines, 10.4% in the navy, 8.3% in the air force, and 15.2% in the guard forces. Among them, 76.5% were non-commissioned. About 60.2% of participants were involved in Operation Iraqi Freedom (OIF), 56.4% in Operation Enduring Freedom (OEF), and 6.9% Operation Desert Storm (ODS), with 21.4% having engaged in at least two of the three missions. About 54% of participants were deployed once, 30.4% twice, and close to 14% had been through 3 or more deployments. The length of each deployment ranged from less than six months to more than three years. About 19% returned from their deployment less than 1 year ago, 21% between 1-2 years ago, and another 19% between 2-3 years ago, with close to 8% having returned more than 6 years ago (see Table 3 at the end of the Chapter for further details).

Instruments

There were twelve questions inquiring participants' demographic information. In addition, ten instruments were used to measure the related variables. Reliability (internal consistency estimates) for all the instruments for the current samples ranged from .83 to .98, with seven instruments having Cronbach alpha coefficients higher than .90, indicating good internal consistency for all instruments used.

Demographics

Participants were asked to complete questions to indicate the following: age, gender, ethnicity/race (White, African American, Latino, Asian, Native Americans, multi Racial, and Others), relational status (Single, Married/Partnered, Separated, Divorced, and Widowed), educational background, socioeconomic status (income levels), branches of their services (e.g., air force, marine, navy, army), rank (non-commissioned or commissioned officers), missions (e.g., Operation Enduring Freedom, Operation Iraqi Freedom, and others), the number of tours or deployments, length of each deployment (number of days), and date of return from the last deployment (see Appendix A for the demographic questions).

Exposure

The construct of exposure was assessed with three instruments that assessed combat, aftermath, and atrocity exposure that included a total of 33 experiences. First, the Combat Experiences subscale from the Deployment Risk and Resilience Inventory (DRRI) developed by King et al. (2003) assessed exposure to warfare experiences (see Appendix B). Individuals responded yes or no (0 = no, 1 = yes) to 15 dichotomous items that described various combat experiences such as being fired on, or witnessing injury and death. The last two questions (#14 and #15) about firing a weapon or killing in combat were deleted to avoid repetition of questions assessing agency. Therefore, total scores (after deletion of the last two questions) ranged from 0 to 13 with higher scores representing higher exposure. King et al. (2006) conducted two studies with two different Gulf War veterans samples (n = 357 & 317) to assess the psychometric characteristics of the complete DRRI including 14 subscales. The Cronbach's alpha

coefficient for the Combat Experiences subscale was .85 for both samples used (King et al., 2006). The items of the scale were reviewed by experts in the health and stress research and thus the content validity was established (King et al., 2003). King et al. (2006) also conducted an additional study using another Gulf War veterans sample ($n = 357$) to assess the construct validity of the DRRI scales. They demonstrated the differential associations of the risk and resilience factors with related health and mental health outcomes, and therefore provided additional support for the convergent/divergent validity of the measures. Specifically, the Combat Experiences subscale was found to correlate with PTSD (.32), depression (.16), and anxiety (.18) (King et al.). Coefficient alpha for the 13 questions was .91 in the current sample ($n = 294$).

Secondly, the DRRI Post-Battle Experiences subscale developed by King et al. (2003) was used to assess exposure to the consequences of warfare (see Appendix C). Individuals responded yes or no (0= no, 1 = yes) to 15 dichotomous items that described various post-combat experiences such as seeing or handling human remains and observing consequences such as devastated communities. Total scores ranged from 0 to 15 with higher scores representing higher exposure. The Cronbach's alpha coefficient using two different Gulf War veterans samples ($n = 357$ & 317) for the scale was .86 and .89 (King et al., 2006). Again, the content validity was established through reviewing the items of the scale by experts in the health and stress (King et al., 2003). Additional convergent validity of the scale was provided using a Gulf War 3rd veterans sample ($n = 357$) indicating the correlation between post-battle experiences with PTSD (.28), depression (.19), and anxiety (.16) (King et al., 2006). Coefficient alpha was .94 in the current sample ($n = 294$).

The third measure of exposure used questions adapted from the Atrocities Exposure Subscale, a six-item subscale from the Vietnam Era Stress Inventory developed by Wilson and Krauss (1983). Only the three items related to witness and exposure of atrocities were used here to assess the atrocity exposure construct (see Appendix D). The other three items that are related to participation in atrocities were used to assess the agency construct. Respondents were asked to rate whether they had witnessed three activities: hurting, killing or mutilation (e.g., cutting off ears) of Iraqis/Afghans during non-combatant times (“Vietnamese” from the original scale was replaced by Iraqi or Afghan for the purpose of this study). Individuals responded yes or no (0= no, 1 = yes) to these three questions. A summary score ranged from 0 to 3 with higher scores indicating higher exposure. Cronbach coefficient alpha for the 6-item scale with an unspecified sample was .87 (Beckham, Feldman, & Kirby, 1998). Coefficient alpha was .83 for the three atrocity exposure questions in the current sample ($n = 294$).

Perceived Threat

The Perceived Threat subscale from the DRRI developed by King et al. (2003) was used to assess the fear for one’s safety in the war zone when responding to potential exposure to circumstances of combat such as nuclear, biological, and chemical exposures (NBCs), missiles and friendly fire incidents (see Appendix E). The Perceived Threat scale contained 15 statements. Respondents rated how much they agree with each statement such as “I thought I’d never survive” (King et al., 2006). Items were rated on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Summarized scores ranged from 15 to 75, with higher scores representing heightened perceived threat. The Cronbach’s alpha coefficient using two different Gulf War

veterans samples ($n = 357$ & 317) for the scale was $.86$ and $.89$ (King et al., 2006). Again, the content validity was established through reviewing the items of the scale by experts in the health and stress (King et al., 2003). Convergent validity of the scale was provided using another Gulf War veterans sample ($n = 357$) indicating the correlation between perceived threat with PTSD ($.52$), depression ($.31$), and anxiety ($.42$) (King et al., 2006). Last, coefficient alpha was $.91$ in the current sample ($n = 289$).

Agency

As discussed previously, Fontana and Rosenheck (1992) first developed the construct of agent. However, they used only three items to assess this construct in their study: killing others, enjoying killing others, and participating in atrocities. The coefficient alpha for the three items was $.63$, using a sample of 1,709 treatment seeking Vietnam combat veterans. In this study, the construct of agency was expanded to include 19 items to delineate different levels of involvement and various outcomes (see Appendix F): Firing a weapon at or attempting to kill the enemy, killing enemy combatants, killing enemy civilians, killing fellow soldiers, killing non-enemy civilians, killing children, being responsible for the death of enemy combatants, being responsible for the death of enemy civilians, being responsible for the death of fellow soldiers, being responsible for the death of non-enemy civilians, being responsible for the death of children, injuring enemy combatants, injuring enemy noncombatants, injuring fellow soldiers, injuring non-enemy civilians, injuring children, and the three items from the Atrocities Exposure Subscale that involves participating in the hurting, killing, or mutilation of Iraqis in non-combatant circumstances as discussed previously. Participants responded yes or no (0 = no, 1 = yes) to the total of 19 items. The summed total scores ranged from 0 to 19 with

higher scores indicating higher participation in being the cause of harm to others.

Content validity was initially established through the review of items by Dr. Alan Fontana, a recognized expert in veteran research who first developed the construct of agency (personal communication, September 2009). Coefficient alpha was .86 in the current sample ($n = 294$).

Guilt

The Laufer-Parson Guilt Inventory (LPGI; Laufer & Frey-Wouters, 1988; as cited in Fontana & Rosenheck, 2004) was used to assess cognitive and emotional aspects of guilt related to war zone traumatic events (see Appendix G). The LPGI was chosen for this study, instead of the Trauma-Related Guilt Inventory (TRGI) by Kubany et al. (1996), because the LPGI specifies guilt related to different war zone trauma events/outcomes (e.g., hurting prisoners of wars/POWs or children) while the TRGI assesses cognitive guilt in relation to one specific traumatic event. There are a total of 29 questions in the LPGI. The Inventory consists of four subscales: a Contaminated Self Subscale (7 items), an Abusive Violence Imagery Subscale (8 items), a Retributive Guilt Subscale (5 items), and a Survival Guilt Subscale (9 items). Four questions that assess guilt-related suicidal ideation were deleted due to concerns over potential psychological risks to participants. Respondents rated the remaining 25 statements such as "Thoughts that your need forgiveness for hurting POWs or civilians" on a 5-point Likert scale from 1 "never" to 5 "very often". The LPGI was first used to assess guilt among Vietnam veterans. In this study, references to Vietnam were changed to "the war" to be encompassing of Iraq/Afghanistan wars. The Cronbach alphas for the original subscales were: .89, .89, .81, and .79 (Laufer & Frey-Wouters, 1988). No information was

available regarding the sample used to establish the Cronbach alphas. The total scores ranged from 25 to 125, with higher scores indicating more severity of guilt. Fontana and Rosenheck used the LPGI to assess guilt in their 2004 study, although they did not provide psychometric information in their study. They also did not provide other evidence of validity or reliability for the LPGI. No other studies have been published to evaluate the psychometric features of the LPGI. Coefficient alpha for the 25 questions was .98 in the current sample ($n = 289$).

PTSD

The 17-item PTSD Checklist (PCL – Military) (Weathers et al., 1993) was used to assess PTSD symptoms (see Appendix H). This scale was adapted from the DSM-IV to assess the three dimensions (reexperiencing, avoidance, and hyperarousal) of PTSD symptoms. Respondents rated how much they were bothered by the repeated images of a stressful military experience. Items were rated on a 5-point Likert-type scale ranging from 1 (not at all) to 5 (extremely). The total scores ranged from 17 to 85, with higher scores indicating more severity of PTSD symptoms. In military populations, a total score of 50 or above is considered PTSD positive. The PCL demonstrated high internal consistency and high test-retest reliability in an unspecified sample of Vietnam veterans, and was highly correlated with other measures of PTSD such as the Mississippi Scale (.90) and the Impact of Event Scale (.90) using unspecified samples (Kubany et al., 1996). As a diagnostic measure, the PTSD Checklist had a specificity of .83 and a sensitivity of .82 (samples unspecified) (Kubany et al., 1996). Coefficient alpha was .98 in the current sample ($n = 289$).

Psychological Well-Being (PWB)

Three instruments were used to measure the construct of PWB. The first one was the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985; see Appendix I). This measure consists of five items assessing life satisfaction from various angles. An example statement is “The conditions of my life are excellent” (Diener et al., 1985, p. 72). Respondents were asked to rate the statements on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Summarized scores ranged from 5 (low satisfaction) to 35 (high satisfaction). Diener et al. reported that the scale has a good level of internal consistency, with item–total correlations ranging from .57 to .75 using a sample of 176 undergraduates (Diener et al.; Robitschek & Kashubeck, 1999). Diener et al. also reported positive correlations between the SWLS and measures of happiness, life satisfaction, and self-esteem, indicating construct validity (Diener et al.; Robitschek & Kashubeck). Coefficient alpha was .96 in the current sample ($n = 289$).

The self-acceptance (SA) subscale (Appendix J) and purpose in life (PL) subscale (Appendix K) developed by Ryff (1989) were used as two other indicators of PWB. Each scale consists of 14 items on a 6-point Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). Respondents with high scores on the SA scale are considered to have a positive attitude toward themselves and their lives, while low scorers experience dissatisfaction and disappointment with themselves and with their lives. Additionally, individuals with high scores on the PL scale demonstrate a sense of directedness and meaning in life while those with low scores lack both. As previously discussed, when considering high mortality rates among veterans with PTSD, the scores from this scale may be an important predictor of longevity. For the above two scales,

summarized scores ranged from 14 to 84 each. Internal consistency from the longer parent versions of each scale (20 items) for SA and PL were estimated to be .93 and .90 while test–retest coefficients (over a 6-week period) were .85 and .82, respectively (Robitschek & Kashubeck, 1999). Ryff “reported that the 14-item version of the SA scale correlated at .99 with the 20-item parent scale and that it had an internal consistency estimate of .91” (Robitschek & Kashubeck, 1999, p. 163). In addition, construct validity was indicated by the positive correlations between the parent scale and other measures of affect balance, life satisfaction, and self-esteem (Ryff, 1989). Coefficient alpha for SA was .95 and for PL was .96 in the current sample ($n = 289$).

