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Resilience Factors Affecting the Readjustment of National Guard Soldiers Returning From Deployment

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RESILIENCE FACTORS AFFECTING THE READJUSTMENT OF NATIONAL GUARD
SOLDIERS RETURNING FROM DEPLOYMENT

A dissertation submitted

by

D. PATRICIA TACKETT

to

ANTIOCH UNIVERSITY SANTA BARBARA

in partial fulfillment of
the requirements for the
degree of

DOCTOR OF PSYCHOLOGY
in
CLINICAL PSYCHOLOGY

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Dedication

This work is dedicated to the soldiers, sailors, airmen, and marines, whose lives have been forever changed by performing military service in a combat environment.

Abstract

Following the September 11, 2001 attack on the United States, there has been increased utilization of the Reserve Components (RC) by the military to fight the wars in Iraq and Afghanistan. Service members in the National Guard and Reserve (NG/R) represent approximately 40% of the forces involved in these conflicts. Current research indicates that NG/R personnel and their families may be at greater risk to deployment stressors than their Active Component counterparts. Estimates for the development of mental health problems including PTSD among returning RC personnel, range as high as 42%. The focus of this study was to advance the identification of factors that minimize the negative effects of experience in a combat environment, and promote healthy reintegration of military personnel back into society. This research examined self-efficacy, social support, and spirituality with regard to their effects on service members' symptoms of PTSD and levels of resilience subsequent to deployment. Self-report questionnaire data were collected from 223 California Army National Guard soldiers between six to eighteen months following their return from Iraq or Afghanistan. Consistent with previous research, findings showed that the level of combat exposure was the most salient factor predictive of PTSD. Self-efficacy had a small positive effect on PTSD, yet social support and spirituality were not significant. When examining the determinants for resilience, higher levels of self-efficacy, social support, and spirituality were associated with higher levels of resilience, although combat exposure retained a negative influence. Significant differences were found between soldiers who were still under a service commitment with eight years or fewer in the military, and those with more than eight years time in service. The results of this study are encouraging for developing programs designed to better prepare NG/R soldiers for deployment. Implications for future research and military training are discussed.

Acknowledgments

The term "it takes a village" is the appropriate concept when referring to this dissertation. When I think of how many people supported my effort to complete this project, I am incredibly humbled and grateful.

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I am also grateful to Kim Evans, MFT, and Mike Masters, Ph.D., who are dedicated to serving the mental health needs of CA National Guard military personnel and their families. Their support for this project provided me with a unique opportunity and perspective to understand the challenges facing Reserve Component personnel deployed in the current conflicts.

Several significant people in my life have played many roles during the course of this dissertation including that of counselor, confidante, and coach. Katherine and Ellen also served as my primary editors, Sandi as my statistics advisor, Ellen and Susan as my flexible formatting experts, Linda as project consultant, and Gerry who was my research assistant par excellence! Most importantly they were my friends who were there for me any, and every time I needed them. I will be forever grateful for the part they played in accomplishing this dissertation.

Finally, I would like to thank my nephew, CPT Stephen Tackett, who deployed to Iraq in 2010 while serving with the Tennessee Army National Guard. His service was a constant inspiration throughout this dissertation process, and continues to be a motivation to further this research.

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Chapter One

Introduction

The September 11, 2001 attacks on the United States triggered a reaction that has engaged the United States (U.S.) military in what has become known as the global "war against terrorism" (Jackson, 2006). The enemy is not a nation-state with identifiable borders, but appears to be bound together by ideology. Defining and predicting victory therefore has remained elusive.

The amount of time service members spent exposed to the intense stress of combat prior to the 20th century was limited by technology and the tactics employed against the enemy (Grossman, 1996). The challenges faced by today's military personnel involve constant vulnerability to an amorphous enemy who utilizes unconventional means to attack, e.g., male suicide bombers who gain access to their targets by disguising themselves as females (Kelter, 2009). Reports reveal that the many Iraqi or Afghani service members and civilians, who work with and are thought to be allied with the U.S., are actually enemy agents who have infiltrated operations and damaged security or harmed personnel (Oppel, 2010). The safety of each service member in Iraq and Afghanistan remains constantly in question due to the unpredictability of and subterfuge employed by the enemy.