Procedure

Email invitations to participate in the study (see Appendix L) were sent to veteran gathering points on the Internet. Recruitment efforts were especially made to reach out to the 242 student veterans organizations across the United States. Announcements about the study were also emailed to organizations and individuals who work with returning veterans. Such places included VA offices/hospitals, counseling centers, and universities that offer educational opportunities especially targeted to serve the veteran population (see Appendix M for a complete list of organizations where email invitations/announcements were sent to/posted). Research invitations/announcements explained that the study sought to understand better veterans’ combat experiences and post-war adjustment. Interested potential participants were then directed to an online informed consent (see Appendix N) before taking the survey.

Because of the graphic nature of some questions, the informed consent stated clearly the potential threats to take the survey (for example, triggering combat memories).

Respondents were assured of anonymity/confidentiality and the voluntary nature of participation. The procedure of participation was explained: participants were asked to answer a questionnaire consisting of 152 items (including demographic questions) that would require approximately 15 to 30 minutes to complete. To address the potential risks and raise awareness about PTSD, resources on mental health information/services and other services for veterans were provided at the end of the questionnaire (see Appendix O). Participants were informed that if they were interested in the results of the study, they could contact the investigator in six to eight months to inquire about the findings.

Following the informed consent, veterans who reported suicidal ideation in the past three months were excluded from the study based on their answer to a screening question that inquired about suicidal ideation. The ineligible veterans were directed to the resource page and urged to seek treatment. Eligible participants were directed to the beginning of the online survey.

Due to the scope of the study and the number of variables examined, at least 200 completed surveys were required for the intended statistical analysis. To encourage participation, the researcher donated \$1 to the Wounded Warrior Project for every survey completed. At the conclusion of this study, 221 surveys were completed without any missing values although close to 300 surveys were able to be used for some statistical analyses (see details in Chapter 4). Three hundred fifty dollars was eventually donated to the Wounded Warrior Project (with \$200 from a dissertation grant obtained from University of Missouri – St. Louis).

Data Analysis

Factor analyses were conducted to evaluate the factorial structure and construct validity of questions assessing exposure and agency. Correlational analyses were used to examine the relationships among all variables. Hierarchical regression analyses were performed to determine the separate and collective contributions of the predictor factors (perceived threat, exposure, and agency) to the severity of PTSD symptoms and the degree of PWB. Regression analyses and the Sobel Test were used to determine the mediating effect of guilt.

Table 2

Demographic Characteristics of Sample 1

Variable	Values	<i>N</i>	(%)
Gender	Male	244	83.0
	Female	49	16.7
Age (<i>M</i> = 30.13, <i>SD</i> = 8.12)	18-19	1	0.3
	20-29	195	66.4
	30-39	60	20.4
	40-49	28	9.5
	50-59	8	2.7
	60+	2	0.7
Race	White	199	67.7
	African American	49	16.7
	Latino/Hispanic	17	5.8
	Native American	6	2.0
	Asian/Pacific Islander	9	3.1
	Multi-racial	10	3.4
	Other(s)	2	0.7
Relational Status	Single	109	37.1
	Married/Partnered	140	47.6
	Separated	6	2.0
	Divorced	22	7.5
	Widowed	1	0.3
	Co-habitation	12	4.1
	Other(s)	2	0.7
Education	Less than 12 years	3	1.0
	GED/High school	114	38.8
	Junior College	65	22.1
	Four-year University	68	23.1
	Graduate Degree	36	12.2
	Doctorate Degree	4	1.4
Annual Income	Less than \$19,999	63	21.4
	\$20,000 – \$34,999	94	32.0
	\$35,000 – \$49,999	53	18.0
	\$50,000 – \$64,999	36	12.2
	\$65,000 – \$79,999	14	4.8
	\$80,000+	27	9.2

Branch of Service	Army	141	48.0	
	Marines	57	19.4	
	Navy	30	10.2	
	Air Force	27	9.2	
	Guard Forces	39	13.3	
Missions	OEF	97	33.0	
	OIF	118	40.1	
	ODS	10	3.4	
	OEF & OIF	57	19.4	
	ODS & OIF	4	1.4	
	ODS, OEF & OIF	6	2.0	
Rank	Commissioned officer	52	17.7	
	Non-commissioned	231	78.6	
Number of Tours	1	155	52.7	
	2	92	31.3	
	3	25	8.5	
	4	9	3.1	
	5	2	0.7	
	6 and above	7	2.4	
Length of Each Tour	1 st Tour	Less than 6 months	46	15.6
		6 to 12 months	130	44.2
		12 to 18 months	112	38.1
		18 to 24 months	3	1.0
		more than 36 months	3	1.0
	2 nd Tour	Less than 6 months	25	8.5
		6 to 12 months	65	22.1
		12 to 18 months	40	13.6
		more than 36 months	1	0.3
	3 rd Tour	Less than 6 months	16	5.4
		6 to 12 months	20	6.8
		12 to 18 months	9	3.1
	4 th Tour	Less than 6 months	10	3.4
		6 to 12 months	10	3.4
		12 to 18 months	2	0.7
	5 th Tour	Less than 6 months	7	2.4
		6 to 12 months	3	1.0

# of Months Since Returns ($M = 37.97$, $SD = 40.01$)	0 – 11 months	57	19.4
	12 – 23 months	57	19.4
	24 – 35 months	56	19.0
	36 – 47 months	47	16.0
	48 – 59 months	28	9.5
	60 – 71 months	22	7.5
	72 months+	23	7.8

Table 3

Demographic Characteristics of Sample 2

Variable	Values	<i>N</i>	(%)
Gender	Male	244	84.4
	Female	45	15.6
Age (<i>M</i> = 30.20, <i>SD</i> = 7.98)	18-19	1	0.3
	20-29	187	64.7
	30-39	64	22.1
	40-49	27	9.3
	50-59	9	3.1
	60+	1	0.3
Race	White	190	65.7
	African American	54	18.7
	Latino/Hispanic	18	6.2
	Native American	5	1.7
	Asian/Pacific Islander	10	3.5
	Multi-racial	9	3.1
	Other(s)	2	0.7
Relational Status	Single	107	37.0
	Married/Partnered	141	48.8
	Separated	5	1.7
	Divorced	24	8.3
	Co-habitation	8	2.8
	Other(s)	3	1.0
Education	Less than 12 years	3	1.0
	GED/High school	112	38.8
	Junior College	63	22.1
	Four-year University	68	23.5
	Graduate Degree	38	13.1
	Doctorate Degree	2	0.7
Annual Income	Less than \$19,999	57	19.7
	\$20,000 – \$34,999	95	32.9
	\$35,000 – \$49,999	53	18.3
	\$50,000 – \$64,999	38	13.1
	\$65,000 – \$79,999	17	5.9
	\$80,000+	24	8.3

Branch of Service	Army	132	45.7	
	Marines	59	20.4	
	Navy	30	10.4	
	Air Force	24	8.3	
	Guard Forces	44	15.2	
Missions	OEF	104	36.0	
	OIF	112	38.8	
	ODS	9	3.1	
	OEF & OIF	51	17.6	
	ODS & OIF	3	1.0	
	ODS, OEF & OIF	8	2.8	
Rank	Commissioned officer	55	19.0	
	Non-commissioned	221	76.5	
Number of Tours	1	156	54.0	
	2	88	30.4	
	3	20	6.9	
	4	11	3.8	
	5	3	1.0	
	6 and above	6	1.7	
Length of Each Tour	1 st Tour	Less than 6 months	46	15.9
		6 to 12 months	123	42.6
		12 to 18 months	113	39.1
		18 to 24 months	4	1.4
		more than 36 months	3	1.0
	2 nd Tour	Less than 6 months	21	7.3
		6 to 12 months	64	22.1
		12 to 18 months	38	13.1
		more than 36 months	1	0.3
	3 rd Tour	Less than 6 months	17	5.9
		6 to 12 months	20	6.9
		12 to 18 months	5	1.7
	4 th Tour	Less than 6 months	11	3.8
		6 to 12 months	9	3.1
		12 to 18 months	2	0.7
	5 th Tour	Less than 6 months	6	2.1
		6 to 12 months	4	1.4

# of Months Since Returns ($M = 37.97$, $SD = 40.01$)	0 – 11 months	55	19.0
	12 – 23 months	61	21.1
	24 – 35 months	54	18.7
	36 – 47 months	44	15.2
	48 – 59 months	30	10.4
	60 – 71 months	20	6.9
	72 months+	22	7.6

Chapter 4

Results

This chapter is organized into six sections. The first section examines the results from factor analyses. The second section provides descriptive analyses of all the variables. The third, fourth, and fifth sections delineate the results from the correlational, regression, and mediation analyses. The final section summarizes the findings.

Factor Analyses

Before running the analyses, data (50 items from exposure and agency) were examined and found to be normally distributed ($n = 294$). The correlation between exposure and agency was .70. Using SPSS version 17.0, exploratory factor analysis (EFA) was performed using the maximum likelihood extraction technique. Because factors were anticipated to be intercorrelated, oblique rotation ($\delta = 0$) was used to examine the structure of the data. The communalities for the items ranged from .28 to .90, with all but four of the 50 values above .40. Based on the scree test and the total variance explained, two factors were retained. Factor 1 accounted for 33.4% of the variance, while factor 2 accounted for an additional 9.8%. These two factors together accounted for 43% of the variance. Results of factor loadings are presented in Table 4. Given that there were several high loading marker variables ($>.80$), it seems that a sample size of 150 would have been sufficient, and the current sample of 294 could be considered a very good sample size for the analyses (Tabachnick & Fidell, 2007). The correlation between the two factors was .25, indicating that the factors shared some common variance but were also distinctly separated. There were no items that loaded above .40 on both factors. Interestingly, all of the questions from DRRI Combat

Experiences subscale (13 items; see Appendix B) and DRRI Post-Battle subscale (15 items; see Appendix C) loaded above .40 on factor 1 but none on loaded above .40 on factor 2. Additionally, five agency questions (#1, 2, 3, 7, & 12) loaded above .40 on factor 1 and eight agency questions (#5, 6, 8, 10, 11, 13, 15, & 16) loaded above .40 on factor 2. Also, none of the six atrocity questions (including the last three questions of agency) loaded above .40 on either factor. Results indicated that: (a) while exposure and agency were correlated, as a construct agency was separate from exposure; and (b) atrocity needs to be considered as another distinctly separate construct explained by factors different from factor 1 and 2.

Upon examination of items retained (those with loadings $> .40$), there were 33 items loaded on factor 1 (see Table 4 and Appendix P), including the 13 items from DRRI Combat Experiences subscale, the 15 items from DRRI Post-Battle subscale, and five items (#1, 2, 3, 7, & 12) from agency that involved enemy combatants (#1 – firing at enemy, #2 injuring enemy combatants, #7 killing of enemy combatants, and #12 responsible for the death of enemy combatants) with the exception of item #3 that involved the injuring of enemy noncombatants. Factor 1 was named Expanded-Combat-Experiences. Eight items loaded above .40 on factor 2; all of them were from the original agency measure (#5, 6, 8, 10, 11, 13, 15, & 16) and had mostly to do with injuring, killing, or being responsible for the death of civilians or children. Factor 2 was therefore named Agency-Civilian-Casualties, indicating being an agent of outcomes that caused casualties outside of expected combat experiences and warfare (see Table 4 and Appendix P).

Descriptive Analyses of Variables

Before performing the rest of the analyses, data from Sample 2 ($n = 289$) were examined first to evaluate if they meet the statistical assumptions of normal distribution, linearity, and homoscedasticity. The mean, standard deviation, distribution, range, kurtosis, and skewness of each variable are presented in Table 5. The two new variables (Expanded-Combat-Experiences and Agency-Civilian-Casualties) were also included in this analysis to compare with results from the original exposure and agency variables. All variables except Agency-Civilian-Casualties were normally distributed. Scatterplot and normal P-P plot also demonstrated the linearity and homoscedasticity of variables. Even though Agency-Civilian-Casualties had high skewness (3.79) and high kurtosis (14.78), the impact of skewness and kurtosis was diminished due to the large sample size (Tabachnick & Fidell, 2007). Therefore no transformation of Agency-Civilian-Casualties was performed in order to enhance the interpretability of results.

In evaluating the values of variables, it seemed that both agency and Agency-Civilian-Casualties had a low mean ($M = 2.89$ for the 19-item agency measure; and $M = .45$ for the eight-item Agency-Civilian-Casualties measure), even though the values of exposure were slightly elevated ($M = 17.16$ with a range of 0 to 31). Results from frequencies analyses revealed that 95% of the participants reported having come under fire, a percentage consistent to the findings of Hoge et al. (97% of the Marines sample and 93% of the Army sample; 2004). However, 41% of participants reported “no” to all agency questions, meaning that they did not fire at enemies even when under fire. About 50% reported being responsible for the death of enemy combatants. About 8.5% reported being responsible for the death of enemy civilians. Close to 14% reported witnessing

atrocities with 1.8% reported having participated in the harming (but not killing) of others in atrocity.

Also worth noting were the elevated values of perceived threat ($M = 47.25$ with a range of 15-75) and PTSD ($M = 46.89.16$ with a range of 17-85). Frequency analyses revealed that only 9% of the sample reported having no PTSD symptoms. Upon further calculation, about 72% ($n = 208$) of participants reported having at least one moderate PTSD symptom, and 43% ($n = 124$) of participants had a PTSD score above 50, a score normally used to identify one as PTSD positive (which indicates that these veterans experienced clinically significant trauma-related distress but it does not mean that they met the full criteria of a PTSD diagnosis).

Correlational Analyses

Correlational analyses were conducted to examine relationships among all variables (see Table 6). Several variables were found to be correlated (significance was set at the .01 level to reduce the threat of a Type I error): Among the demographic variables, having more years of education slightly correlated with being a commissioned officer, lower exposure, lower guilt, lower PTSD, and higher PWB. Older age, serving in the Air Force, more years of education, being a commissioned officer, and higher number of deployments were correlated with lower PTSD and higher PWB; the correlations were small in size (most r -values under .30). Being an African American, serving in Guard Forces, and serving in OEF were correlated with higher PTSD scores and lower PWB, with the correlations medium in size (r -values between .30 to .55). All three predictor variables (exposure, agency, and perceived threat) were correlated at high levels with guilt, with r -values ranging from .51 to .72. All three predictor variables were correlated

with PTSD (r -values ranging from .47 to .70) and negatively correlated with PWB (r -values ranging from -.35 to -.64), with perceived threat having the highest correlations among the three variables. Moreover, guilt was highly correlated with PTSD (.87) and PWB (.79). Such results supported the first hypothesis that higher perceived threat, exposure, and agency are related to greater severity of PTSD and lower PWB.

Hierarchical Regression Analyses

Hierarchical (sequential) regression analyses were used to determine the contributions of agency, exposure, and perceived threat to PTSD and PWB. Based on the hypotheses of this study, agency was predicted to account for the most variance, followed by perceived threat, followed by exposure. The variables were entered in this order. The rules of thumb for sample size are $N \geq 50 + 8m$ (where m is the number of IVs) for testing regression and $N \geq 104 + m$ for testing individual predictors (Tabachnick & Fidell, 2007). In this case, m is equal to 3. So the sample size should be at least $50 + 8 \times 3 = 74$ cases to test regression, and $104 + 3 = 107$ cases to test individual predictors. The current sample size of 289 was more than sufficient for the analyses. As presented in the correlational analyses, the correlations between the three predictor variables were .71 for agency and exposure, .61 for exposure and perceived threat, and .34 for agency and perceived threat. Since the values did not exceed .80, there were no serious concerns for multicollinearity (Pallant, 2005). Results of tolerance levels were also examined and multicollinearity was not a problem.

Regarding the regression for PTSD, the results (see Table 7) indicated that agency, when first entered, accounted for 22% of variance ($p < .01$). Perceived threat accounted for another 33% of variance when entered in step two ($p < .01$). Last,

exposure accounted for an additional 3% of variance ($p < .01$). In total, the three variables accounted for 58% of the variance in PTSD scores ($p < .01$). However, when exposure was entered in step three, the regression coefficient value (β) for agency became insignificant ($p = .13$). Additional regression analyses revealed that agency and exposure shared 50.8% of variance but they do not mediate each other in relation with PTSD.

Due to the high correlation between guilt and PTSD (.87), an additional step was taken to enter guilt into the hierarchical regression to assess the additional contribution of guilt to PTSD (with the other three predictors entered). The results (see Table 7) indicated that guilt accounted for an additional 20% of variance ($p < .01$). Interestingly, when guilt was entered in step four, the regression coefficient value (β) ($p = .02$) for perceived threat became insignificant if the p value was kept at .01 level, but significant if the p value was kept at .05 level. Additional analyses revealed that perceived threat and guilt did not mediate each other in relation to PTSD. With the inclusion of guilt, the four variables in total accounted for 78% of the variance in PTSD scores ($p < .01$).

Regarding the regression for PWB, the results (see Table 8) indicated that agency, when first entered, accounted for 12.5% of variance ($p < .01$). Perceived threat accounted for another 30.9% of variance when entered in step two ($p < .01$). In step three, exposure accounted for an additional 2.2% of variance ($p < .01$). In total, the three variables accounted for 46% of variance ($p < .01$). However, again when exposure was entered, the regression coefficient value (β) for agency became insignificant ($p = .93$). Additional analyses revealed that agency and exposure did not mediate each other in relation to PWB.

Again, due to the high correlation between guilt and PWB (-.79), an additional step was taken to enter guilt into the hierarchical regression to assess the contribution of guilt to PWB. The results (see Table 8) indicated that guilt accounted for an additional 18% of variance ($p < .01$). Interestingly, when guilt was entered in step four, the regression coefficient value (β) ($p = .04$) for perceived threat became insignificant if the p value was kept at .01 level, but significant if the p value was kept at .05 level. Additional analyses revealed that perceived threat and guilt did not mediate each other in relation to PWB. With the inclusion of guilt, the four variables in total accounted for 64% of the variance in PWB scores ($p < .01$).

The above results did not support the second hypothesis which proposed that agency would account for most of the variance for PTSD and PWB. Instead, among the three predictors, perceived threat accounted for the most variance in PTSD and PWB. For both PTSD and PWB, the contribution of agency became insignificant when exposure was entered, indicating the shared variance between these two constructs.

For purpose of comparison, another set of sequential regression analyses were conducted exchanging exposure and agency with the two new variables, Expanded-Combat-Experiences and Agency-Civilian-Casualties. Regarding the regression with PTSD, the results indicated that Agency-Civilian-Casualties did not account for any variance ($p < .01$). Perceived threat accounted for 48.8% of variance when entered in step two ($p < .01$). Last, Expanded-Combat-Experiences accounted for another 11.6% of variance in step three ($p < .01$). The three variables together accounted for 60% of total variance ($p < .01$).

Regarding the regression with PWB, the results indicated that Agency-Civilian-Casualties accounted for 1% of variance ($p < .01$). Perceived threat accounted for another 41% of variance when entered in step two ($p < .01$). Last, Expanded-Combat-Experiences added another 7.4% of variance ($p < .01$). In total, the three variables accounted for 48.3% of variance ($p < .01$).

Mediation Analyses

Regression analyses and the Sobel Test were used to determine whether guilt mediated between the predictors (agency, exposure, and perceived threat) and criterion variables (PTSD and PWB). Because of the number of analyses involved, α was at .01 to lower the potential for a Type I error.

According to Baron and Kenny (1986), a variable is a mediator if these three relationships are significant: 1) relationship between the IV and the DV, 2) relationship between the IV and the mediator, 3) and relationship between mediator and DV. Additionally, the relationship between IV and DV diminishes once the mediator is added. Sobel (1982) presented a method to test the significance of mediation effect by testing the difference between the total effect (the relationship between the IV and the DV) and the direct effect (the relationship between the IV and the DV after controlling for the mediator). Based on Baron and Kenny as well as Sobel's recommendations, Preacher and Leonardelli (2010) developed an online program using the Sobel Test to test the significance of mediation effects. This online Sobel Test developed by Preacher and Leonardelli was used along with regression analyses to evaluate the mediation effects of guilt between the predictors (agency, exposure, and perceived threat) and the criterion variables (PTSD and PWB).

Correlation analyses already reported (see Table 6) revealed that all three predictors were significantly related to the two criterion factors. Guilt was significantly related to PTSD and PWB. All three predictors were significantly related to guilt. In order to run the Sobel Tests, an additional six individual regression analyses were performed adding guilt as a co-predictor with each of the three predictors of PTSD and PWB. The standard error and raw coefficient (β) for the associations between guilt as a co-predictor with each of the other three predictors and PTSD/PWB were obtained. The values from the coefficients and standard errors were used in the online Sobel's Test (Preacher & Leonardelli, 2010). Results from the Sobel Tests showed that guilt was a mediator between exposure and PTSD, and between agency and PTSD, but not between perceived threat and PTSD ($p = .06$). Also, guilt was a mediator between agency and PWB, but not between exposure or perceived threat and PWB.

Summary of Findings

The results from the factor analyses indicated that exposure and agency were two separate constructs with shared commonalties (correlation .70), especially in regard to the aspects of combat experience involving the injuring or killing of enemy combatants. Two factors emerged from the analyses, accounting for 43% of the variance. The first factor was named Expanded-Combat-Experiences and had items that mostly involved the injuring and killing of enemy combatants. The second factor was named Agency-Civilian-Casualties and included items that mostly involved the injuring and killing of civilians and children. The correlation between the two factors was .25, indicating the separateness of these factors. None of the questions involving atrocity loaded on either

factor, indicating that atrocity needs to be considered as a separate construct, distinct from combat experiences and casualties.

Descriptive analyses of the variables revealed that participants from the current sample had high combat exposure, but very low agency, Agency-Civilian-Casualties, and atrocity. The findings indicated that most of participants were not engaged in actions that involved injuring or killing of civilians. Also participants reported high levels of perceived threat and PTSD. About 43% of the sample was identified as PTSD positive. This result is in line with previous findings that estimated 35% (Mastnak, 2008) to 44% (Lapierre et al., 2008) of returned soldiers developed trauma related symptoms as a result of their military services.

Correlational analyses indicated that all three predictor variables (exposure, agency, and perceived threat) were highly correlated with guilt, PTSD, and PWB. Additionally, guilt was also found strongly correlated with PTSD and PWB. The results confirmed the first hypothesis, proposing that greater perceived threat, greater exposure, and greater agency would be related to greater severity of PTSD and lower PWB.

Hierarchical regression analyses revealed that the three predictor variables accounted for 58% of the variance for PTSD ($p < .01$), and 46% of the variance for PWB ($p < .01$), with perceived threat accounting for the largest portion of the variance. The variance contributions from agency became insignificant when exposure was entered, indicating that these two variables accounted for overlapping variance. Moreover, when guilt was entered into the regression, the four variables accounted for 78% of the variance in PTSD scores and 64% of the variance in PWB scores. The variance accounted for by perceived threat became insignificant when guilt was entered, indicating that these two

variables accounted for overlapping variance. Another set of sequential regression analyses revealed that Expanded-Combat-Experiences and perceived threat accounted for 60% of the variance for PTSD, and close to 40% of the variance for PWB.