Since September 11, 2001 the U.S. has deployed approximately 2.04 million troops to Afghanistan and Iraq to support military operations (VA Office of Public Health & Environmental Hazards, 2010). Their prolonged exposure, due to lengthy and multiple deployments, to the stress of operating in a hazardous environment and witnessing traumatic events, has taken a toll on record numbers of military personnel. Over one-third of troops returning from deployment have mental health related symptoms (RAND, 2008).

The monetary costs and the myriad consequences of these untreated conditions have been enormous. Part of the price is paid through the increased risk for suicide and the development of other psychological problems that may result in reduced productivity and poor attendance at work. The costs associated with untreated Posttraumatic Stress Disorder (PTSD) and depression during the first two years following deployment, have been estimated at between $4 and $6.2 billion. In 2007, the one year cost of treating Traumatic Brain Injury (TBI) alone has been estimated at between $591 and $910 million (RAND, 2008).

Although there is insufficient evidence to anticipate the savings with improved treatment of TBI, there is research to support the benefits of using evidence-based treatment for PTSD and major depression. It is estimated that if 100 percent of veterans received evidence-based treatments for symptoms of PTSD and major depression, the savings could be up to $1.7 billion in increased productivity and would result in a reduction in suicides (RAND, 2008).

The impact of deployment stress on postdeployment health may differ for service members depending on the component with which they are affiliated. Military personnel are identified by their membership in either the Active Component (AC) or the Reserve Component (RC). References to the AC, implies full-time active duty military personnel, and these individuals are often referred to simply as *active duty* personnel. The RC includes National Guard (NG) and Reserve (R) personnel who are primarily full-time civilians and part-time military service members unless they are called to active duty e.g., mobilized for deployment in wartime. The NG includes members of the Air National Guard and the Army National Guard located in each state and territory of the U.S. The NG is normally controlled by the governor of their respective states or territories and responds to state requirements for police actions, natural disasters, etc. They can be also called to Federal duty by the President to perform military duties

for the United States including combat missions. The Reserve, in this context, refers to the part-time members of the Army, Navy, Air Force, and Marine Corp. They are strictly Federal forces assigned as individuals or units throughout the U.S. and its territories, as well as overseas, who are controlled by the President. In the literature AC and RC service members are compared using various terminologies e.g. active duty compared to reserves, full-time compared to part-time, etc.

Vogt et al. (2008b) cites statistics from studies that indicate the utilization of National Guard and Reserve (NG/R) personnel has also increased since the first Gulf War in 1991. During Desert Storm, the NG/R represented about 18% of deployed forces. However, the wars in Afghanistan and Iraq have necessitated the unprecedented use of the RC which now comprises 40% of the forces involved in the conflicts. More NG/R personnel have been mobilized for the current conflicts than for the Vietnam Conflict, Cuban Refugee Crisis, Haiti, Bosnia, Kosovo, and Gulf War I combined (Vogt, Samper, King, D., King, L., & Martin., 2008b, p. 67).

Active Component personnel differ from RC personnel in a number of significant ways (Dunning, 1996; Griffith, 2010). With respect to demographic characteristics, NG/R personnel tend to be older than active duty personnel. They are more likely to have established civilian careers, which may be severely negatively affected as a result of prolonged deployments (Griffith, 2010). The military training NG/R personnel receive differs from that received by active duty personnel. While active duty personnel are able to build and reinforce their skills on a daily basis, NG/R personnel typically train only one weekend a month and two weeks in the summer. Generally NG/R personnel experience fewer separations from their families due to military commitments, and may be less prepared to deal with the disruptions compared with active duty personnel (Vogt et al., 2008b). Modern communications capabilities provide military personnel unprecedented access to their loved ones by telephone, email, and video

telecommunications. This phenomenon has provided service members and their loved ones with opportunities to retain close emotional bonds. It has also allowed for immediate, unfiltered communications and negative information to be exchanged with potentially distracting or emotionally disturbing results for the service member (Dauber, 2006).