Findings showed that guilt was a mediator between exposure and PTSD, and agency and PTSD, but not between perceived threat and PTSD. Also, guilt was a mediator of agency and PWB, but not of exposure or perceived threat and PWB. Results confirmed the third hypothesis which proposed that guilt would be a mediator for agency regarding both PTSD and PWB, indicating the importance of psychological responses to one's actions. Additionally, guilt was also found to be a mediator between exposure and PTSD.

Table 4

Factor Loadings for Exploratory Factor Analysis with Maximum Likelihood Rotation of Exposure and Agency Items

	Expanded-Combat-Experiences	Agency-Civilian-Casualties
Combat1	.648	.118
Combat2	.627	.054
Combat3	.505	.060
Combat4	.524	.041
Combat5	.694	.182
Combat6	.636	.142
Combat7	.570	.004
Combat8	.731	.221
Combat9	.566	.063
Combat10	.700	.136
Combat11	.769	.247
Combat12	.831	.262
Combat13	.434	.111
Atrocity1	.257	.221
Atrocity2	.293	.320
Atrocity3	.254	.215
PostBattle1	.648	.083
PostBattle2	.645	.146
PostBattle3	.513	-.007
PostBattle4	.704	.074
PostBattle5	.681	.084
PostBattle6	.702	.146
PostBattle7	.477	.228
PostBattle8	.491	.269
PostBattle9	.758	.230
PostBattle10	.809	.237

PostBattle11	.827	.230
PostBattle12	.688	.230
PostBattle13	.732	.245
PostBattle14	.686	.219
PostBattle15	.669	.215
Agency1	.839	.264
Agency2	.853	.285
Agency3	.627	.242
Agency4	.136	.050
Agency5	.218	.622
Agency6	.205	.771
Agency7	.823	.304
Agency8	.228	.760
Agency9	-.024	.118
Agency10	.144	.571
Agency11	.196	.819
Agency12	.814	.313
Agency13	.214	.719
Agency14	.032	.103
Agency15	.138	.752
Agency16	.181	.896
Agency17	.073	.094
Agency18	.060	.219
Agency19	.063	.273

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.

Note. Factor loadings > .40 are in bold.

Table 5

Descriptive Analyses of Predictors and Criterion Variables

		Expanded- Combat- Experiences	Agency- Civilian- Casualties	Exposure	Agency	Perceived Threats	Guilt	PTSD	PWB
N	Valid	275	284	274	277	279	280	282	262
	Missing	14	5	15	12	10	9	7	27
Mean		19.18	0.45	17.16	2.89	47.25	54.00	46.89	129.99
Median		20.00	0.00	19.00	3.00	47.00	40.50	42.50	131.00
Std. Deviation		10.81	1.40	9.16	3.02	14.17	30.45	23.70	43.00
Skewness		-.33	3.79	-.40	.92	-.17	.70	.22	-.15
Std. Error of Skewness		.15	.15	.15	.15	.15	.15	.15	.15
Kurtosis		-1.32	14.78	-1.15	.81	-.47	-.96	-1.46	-1.20
Std. Error of Kurtosis		.29	.29	.29	.29	.29	.29	.29	.30
Range		33.00	8.00	31.00	13.00	60.00	100.00	68.00	170.00
Minimum		0.00	0.00	0.00	0.00	15.00	25.00	17.00	33.00
Maximum		33.00	8.00	31.00	13.00	75.00	125.00	85.00	203.00

Table 6

Summary of Correlational Analysis

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. AGE	-	.51**	-.32**	.25**	.02	-.11	.14*	-.06	-.19**	-.18**	-.20**	-.11	-.26**	-.18**	.22**
2. EDU		-	-.60**	.08	.14*	-.17**	.19**	-.12*	-.21**	-.27**	-.23**	-.21**	-.31**	-.33**	.31**
3. RANK			-	-.02	-.16**	.14*	-.15*	.04	.01	.23**	.17**	.21**	.18**	.22**	-.23**
4. DPY				-	.09	-.20**	.15*	-.17**	-.32**	.06	.16**	-.12	-.23**	-.17**	.20**
5. WHT					-	-.67**	-.01	-.18**	-.23**	-.12	-.09	-.19**	-.29**	-.30**	.21**
6. AA						-	-.08	.32**	.37**	.20**	.18**	.30**	.47**	.33**	-.27**
7. AF							-	-.13*	-.07	-.34**	-.18**	-.21**	-.24**	-.21**	.23**
8. GF								-	.28**	.24**	.17**	.34**	.40**	.32**	-.26**
9. OEF									-	.27**	.20**	.30**	.55**	.45**	-.44**
10. EXP										-	.71**	.61**	.67**	.67**	-.55**
11. AGY											-	.34**	.51**	.47**	-.35**
12. PT												-	.72**	.70**	-.64**
13. GT													-	.87**	-.79**
14. PTSD														-	-.82**
15. PWB															-

Note. EDU = Education; DPY = # of Deployments; WHT = White; AA = African American; AF = Air Force; GF = Guard Forces; EXP = Exposure; AGY = Agency; PT = Perceived Threat; GT = Guilt.

* $p < .05$. ** $p < .01$.

Table 7

Summary of Hierarchical Regression Analysis for Variables Predicting PTSD (N = 289)

Variable	<i>B</i>	SE <i>B</i>	β
Step 1			
Agency	3.72	.43	.47**
Step 2			
Agency	2.10	.35	.27**
Perceived Threat	1.02	.07	.61**
Step 3			
Agency	.70	.46	.09
Perceived Threat	.80	.09	.48**
Exposure	.81	.18	.31**
Step 4			
Agency	-.22	.34	-.03
Perceived Threat	.17	.06	.10*
Exposure	.37	.13	.14**
Guilt	.56	.04	.72**

Note. $R^2 = .22$ for Step1; $R^2 = .55$ for Step 2; $R^2 = .58$ for Step 3; $R^2 = .78$ for Step 4 ($p < .01$).

* $p < .05$. ** $p < .01$.

Table 8

Summary of Hierarchical Regression Analysis for Variables Predicting PWB (N = 289)

Variable	<i>B</i>	SE <i>B</i>	β
Step 1			
Agency	-5.03	.85	-.35**
Step 2			
Agency	-2.17	.73	-.15**
Perceived Threat	-1.79	.16	-.59**
Step 3			
Agency	-.08	.97	-.07
Perceived Threat	-1.47	.18	-.49**
Exposure	-1.20	.38	-.26**
Step 4			
Agency	1.51	.81	.11
Perceived Threat	-.38	.18	-.12*
Exposure	-.44	.32	-.09**
Guilt	-.97	.09	-.69**

Note. $R^2 = .13$ for Step1; $R^2 = .43$ for Step 2; $R^2 = .46$ for Step 3; $R^2 = .64$ for Step 4 ($ps < .01$).

* $p < .05$. ** $p < .01$.

Chapter 5

Discussion

The goals of this study were: (a) to examine whether combat exposure differed from agency as constructs of combat experiences, (b) assess the contributions of three

predictors (perceived threat, exposure, and agency) to the degree of PTSD and PWB, and (c) determine whether guilt mediated the relationships between the three predictors and the two criterion factors. It was hypothesized that: (1) higher perceived threat, exposure, and agency would be related to greater severity of PTSD and lower PWB; (2) agency would account for most of the variance for PTSD and PWB, followed by perceived threat and then combat exposure; and (3) guilt would mediate the relationships of agency with PTSD and PWB.

This study used factor analyses to examine the constructs of exposure and agency. While agency was originally conceptualized as a totally distinct and separate construct from exposure that encompassed injuring/killing of enemy combatants/civilians and atrocities, factor analyses indicated that five items (four involved the injuring/killing of enemy combatants and one involved injuring of noncombatants) from the agency measure shared the same factor with the exposure items. This result seems to suggest that exposure, the injuring/killing of enemy combatants, and the injuring of civilians together make up what is considered as combat experiences. A second factor emerged that included eight items from agency which involved mostly the injuring and killing of civilians/children. Additionally, none of the atrocities items loaded on either of the two factors. Such results seemed to suggest that: (a) the injuring and killing of enemy combatants and the injuring of civilians would need to be included in the assessment of combat experiences beyond the current measures of combat exposure; (b) the injuring and killing of civilians/children (civilian casualties) is another aspect of war zone experience distinctly different from the expanded-combat-experiences; and (c)

participation in atrocities would need to be further assessed as a potentially yet another aspect of war zone experiences.

The distinction of these war-zone/combat experiences is of vital importance. It is possible that in the minds of these veteran participants, these experiences could represent qualitative different aspects of war zone related combat experiences that imply different psychological meanings. In fact, as presented previously, this study found that about 50% of the sample participants were responsible for the death of enemy combatants, about 8.5% were responsible for the death of enemy civilians, about 1.8% were involved in the harmful acts of atrocities, and none killed another in atrocity. The results seemed to indicate that the soldiers were able to distinguish different subjects (e.g., combatants and civilians) and circumstances (e.g., combat versus atrocities) clearly and made decisions during or post combat accordingly. However, such distinctions were often not made by measures assessing combat exposure. For example, in the DRRI Combat Experiences subscale, the only question about killing only inquires about killing “someone” in combat but does not specifically clarify who the “someone” (e.g., combatants or civilians) is (King et al., 2003). Such vagueness in descriptions of the killed subjects results in missed opportunities to explore the psychological implications for causing death among different groups of subjects. To date, this study was the first study that systematically distinguished and examined together various groups of injured/killed subjects (e.g., combatants, civilians, and children) and circumstances of injuring/killing (e.g., combat versus atrocities). The findings from the factor analyses seemed to indicate the necessity for future studies to examine more clearly various aspects of war zone/combat experiences and their implications.

The results from the correlational analyses supported the first hypothesis, indicating that greater perceived threat, exposure, and agency were related to greater severity of PTSD and lower PWB. All three predictor variables (exposure, agency, and perceived threat) were correlated highly with PTSD and PWB. Findings were consistent with previous studies that found greater appraisal of threat predicted the severity of PTSD symptoms (King et al., 1999; Solomon et al., 1989) and that having killed was associated with higher PTSD scores (MacNair, 2002). Moreover, the results were also consistent with the findings from other studies that found strong correlations between combat exposure and PTSD using Vietnam veteran samples (Koenen et al., 2007; Kulka et al., 1990), a Gulf War veterans sample (Vogt & Tanner, 2007), or an Operation Desert Storm veterans sample (Taft et al., 2008), indicating that no matter the different characteristics of the wars, consistently there was a dose-response relation between combat exposure and PTSD. In other words, regardless of varieties of weapons, forms of engagements, or sources of injuries and death, being in combat, experiencing life threats, and being the agents of injuries/deaths expectedly and consistently correlated with severity of PTSD. It seems that with such strong and consistent research evidence, the negative implications of war are evidently prevalent.

The second hypothesis proposed that agency would account for most of the variance for PTSD and PWB. However, results from the hierarchical regression analyses did not support the hypothesis. Instead, among the three predictors it was perceived threat that accounted for the largest portion of the variance for both PTSD and PWB. The variance contributions from agency to both PTSD and PWB became insignificant when exposure was entered, indicating that these two variables accounted for overlapping

variance. One explanation for the higher contribution of perceived threat could be that the very low agency scores resulted in the lower contribution of agency to PTSD/PWB score in the current sample of veterans. Alternatively, the findings confirmed the arguments of the stress/coping theory that emphasized the importance of subjective interpretations of circumstances/stressors one encounters. Findings from this study seemed to suggest that trauma related symptoms could result not only from actual experiences of trauma (exposure) or what one did during the traumatic experiences (agency), but especially from threats that one perceives as life endangering. Additionally, such a sense of threat could also relate to a decreased sense of personal wellbeing. These findings have important implications for counseling that will be discussed later.

The results from the hierarchical regression analyses also revealed that the three predictor variables accounted for 58% of the variance for PTSD, and 46% of the variance for PWB. The results seem compatible to a previous study with Gulf War veterans conducted by Vogt and Tanner (2007) who used several of the same instruments to measure exposure, perceived threat, and PTSD as this study and found a slightly higher percentage (64%) of variance accounted for by the six factors chosen. This dissertation study only included the trauma factors (agency, exposure, and perceived threat), but Vogt and Tanner included an additional two pretrauma and two post-trauma factors. In spite of using these four additional factors, only a slightly higher percentage of PTSD variance was accounted for. Possible explanations for the limited contributions of these four additional factors could be the use of different samples, and interacting effects or shared variances of some of their variables. The comparison raised questions about whether all

pretrauma, trauma, and post-trauma factors are equally important. Current findings seem to indicate that the trauma factors (specifically exposure, perceived threat, and agency) would account for most PTSD variance, results consistent with findings from Brewin et al. (2000). Clarifying the importance of various factors has both research and clinical implications. While exploring all factors related to the development of PTSD could provide a more comprehensive view and treatment of PTSD, focusing on the most debilitating or contributing factors would hopefully enhance treatment effectiveness in a timely manner.

The third hypothesis proposed that guilt would mediate the relationships of agency with PTSD and PWB. The results of the mediation analyses supported this hypothesis: guilt was a mediator between exposure and PTSD, and agency and PTSD, but not between perceived threat and PTSD. The findings were consistent with results from Marx et al. (2010) that reported partial mediation of guilt between exposure to combat related violence and PTSD, and complete mediation of guilt between participation in combat related violence and PTSD. While it was anticipated that guilt would mediate agency due to acts of commission, one wonders why guilt also mediated exposure. What kind of guilt could veterans experience when they were exposed to combat while not having injured or killed others? It is possible that the guilt here was more about acts of omission; for example, survival guilt or maybe guilt over failure to protect or prevent harm. It is also possible that the guilt may come from post-battle exposure to evidence of destruction, especially if one was in any way involved in the causing of destruction. Also, guilt was a mediator between agency and PWB, but not exposure or perceived threat and PWB. This finding indicated that the sense of guilt resulting from what one

did (agency/acts of commission) was related to one's overall sense of wellbeing. Future research is needed to examine the mechanisms at work that mediate exposure or perceived threat with PWB.

Other Important Findings

One finding that was of significant concern was the percentage (72%) of veterans who reported having at least one moderate PTSD symptoms and those identified as PTSD positive (43%). This result was consistent with previous findings that estimated 35% (Mastnak, 2008) to 44% (Lapierre et al., 2008) of returned soldiers developed trauma related symptoms as a result of their military services. Unfortunately, we do not know how many of these veterans have sought help for their symptoms. Additionally, in spite of exclusion statements in the invitation email and online informed consent regarding suicidal ideation, 30 veterans still reported suicidal thoughts and became ineligible to participate in the study. The responses of these suicidal veterans, like a silent cry for help, leave one to wonder how many more suicidal veterans are out there who chose not to take the survey given the cautionary statements. In fact, a recent study of OIF/OEF veterans ($n = 272$) found 12.5% of participants reported suicidal thoughts in the two weeks prior to the study (Pietrzak, Goldstein, Malley, Rivers, Johnson, & Southwick, 2010). One cannot help but feel concerned for the psychological wellbeing of the veterans suffering from PTSD, suicidality, and other mental health issues.

Correlational analyses revealed guilt to be highly correlated with PTSD but only moderately correlated with agency. Such results seemed to indicate that there may be other sources of guilt that were not explored in this study. As discussed previously, guilt could be related to acts of commission (e.g., injuring or killing) or omission (e.g., failing

to protect). It would be important for future studies to further explore how different sources of guilt (including both commission and omission) could be related to post-war adjustments.

The results from the correlational analyses on the high contributions/correlations of guilt to PTSD were consistent with two findings of Kubany and colleagues in 1995 and 1996 who reported that trauma-related guilt correlated .80 and .72 respectively with Mississippi Scale for Combat-Related PTSD. As discussed previously, guilt was understood as such an integral part of PTSD that the DSM-III listed survivor guilt as one of diagnostic criteria of PTSD (Parson, 1986), although it was later removed in the DSM-IV (Glover, 1984). There seemed to have been much reluctance in examining war zone related guilt in studies, even though guilt has been repeatedly reported and observed in clinical practice (Silver & Rogers, 2002; Tick, 2005). Again, according to PsycINFO, only 2.6% of what has been published since 1967 addressed military veterans and guilt. The high correlations/contributions of guilt to PTSD and PWB found in this study call out to researchers and clinicians to pay more attention to guilt in studies and clinical practices. The recommendation from Kubaney et al. (1997) for clinicians to identify specific sources of guilt in their treatment of returned veterans is as crucial today as when it was made a decade ago.

The fact that when guilt was entered, the contributions of perceived threat to PTSD/PWB became insignificant ($p < .01$) indicated that these two psychological constructs share common variances. While this finding further confirmed the validity of stress/coping theories in the importance of personal appraisals and meanings in stressful encounters, it was not clear what shared common variance exists between guilt and

perceived threat. What kind of guilt might the veterans feel about their sense of danger during deployments? What common mechanisms were operating between these two psychological constructs? Maybe veterans felt guilty about their heightened sense of danger due to irrational expectations of themselves being fearless soldiers, as Opp and Samson (1989) defined as superman/superwoman guilt. Or maybe some other unidentified mechanisms underlies these two constructs. While studies have explored the relationships between guilt and perceived threat to PTSD/PWB individually and separately, no study has ever explored guilt and perceived threat jointly to understand the relationship between these two constructs. This study may have been the first to uncover a potential relationship between them. Future studies are needed to shed light on the connection between guilt and perceived threat.

Other interesting discoveries included the slight correlations between years of education and rank with all three predictor variables and PTSD/PWB. Such findings may suggest that having higher education and higher rank could result in different kinds of combat experiences (e.g., different roles in different missions) that potentially led to lower risk for PTSD and higher degree of PWB. Or one's level of education/rank might be related to how one acted during combat in ways that in turn related to lower PTSD and higher PWB. Future studies could further explore the implications of education and rank on PTSD and PWB.

Surprisingly, correlational analyses also indicated that higher numbers of deployments were correlated slightly with lower guilt, lower PTSD, and higher PWB. One would have thought the results should have been the opposite. One possible explanation could be that those who were deployed multiple times (e.g., 3 or above)

could be considered professional soldiers (those who enlist for two or more times). These professional soldiers could be better equipped to cope with war zone experiences and therefore they experienced less guilt and PTSD, and had a greater sense of personal wellbeing. Here it is important to distinguish between the number of deployments and the number of enlistments. Among Iraq/Afghanistan veterans, multiple deployments during a 4-year enlistment are common. In the current sample, 44% were deployed more than once. However, multiple deployments do not make one a professional soldier. Unfortunately this study did not inquire how many times the veterans enlisted, and therefore could not distinguish among those who only enlisted once but deployed multiple times from those who enlisted multiple times. Given that the lengths of deployments range from six months to over three years, one could probably assume that those with more than three deployments might have enlisted more than once. Future studies are needed to further explore the relationships between the number of enlistments and post-war adjustments.

Limitations

There were several limitations to this study. To start, the exclusion of suicidal veterans may skew the findings since these ineligible veterans may have been among those most impacted by war zone trauma due to the severity of their symptoms (e.g., suicidal ideation). Also, potential participants may have been deterred from taking the survey due to fears of potential psychological risks to them as stated in the invitation letter and informed consent. Or potential participants may have been deterred by the amount of time it would take to complete the 152-question survey. With the study being an online survey, potential participants were restricted to those who had access to internet

services. No statistical information is available to assess the percentage of veterans who utilize the internet.

Moreover, the participants in this study could be functioning at a higher level than the general veteran population for several reasons. First, as mentioned previously, those with suicidal ideation in the past three months were excluded from the study due to concerns for potential psychological risks for them. Second, the author was unable to recruit through the VA system because VA Internal Review Board (IRB) approval would have taken minimally an additional four to six months to obtain. Consequently, the recruitment efforts were focused on student veterans organizations and online veterans organizations (websites and Facebook pages). Among 242 student veterans organizations contacted, 23 organizations responded and encouraged their members to participate in response to the incentive of donation to the Wounded Warriors Project. Unfortunately the study did not inquire if the participants were students or if they were under the care of a mental health professional, so it is difficult to assess the percentage of student veterans or treatment seeking veterans in the sample. Additionally, the sample may not include veterans who were hospitalized or who suffered from brain injuries or other disabilities that might have prevented them from participating in the online survey. Due to the above reasons, participants in this study may not be representative of the veteran population.

Some participants did not complete the entire questionnaire, which resulted in attrition and missing data. Using the pair-wise deletion strategy allowed the analyses to take place in spite of the presence of missing data, but it resulted in correlation coefficients based on slightly different groups of cases (Norusis, 2004). Because all the measures were based on a mono method (self report), the information collected may be

biased. Since the nature of the study was retrospective and some participants were asked to recollect events that happened months or years ago, self reporting may have contained recall biases. The use of other sources of data is recommended for future studies.

Additionally, some of the constructs (agency, perceived threat, guilt, and PTSD) were measured only by one indicator. Thus, the scope of constructs may not have been fully conveyed or examined. Due to concerns over suicidality, four questions assessing suicidality were removed from the Laufer-Parson Guilt Inventory, which may have altered the psychometric properties of this instrument.

Additional Suggestions for Future Studies

This dissertation study found that the three predictor variables (exposure, agency, and perceived threat) and the mediator (guilt) all contributed significantly to PTSD and PWB. Together they accounted for a large portion of the variance in PTSD and PWB. Because the sample used in the study was likely to be a higher functioning group of veterans, for comparative purposes future studies could try to recruit more treatment-seeking or suicidal veterans as participants. In order to reach this potentially higher risk veteran population, researchers may need to collaborate with the VA system. Increasing the representation of veterans by making it possible for treatment seeking, suicidal, and injured veterans to participate would strongly increase the validity of a replication study.

Due to concerns over potential psychological risks such as triggering suicidal ideation or PTSD symptoms, this online dissertation study was unable to explore in depth various sources of guilt and the details of PTSD symptoms. In order to explore more thoroughly these sensitive aspects of war zone related experiences, researchers may need to: (a) administer the study onsite, (b) provide good on-site monitoring of suicidality and

PTSD symptoms, and (c) make treatments readily available to minimize potential psychological risks. Funding may be needed to provide these recommended safety protection.

Future studies are also needed to further clarify the psychological implications of the various types of combat experiences: exposure, injuring/killing of enemy combatants, agency of civilian casualties, and atrocity. While studies had demonstrated the separately association between various types of killing and PTSD, no study has ever clearly distinguished these various war zone/combat experiences and examined their relationships with PTSD or other post-war adjustment difficulties. Future studies are needed to explore further the relationships and distinctions of these war zone/combat experiences to better delineate the psychological implications of these experiences. Attention should especially be paid to studying the construct of civilian casualties, since injuries and deaths of civilians have increased substantially in modern warfare (Summerfield, 1995). The psychological implications of being the agents of civilian casualties should be more carefully examined, in addition to those of combat experiences that involve injuring/killing of enemy combatants and/or atrocity.

The current sample of veterans had surprisingly low agency, Agency-Civilian-Casualties, and atrocity, indicating that in spite of high combat exposure, this particular group of veterans did not engage much in the harming and killing of noncombatants. Such findings provided assurance that in spite of being under extreme combat/war zone stressors, the soldiers still were able to refrain from excessive civilian casualties. At least in this current sample of veterans, the harming and killing of noncombatants were not common occurrences. It would be important for future studies to explore if a different

sample of veterans would have different scores in agency/civilian causalities/atrocities, whether those scores would be higher especially among the treatment seeking and suicidal veterans, and how those scores may relate to PTSD or PWB. Again, the findings from a more representative sample will provide researchers with a better understanding of veterans' various combat experiences and their psychological implications.

Implications for Counseling

To date, over 1.6 million American soldiers have been deployed to Iraq or Afghanistan. It was estimated that more than 300,000 of these veterans/service members may have PTSD or depression (Tanielian & Jaycox, 2008). Considering that previous findings estimated between 35% (Mastnak, 2008) to 44% (Lapierre et al., 2008) of returned soldiers developed trauma related symptoms as a result of their military services, we are possibly looking at somewhere between half a million to 700,000 returning veterans who may suffer from clinically significant PTSD symptoms. Additionally, this dissertation study found 72% of the sample veterans reported having at least one moderate PTSD symptom and 43% of the sample participants identified as PTSD positive. The potential needs for veterans and their families to seek PTSD treatment necessitate the demand for clinicians who understand and can work with trauma, especially war zone related traumas. Additionally, the high comorbidity between PTSD and other adjustment difficulties (Miller et al., 2008; Qureshi et al., 2009; Sayers et al. 2009; Wagner et al., 2007) also requires clinicians to develop competence in working with dual or multiple diagnoses and comorbidities with PTSD. Counselors especially need to be intentional in exploring trauma related symptoms even if a veteran client does not meet the full PTSD diagnostic criteria. Because studies also found ripple effects of

PTSD on veterans' partners and families (Galovski & Lyons, 2004; Suozzi & Motta, 2004), counselors should also be familiar with the unique needs of veterans and their families so as to address their encompassing issues more effectively.

As this study found, perceived threat accounted for a large portion of total variance for PTSD. Therefore, in addition to combat exposure and killing that took place during combat, it is also important for counselors to assess and process with treatment seeking veterans aspects of their war zone experiences that felt life-threatening. Moreover, due to the high contribution of guilt to PTSD and PWB, it is especially important that counselors thoroughly explore and process sources of guilt (including omission and commission) when working with veterans. Treatment approaches that address combat experiences without processing the psychological implications such as guilt or perceived threat may only lead to partial symptom relief.

Even though results from correlational analyses found only small or no correlations between race/gender/income/education/rank and PTSD/PWB, a counselor should always have an eye on how these demographic factors may possibly relate to PTSD and one's sense of PWB for individual veterans. Also, in addition to providing individual counseling services, from a social justice perspective (Constantine, Hage, Kindaichi, & Bryant, 2007; Toporek, Lewis, & Crethar, 2009), counselors should advocate for more mental health resources and programs to be made accessible to veterans and their families. Counselors also need to advocate for professional development workshops that continuously update and educate mental health providers on the emerging needs of Iraq/Afghanistan veterans and their families and the effective treatments available to address adjustment difficulties. Last, it is also imperative for

counselors to raise societal awareness on the cost of war and the silent suffering of veterans and their families who bear the burden of war traumas (Summerfield, 1995).

Conclusion

The current study sought to make its unique contribution to current literature on PTSD among Iraq/Afghanistan War veterans by clarifying and delineating circumstantial factors from psychological factors. Specifically, the inclusion and expansion of the agency construct distinguished veterans' involvement in combat from exposure. Consequently this study was among the first to conduct an extensive exploration of aspects of injuring and killing of enemy combatants and civilians and their psychological implications. The results from the factor analyses indicated that the injuring/killing of enemy combatants may need to be included in the assessment of combat exposure to encompass a wider range of combat experiences. Future studies are needed to understand better the psychological implications of various aspects of war zone combat experiences.

The results from the regression analyses found the three predictors (exposure, agency, and perceived threat) contributed to a large portion of variance for PTSD and PWB. Moreover, in addition to its high contributions to PTSD and PWB, guilt was found to mediate the relationships of agency with PTSD and PWB, as well as the relationship between combat exposure to PTSD. This was one of the first studies conducted that systematically and specifically examined the role of guilt as a mediator between combat exposure/agency and PTSD/PWB. Also, this study was the first to uncover shared variances between perceived threat and guilt especially in relations to PTSD and PWB. The significant contributions of perceived threat and guilt to PTSD and PWB provided support to Lazarus' stress/coping theory (1993) that emphasized the importance of

emotional meaning in coping with stressful encounters. Collectively these findings bridge the gap between research and clinical practice in the understanding of PTSD and PWB among veterans. It is highly recommended that in addition to focusing on combat exposure as existing literature had historically explored, researchers and clinicians should take into serious consideration the different aspects of combat experiences distinguished in this study, perceived threat, and different sources of guilt in the treatment of PTSD to enhance treatment effectiveness and increase veterans' sense of personal wellbeing.

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Appendices

Appendix A: Demographic Questions

Participants will complete a short form to indicate the following:

1. Age: _____
2. Gender: _____ Male _____ Female
3. Ethnicity/race:
(check as many
as apply) _____ White
_____ African American
_____ Latino/Hispanic American
_____ Native American
_____ Asian American/Pacific Islander
_____ Multi-racial
_____ Other(s) (please specify)
4. Relational Status: _____ Single
_____ Married/Partnered
_____ Separated
_____ Divorced
_____ Widowed
_____ Co-habitation
_____ Other(s) (please specify)
5. Educational background:
_____ Less than 12 years
_____ GED or High school diploma
_____ Junior College Degree
_____ Four-year College/University Degree
_____ Graduate or Professional Degree
_____ Doctorate Degree
6. Socioeconomic/Annual income levels:
_____ Less than \$19,999
_____ \$20,000 – \$34,999
_____ \$35,000 – \$49,999
_____ \$50,000 – \$64,999
_____ \$65,000 – \$79,999
_____ \$80,000 and above

7. Branches of Services:

- Army
- Marines
- Navy
- Air Force
- Guard Forces

8. Rank:

- Commissioned officer
- Non-commissioned

9. Missions:

(check all the apply)

- Operation Enduring Freedom (OEF)
- Operation Iraqi Freedom (OIF)
- Operation Desert Storm
- other(s) (Please specify: _____)

10. The number of tours/deployments to active war zones have you experienced: please fill in the number 1 2 3 4 5 6 or more

11. Length of each deployment: How long were your deployments?

(Less than 6 months; 6 to 12 months; 12 to 18 months; 18 to 24 months; 24 to 36 months, more than 36 months)

- 1st Deployment: _____
- 2nd Deployment: _____
- 3rd Deployment: _____
- 4th Deployment: _____
- 5th Deployment: _____

12. Month/Year of return from last deployment: When did you get back from your last deployment? _____ (mm/yyyy) (NOTE: write "current" if currently deployed)

Appendix B: DRRRI Combat Experiences Questions

The statements below are about your combat experiences during deployment. Please circle "yes" if the statement is true or "no" if the statement is false.

While deployed:

1. I went on combat patrols or missions.
2. I or members of my unit encountered land or water mines and/or booby traps.
3. I or members of my unit received hostile incoming fire from small arms, artillery, rockets, mortars, or bombs.
4. I or members of my unit received "friendly" incoming fire from small arms, artillery, rockets, mortars, or bombs.
5. I was in a vehicle (for example, a truck, tank, APC, helicopter, plane, or boat) that was under fire.
6. I or members of my unit were attacked by terrorists or civilians.
7. I was part of a land or naval artillery unit that fired on the enemy.
8. I was part of an assault on entrenched or fortified positions.
9. I took part in an invasion that involved naval and/or land forces.
10. My unit engaged in battle in which it suffered casualties.
11. I personally witnessed someone from my unit or an ally unit being seriously wounded or killed.
12. I personally witnessed soldiers from enemy troops being seriously wounded or killed.
13. I was wounded or injured in combat.

Appendix C: DRRRI Post-Battle Experiences Subscale

Next are statements about your experiences AFTER battle. Please indicate if you ever experienced the following events anytime while you were deployed by circling either “yes” or “no.”

1. I observed homes or villages that had been destroyed.
2. I saw refugees who had lost their homes and belongings as a result of battle.
3. I saw people begging for food.
4. I or my unit took prisoners of war.
5. I interacted with enemy soldiers who were taken as prisoners of war.
6. I was exposed to the sight, sound, or smell of animals that had been wounded or killed from war-related causes.
7. I took care of injured or dying people.
8. I was involved in removing dead bodies after battle.
9. I was exposed to the sight, sound, or smell of dying men and women.
10. I saw enemy soldiers after they had been severely wounded or disfigured in combat.
11. I saw the bodies of dead enemy soldiers.
12. I saw civilians after they had been severely wounded or disfigured.
13. I saw the bodies of dead civilians.
14. I saw Americans or allies after they had been severely wounded or disfigured in combat.
15. I saw the bodies of dead Americans or allies.

Appendix D: Atrocities Exposure Questions

Please indicate if you ever experienced the following events anytime while you were deployed by answering either “yes” or “no”.

1. I saw the harming or torturing of Iraqis or Afghans in non-combatant circumstances.
2. I saw killing of Iraqis or Afghans in non-combatant circumstances.
3. I saw the mutilating of Iraqis or Afghans in non-combatant circumstances.

Appendix E: DRRRI Perceived Threat Subscale

The statements below are about the amount of danger you felt you were exposed to while you were deployed. Please read each statement and describe how much you agree or disagree with each statement by circling the number in the column that best fits your answer.

1	2	3	4	5
Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree

1. I thought I would never survive.
2. I felt safe.
3. I was extremely concerned that the enemy would use nuclear, biological, chemical agents (NBCs) against me.
4. I felt that I was in great danger of being killed or wounded.
5. I was concerned that my unit would be attacked by the enemy.
6. I worried about the possibility of accidents (for example, friendly fire or training injuries in my unit).
7. I was afraid I would encounter a mine or booby trap.
8. I felt secure that I would be coming home after the war.
9. I thought that vaccinations I received would actually cause me to be sick.
10. I was concerned that the tablets I took to protect me would make me sick.
11. I felt that I would become sick from the pesticides or other routinely used chemicals.
12. I was concerned about the health effects of breathing bad air.
13. I thought that exposure to depleted uranium would negatively affect my health.
14. I was afraid that the equipment I was given to protect me from nuclear, biological, chemical agents (NBCs) would not work.
15. I worried about getting an infectious disease.

Appendix F: Questions Assessing Agency

The statements below are about your combat experiences during deployment. Please answer “yes” or “no” to the questions.

While deployed:

1. Did you fire a weapon at the enemy?
2. Did you injure any enemy combatants during your deployment(s)?
3. Did you injure any enemy noncombatants during your deployment(s)?
4. Did you injure any fellow soldiers during your deployment(s)?
5. Did you injure any non-enemy civilians during your deployment(s)?
6. Did you injure any children during your deployment(s)?
7. Did you kill any enemy combatants during your deployment(s)?
8. Did you kill any enemy civilians during your deployment(s)?
9. Did you kill any fellow soldiers during your deployment(s) (e.g., friendly fire)?
10. Did you kill any non-enemy civilians during deployment(s)?
11. Did you kill any children during your deployment(s)?
12. Were you responsible for the death of any enemy combatant during your deployment(s)?
13. Were you responsible for the death of any enemy civilian during your deployment(s)?
14. Were you responsible for the death of any fellow soldier during your deployment(s)?
15. Were you responsible for the death of any non-enemy civilian during your deployment(s)?
16. Were you responsible for the death of any children during your deployment(s)?
17. Did you participate in the harming or torturing of Iraqis or Afghans in non-combatant circumstances?
18. Did you participate in the killing of Iraqis or Afghans in non-combatant circumstances?
19. Did you participate in the mutilating of Iraqis or Afghans in non-combatant circumstances?

Appendix G: Laufer-Parson Guilt Inventory

Below is a list of statements about how some veterans have felt about their experiences in the war. Read each one carefully, and select one of the numbers from "1" to "5" on the scale in the box below that best describes your experiences for each one during the past 6 months.

1 2 3 4 5
NEVER ALMOST NEVER SOMETIMES FAIRLY OFTEN VERY OFTEN

DURING THE PAST 6 MONTHS, HOW OFTEN HAVE YOU HAD:

1. Thoughts of remorse for the things you did to survive in the war
2. Overwhelming feelings of guilt when you think or see things about the war
3. Feelings that you are a "marked" man (i.e., destined to have something bad happen to you)?
4. Thoughts of combat situations where you felt that you let your buddies down
5. Feelings that your conscience bears a heavy burden
6. Thoughts about how your unit or buddies treated civilians
7. Remorse over killing a child or children in the war
8. Thoughts that you need forgiveness for hurting POWs [prisoners of wars] or civilians
9. Thoughts about the things your unit or buddies did to enemy soldiers
10. Feelings of personal responsibility for what you feel was unnecessary taking of lives
11. Thoughts that the things you did in the war were unforgivable - that no one can forgive you
12. Getting upset for not risking your own life to help a wounded buddy or comrade who later died
13. Nervousness and depressed feelings when you think of how wild you were in the war and the things you did "just for the hell of it"
14. Getting upset because you feel a buddy or comrade got killed because of something you did or did not do
15. "Bad" dreams of being chased and not being able to get away

16. Feeling guilty without knowing why you feel that way
17. "Bad" dreams of civilian children or adults you may have killed
18. Getting upset because you feel that you injured or killed a fellow soldier or buddy by friendly fire
19. Thoughts of being "unclean" because of the killing you did in the war
20. Thoughts that nobody can love you because of what you did in the war
21. Thoughts that you do not deserve the good things of life – like children and a loving spouse/partner
22. Thoughts that you do not deserve a good, stable job with a future
23. Thoughts of "paying the piper" (i.e., being punished) for the terrible things you did in the war
24. Thoughts that something will happen to your family or other loved ones
25. Guilt about contributing to the death of buddies

Appendix H: PTSD Checklist –Military (PCL – M)

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 circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

1. Repeated, disturbing memories, thoughts, or images of a stressful military experience?
2. Repeated, disturbing dreams of a stressful military experience?
3. Suddenly acting or feeling as if a stressful military experience were happening again (as if you were reliving it)?
4. Feeling very upset when something reminded you of a stressful military experience?
5. Having physical reactions (e.g., heart pounding, trouble breathing, sweating) when something reminded you of a stressful military experience?
6. Avoid thinking about or talking about a stressful military experience or avoiding having feelings related to it?
7. Avoiding activities or situations because they reminded you of a stressful military experience?
8. Trouble remembering important parts of a stressful military experience?
9. Loss of interest in activities that you used to enjoy?
10. Feeling distant or cut off from other people?
11. Feeling emotionally numb or being unable to have loving feelings for those close to you?
12. Feeling as if your future would somehow be cut short?
13. Trouble falling or staying asleep?
14. Feeling irritable or having angry outbursts?
15. Having difficulty concentrating?
16. Being “super-alert” or watchful or on guard?
17. Feeling jumpy or easily startled?

Appendix I: The Satisfaction with Life Scale (SWLS)

The SWLS is a short, 5-item instrument designed to measure global cognitive judgments of one's lives. The scale usually requires only about one minute of respondent time. The scale is not copyrighted, and can be used without charge and without permission by all professionals (researchers and practitioners). The scale takes about one minute to complete, and is in the public domain. A description of psychometric properties of the scale can be found in Pavot and Diener, 1993 Psychological Assessment.

Survey Form

Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below to indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

- 7 - Strongly agree
- 6 - Agree
- 5 - Slightly agree
- 4 - Neither agree nor disagree
- 3 - Slightly disagree
- 2 - Disagree
- 1 - Strongly disagree

_____ In most ways my life is close to my ideal.

_____ The conditions of my life are excellent.

_____ I am satisfied with my life.

_____ So far I have gotten the important things I want in life.

_____ If I could live my life over, I would change almost nothing.

- 35 - 31 Extremely satisfied
- 26 - 30 Satisfied
- 21 - 25 Slightly satisfied
- 20 Neutral
- 15 - 19 Slightly dissatisfied
- 10 - 14 Dissatisfied
- 5 - 9 Extremely dissatisfied

Appendix J: Self-Acceptance Subscale

Participants respond using a six-point format: strongly disagree (1), moderately disagree (2), slightly disagree (3), slightly agree (4), moderately agree (5), strongly agree (6).

- (+) [1.] When I look at the story of my life, I am pleased with how things have turned out.
- (+) [2.] In general, I feel confident and positive about myself.
- (-) [3.] I feel like many of the people I know have gotten more out of life than I have.
- (-) 4. Given the opportunity, there are many things about myself that I would change.
- (+) [5.] I like most aspects of my personality.
- (+) [6.] I made some mistakes in the past, but I feel that all in all everything has worked out for the best.
- (-) [7.] In many ways, I feel disappointed about my achievements in life.
- (+) 8. For the most part, I am proud of who I am and the life I lead.
- (-) 9. I envy many people for the lives they lead.
- (-) [10.] My attitude about myself is probably not as positive as most people feel about themselves.
- (-) 11. Many days I wake up feeling discouraged about how I have lived my life.
- (+) [12.] The past had its ups and downs, but in general, I wouldn't want to change it.
- (+) [13.] When I compare myself to friends and acquaintances, it makes me feel good about who I am.
- (-) 14. Everyone has their weaknesses, but I seem to have more than my share.

(+) indicates positively scored items

(-) indicates negatively scored items

Internal consistency (coefficient alpha) = .91

Correlation with 20-item parent scale = .99

Appendix K: Purpose in Life Subscale

Participants respond using a six-point format: strongly disagree (1), moderately disagree (2), slightly disagree (3), slightly agree (4), moderately agree (5), strongly agree (6).

- (+) 1. I feel good when I think of what I've done in the past and what I hope to do in the future.
- (-) [2.] I live life one day at a time and don't really think about the future.
- (-) [3.] I tend to focus on the present, because the future nearly always brings me problems.
- (+) 4. I have a sense of direction and purpose in life.
- (-) [5.] My daily activities often seem trivial and unimportant to me.
- (-) [6.] I don't have a good sense of what it is I'm trying to accomplish in life.
- (-) [7.] I used to set goals for myself, but that now seems like a waste of time.
- (+) [8.] I enjoy making plans for the future and working to make them a reality.
- (+) [9.] I am an active person in carrying out the plans I set for myself.
- (+) [10.] Some people wander aimlessly through life, but I am not one of them.
- (-) [11.] I sometimes feel as if I've done all there is to do in life.
- (+) 12. My aims in life have been more a source of satisfaction than frustration to me.
- (+) 13. I find it satisfying to think about what I have accomplished in life.
- (-) 14. In the final analysis, I'm not so sure that my life adds up to much.

- (+) indicates positively scored items
- (-) indicates negatively scored items

Internal consistency (coefficient alpha) = .88

Correlation with 20-item parent scale = .98

Appendix L: Invitation Letter

Invitation to Returned Iraq/Afghanistan Veterans to Participate in an Online Study

Dear Veteran and Service Members,

You are invited to participate in an important online study on combat experiences. As a concerned doctoral student, I have decided to focus my doctoral dissertation study on examining how veterans' experiences of war and combat are related to post-war adjustments. This study will be conducted under the supervision of Dr. Angela Coker, my advisor and a professor at the Division of Counseling and Family Therapy at University of Missouri – St. Louis. While many studies have looked at the impact of combat exposure, few have examined closely aspects of combat and war zone experiences that may have more sustained impact. Your participation in this study will help researchers and clinicians understand the treatment needs of combat veterans better.

To ensure your privacy and anonymity, the study is conducted through an online survey. I will not trace or link your answers to any personal information. You are completely free to answer the questions without fears of disclosing personal identity. There is no way for me to discover your identity.

Due to the nature of the study, you will be asked detailed and explicit questions about your combat exposure and experiences. Answering these questions may cause uncomfortable or even disturbing emotional reactions. To minimize the potential psychological risks involved in taking the survey, if you have had suicidal thoughts in the past 3 months, you will not be eligible to participate in the study.

I regret not being able to compensate you for taking the time to participate in this study. As a small token of my appreciation for your participation, I will donate \$1 to the Wounded Warrior Project for every survey completed, up to \$600. Additionally, information about resources and mental health services available to veterans will be provided at the end of the survey. Please know that effective treatments are available for people with trauma. Please do not give up hope for recovery.

If you decide to participate in this study, please click on the link below. It will take you to the survey website. You will first be asked to give your informed consent before proceeding to the survey. Please read the informed consent carefully as it explains more about the study and the potential psychological risks involved in taking the survey. Your participation to this study is completely voluntary. The survey will take you about 25-30 minutes to complete. Here is the link to the study:

<https://www.surveymonkey.com/s/Iraq-AfghanistanVeterans>

Please feel free to forward this e-mail invitation to other eligible veterans or any related listservs. Thank you in advance for helping me to learn more about war zone experiences.

Sincerely,

Hsin-hsin

Hsin-hsin Huang, MSW, LCSW
Doctoral Student & Graduate Research Assistant
University of Missouri - St. Louis
Division of Counseling & Family Therapy
466 Marillac Hall, One University Boulevard
St. Louis, Missouri 63121-4499
Office: (314) 516-5782
E-mail: Research-Huang@hotmail.com

p.s. Please note: This study was approved by the UM-St. Louis Institutional Review Board. Their contact number is (314) 516-5897.

*Appendix M: Research Invitations Sent to the Following Organizations*Survey Invitations Posted at Following Sites

No.	Names or Organizations	Blog	Website	Facebook	Emails
1	Google Military Blogs	X			
2	http://tcoverride.blogspot.com/	X			
3	www.303dsoldier.blogspot.com/	X			
4	www.allmilitary.com	X	X		
5	www.airforcetimes.com	X	X		
6	www.armytimes.com	X	X		
7	www.bouhammer.com/	X			
8	www.cnas.org/blogs/abumuqawama	X			
9	www.marinecorpstimes.com	X	X		
10	www.milblogging.com	X			
11	www.military.com	X	X		
12	www.militarysos.com		X		
13	www.militarytimes.com	X	X		
14	www.navytimes.com	X	X		
15	www.soldierlog.blogspot.com/	X			
16	www.soldiersperspective.us	X			
17	www.spousebuzz.com/	X			
18	www.tokeofthetown.com	X	X		
19	www.voiceofaveteran.blogspot.com/	X			
20	Airman Magazine			X	
21	Air Compassion for Veterans			X	
22	American Soldiers			X	
23	Christian American Veterans			X	
24	Coalition for Iraq and Afghanistan Veterans			X	
25	Disabled American Veterans			X	
26	Disabled American Veterans Auxiliary			X	
27	Fleet & Family Support Center, NAS Meridian, MS			X	
28	Fleet and Family Support Program			X	
29	FOX News: Support Our Troops			X	
30	Healing Heroes Network			X	
31	Homes for Our Troops			X	
32	I ♥ THE U.S. MARINES			X	
33	I support Operation Iraqi Freedom and Operation Enduring Freedom			X	
34	I Support The U.S. Air force			X	
35	IAV (Iraq Afghanistan Vets) Against IVAW ¹			X	
36	Iraq Veterans against the War (IVAW)			X	X

37	IVAW Fort Hood			X	
38	Iraq Veterans against the War - Madison			X	
39	Iraq and Afghanistan Veterans of America			X	
40	Iraq Veterans for Congress			X	
41	Iraq Veterans' Refugee Aid Association			X	
42	Massachusetts' Women Veterans' Network			X	
43	Military OneSource			X	
44	MRCC: Supporting survivors of Military Sexual Trauma			X	
45	NAS Whiting Field Fleet and Family Support Center			X	
46	National Guard Association of the United States			X	
47	National Military Family Association			X	
48	National Veterans Foundation			X	
49	OIF/OEF Veterans of Massachusetts			X	
50	OIF Veteran Community			X	
51	~Our Hometown Heroes~ 1-178th "Operation Enduring Freedom"			X	
52	Paralyzed Veterans of America			X	
53	Special Forces			X	
54	SUPPORT OUR TROOPS			X	
55	Supporting Our United States' Veterans of Iraq and Afghanistan			X	
56	Strength At Home			X	
57	Student Veterans of America ²			X	X
58	SUPPORT OUR TROOPS			X	
59	Support The Troops			X	
60	Support the Troops!			X	
61	SUPPORT YOUR VET - For Friends and Family of Iraq and Afghanistan Veterans			X	
62	Swords to Plowshares			X	
63	The American Legion			X	
64	The "Eagle" Battalion			X	
65	The Mission Continues			X	
66	The National Guard			X	
67	The Official Home of the Florida National Guard			X	
68	United States Marine Corps Official Page			X	

69	United States Marine Corps - Official Page			X	
70	United States' Veterans of Iraq and Afghanistan			X	
71	U.S. Air Force			X	
72	U.S. Army			X	
73	U.S. Army Active Duty			X	
74	U.S. Army Special Operations Command			X	
75	U.S. Marines			X	
76	US Marines in Afghanistan by Marty Aalto			X	
77	U.S. Navy			X	
78	U.S. Navy SEAL & SWCC Page			X	
79	Vets4Vets			X	
80	Veterans			X	
81	Veterans of Foreign Wars (VFW)			X	
82	VFW Post 10295			X	
83	Veterans of Operation Iraqi/Enduring Freedom			X	
84	Veterans Village of San Diego			X	
85	Webster University Los Angeles Air Force Base			X	
86	Webster University			X	
87	Webster U. Colorado Springs			X	
88	Webster University Albuquerque			X	
89	Women Veterans of Louisiana			X	
90	Wounded Warriors Family Support			X	
91	Wounded Warrior Project			X	X
92	American Women Veterans				X
93	Listserv - AAPA				X
94	Listserv - CCCA				X
95	Listserv - CESNET				X
96	Listserv - EFT				X
97	Listserv - EMDR				X
98	VeteransIssues Newsletter				X
99	Webster Air Force Base campuses ³				X
100	Winter Soldier				X
101	Women Veterans of America ⁴				X
102	afrsv-owner@yahoogroups.com				X
103	IVAW-SoCal Supporters Google group				X
104	IVAW Madison Members and Supporters Google group				X
105	marinewarmemorialmarch-owner				X

	@yahoogroups.com				
106	Respect The Vet Google group				X
107	soc.veterans Google group				X
108	stllouisiraqwarvets-owner @yahoogroups.com				X
109	student-veteran-organization-at-sdsu @googlegroups.com (San Diego State University)				X
110	studentveterans@googlegroups.com				X
111	returning-veterans-initiative @googlegroups.com				X
112	VFW Post 10692 Google group				X
113	San Francisco Veterans Google group				X
114	UM system selective students				X
115	UMSL student veterans				X
116	Friends and colleagues living or working at military bases or VA				X

Notes:

1. Iraq Veterans against the War: Individualized email requests/invitations were sent to staff listed on the website. Research invitations were posted on twitter & facebook by IVAW.
2. Student Veterans of America: Individualized email invitations/requests sent to 242 chapter leadership/presidents twice (two weeks apart); 23 responded and forwarded the email invitation to members.
3. Webster Air Force/Military Bases campuses: Thirty individualized email requests/invitations to each site directors. Six directors responded supportively and forwarded the invitation to faculty/students.
4. Women Veterans of America: An email request was sent to the national command who then forwarded/emailed the research invitation to all chapters and members.

Appendix N: Online Informed Consent for Participation in Research Activities

Dear Veteran:

You are invited to participate in an online study conducted by Hsin-hsin Huang, a doctoral student under the supervision of Dr. Angela Coker, an Assistant Professor of Counseling and Family Therapy, on the relationship of combat experiences to post-war adjustment.

Your participation will involve answering questions online through SurveyMonkey, an internet survey service widely used by researchers in education. Approximately 600 veterans may be involved in this study. It will take about 25–30 minutes to answer about 150 short questions. There is no financial compensation for participation. However, as a small token of appreciation, the researcher will donate \$1 to the Wounded Warrior Project (up to \$600) for each survey completed.

Due to the nature of this study, the survey contains questions that inquire about certain details of your combat experiences. Answering these questions may cause a range of emotional discomfort, including anger, anxiety, guilt, increased Post-Traumatic Stress Disorder (PTSD) symptoms (such as flashbacks, hyperventilating, numbing, or nightmares), or possibly increased suicidal thoughts. To minimize the potential psychological risks involved in taking the survey, if you have had suicidal thoughts in the past 3 months, you are not eligible to participate.

Your participation in the study is completely voluntary. You may choose not to participate or to withdraw from the study at any time during the survey. You may choose not to answer any questions. Please feel free to step away if you need to take breaks during the survey, and resume the study only if you feel able to. If you do not feel comfortable completing the questionnaire, it is alright to stop at any time. While taking the survey, if you experience a disturbing level of upsetting emotions, anxiety, hyperventilating, and/or having thoughts of hurting yourself or others, please stop and exit the survey, call your local crisis hotline, Military OneSource 24/7 help line (800-342-9647), or the National Suicide Prevention Lifeline (800-273-TALK), and consult with your mental health provider about your symptoms.

Information about effective trauma treatments, mental health services, and other resources for veterans will be provided at the end of the survey for those who are interested. Please know that effective treatments are available for people with trauma. Please do not give up hope for recovery.

There is no direct benefit to you for participation. However, you may find the list of resources at the end of survey helpful. Additionally, results of this study will be used to help researchers and clinicians understand the treatment needs of veterans better. Your assistance toward this goal is highly appreciated. Please know that the information you provide through the survey will be treated with utmost respect and sensitivity.

To ensure your privacy, the survey is completely anonymous. We do not link or trace your answers. You will not be asked to disclose any information that will identify you personally. All survey responses will be kept on a password-protected computer.

If you have any questions concerning this study, you may contact Hsin-hsin Huang at (314) 516-5782 or email her at Research-Huang@hotmail.com. You may also contact Hsin-hsin's advisor, Dr. Angela Coker, at (314) 516-6088. You may direct questions concerning your rights as a research participant to the University's Office of Research Administration at (314) 516-5897.

If you are interested in the results of the study, you may contact the Hsin-hsin in six to eight months to inquire about the findings.

Thank you for participating in this study!

Sincerely,

Hsin-hsin Huang
University of Missouri-St. Louis

I have read this consent form. I consent to my participation in the research described above.

Continuing with this survey implies informed and free consent to be a participant in the study.

Screening question (required):

* Have you had thoughts of hurting or killing yourself or thoughts of wanting to die in the past 3 months?

- Yes (SurveyMonkey takes the participant to a message that states: "Thank you for your interest in taking the survey. However, given your response to the question about self-harm and suicide, you are not eligible to participate in this study due to concerns over potential psychological risks to you. Please seek help for your suicidal ideation. Please click "next" below to access a list of helpful resources". Then the participant will be taken to the last page of the survey that contains resources and information.)
- No (SurveyMonkey takes the participant to the beginning of the survey)

Appendix O: Resources for Veterans

Dear Veterans and Service Members,

Thank you for taking the survey! And thank you for the sacrifice you and your family made to serve the country!

Below please find a list of resources and services available for veterans. The list is not meant to be exhaustive. You will find more resources and programs by following the websites provided below.

I. Organizations that provide services for veterans:

1. **United States Department of Veterans Affairs:** <http://www.va.gov/>
2. A full list of Veteran Service Organizations (provided by the Department of Veterans Affairs website): <http://www1.va.gov/VSO/index.cfm?template=view>
3. **National Military Family Association (NMFA):** NMFA provides resources and support to spouses and children of Air Force, Army, Navy, Marine Corps, Coast Guard, NOAA and PHS. Their **website is:** <http://www.militaryfamily.org/>
4. **Wounded Warrior Project:** Provides various types of support and resources to wounded veterans, and their family/care givers. Their website is: <https://www.woundedwarriorproject.org/>
5. **Vets4Vets:** Vets4Vets is a non-partisan veteran organization dedicated to helping Iraq and Afghanistan-era veterans feel good about themselves and heal from any negative aspects of service and war through the use of peer support. Their website is: <http://www.vets4vets.us/>

II. Mental Health Services and/or Information on Post-Traumatic Stress Disorder (PTSD)

1. **National Center for PTSD:** provides information on the latest evidence-based trauma treatment approaches, such as Prolonged Exposure Therapy and Cognitive Processing Therapy. The website for the Center is: <http://www.ptsd.va.gov/public/index.asp>
2. **Military OneSource:** offers three kinds (face-to-face counseling, telephone consultations, and online consultations) of free, short-term, non-medical counseling options to active-duty, Guard, and Reserve members and their families. The website is: <http://www.militaryonesource.com/MOS/About/CounselingServices.aspx>
3. **Military OneSource 24/7 Help:** Active service members can call 1-800-342-9647 anytime 24/7 to speak with somebody, or obtain help through live chat/immediate email responses by going to <http://www.militaryonesource.com/MOS/About/CounselingServices.aspx>

4. **Give an Hour Foundation:** A non-profit organization providing free mental health services to military personnel and families affected by the current conflicts in Iraq and Afghanistan. Their website is: <http://www.giveanhour.org/>
5. **Veterans Suicide Prevention Hotline (24/7):** 1-800-273-TALK, Veterans Press 1. Veterans can call National Suicide Prevention Lifeline number, 1-800-273-TALK (8255), and press "1" to be routed to the Veterans Suicide Prevention Hotline.
6. **Other Mental Health Providers:** You may contact your health insurance plan(s) (such as Tricare [<http://www.tricare.mil>] and/or other health insurance plans) to find out your mental health benefits and obtain information regarding mental health providers near your area.

Appendix P: Expanded Combat Experiences and Agency-Civilian-Casualties

I. Expanded Combat Experiences Questions (33 questions total):

Questions 1-13: DRRI Combat Experiences subscale questions (see Appendix B)

Questions 14-28: DRRI Post-Battle subscale questions (see Appendix C)

Questions 29 – 33: Five questions (#1, 2, 3, 7, & 12) from the agency measure

29. Did you fire a weapon at the enemy?
30. Did you injure any enemy combatants during your deployment(s)?
31. Did you injure any enemy noncombatants during your deployment(s)?
32. Did you kill any enemy civilian during your deployment(s)?
33. Were you responsible for the death of any enemy combatant during your deployment(s)?

II. Combat-Casualties Questions (9 questions total):

Questions 1-8: Eight questions from the agency measure (#5, 6, 8, 10, 11, 13, 15, & 16)

1. Did you injure any non-enemy civilians during your deployment(s)?
2. Did you injure any children during your deployment(s)?
3. Did you kill any enemy civilians during your deployment(s)?
4. Did you kill any non-enemy civilians during deployment(s)?
5. Did you kill any children during your deployment(s)?
6. Were you responsible for the death of any enemy civilian during your deployment(s)?
7. Were you responsible for the death of any non-enemy civilian during your deployment(s)?
8. Were you responsible for the death of any children during your deployment(s)?