Due to the discrepancy in preparedness, NG/R service members may be less confident in managing situations in a combat environment and may perceive circumstances as more threatening than their active duty counterparts (Hotopf et al., 2006). Consequently, the amount of stress they experience may be greater and may have a greater impact on their adjustment following redeployment. It is also likely that lower level stressors inherent in living in the combat environment currently experienced by most service members, including long work hours, exposure to extreme temperatures, and other discomforts or inconveniences, may be more distressing for NG/R personnel. As a result, their older age and relatively limited military training may exacerbate the challenges and make adjusting to the war-zone environment more difficult, compared to AC service members (Vogt et al., 2008b).

Research indicates that concerns about family disruptions and lack of social support may be of greater relevance for NG/R personnel (Vogt et al., 2008b). When NG/R personnel deploy, they are often reassigned to other units as individuals or small groups to render those units capable of performing their missions (Griffith, 2010). They would not have the benefit of the social support and institutional family support systems which are intrinsic to home-based units and provided to members who deploy and to their families. Support systems are more well-developed and seasoned among active duty organizations (Vogt et al., 2008b).

Since the Gulf War, there has been increasing evidence that not only are a significant number of military personnel exhibiting delayed stress reactions to their combat experiences, but

that NG/R personnel are reporting more mental health problems than active component personnel (Griffith, 2010). The Iowa Persian Gulf Study Group (1997) revealed that compared to their active component counterparts, NG/R personnel experienced more symptoms of chronic fatigue and alcohol abuse, as well as a greater decline in mental health status (Iowa Persian Gulf Study Group, 1997). Stretch et al. (1996) also conducted a study on Gulf War I veterans and compared to active component personnel, the prevalence of PTSD among NG/R was higher (Stretch et al., 1996). This finding was supported by a subsequent study on Gulf War veterans by Kang et al. (2003) who confirmed higher rates of PTSD symptoms among NG/R (33.4% / 35.8%) personnel compared to those on active duty (30.8%) (Kang, Natelson, Mahan, Lee, & Murphy, 2003).

A recent longitudinal assessment of mental health problems among returning military personnel suggests greater implications for NG/R personnel. The study was conducted by the Walter Reed Army Institute of Research of 88,000 veterans who served in Iraq. The veterans were assessed immediately upon return from deployment and again six months later. Although some of the service members who had initially been identified as having mental health concerns showed improvement at the six month follow-up, a significantly larger number reported mental health problems. While 20% of AC service members had increased symptoms, over 42 % of NG/R personnel were identified as requiring mental health treatment (Milliken, Auchterlonie, & Hoge, 2007). A Department of Veterans Affairs (VA) study found that NG/R veterans of the Iraq and Afghanistan wars comprised 53 % of the 144 veteran suicides from 2001-2005 (Hefling, 2008). The NG/R population clearly faces some unique challenges compared to their active duty counterparts.

According to the U.S. Army's Health Promotion Risk Reduction Suicide Prevention Report (2010), the suicide rates in the Army have historically been lower than those in the civilian community (19.2 per 100,000). However, in 2004, suicide and accident rates in the Army alone increased to 20.2 per 100,000. In Fiscal Year (FY) 2009, suicide was the third leading cause of death in the Army population. The report contends that if accidental death, which is frequently the result of high risk behavior e.g., drinking and driving, drug overdose, etc., is included, more soldiers die from their own actions than die in combat (US Army's Health Promotion Risk Reduction Suicide Prevention Report, 2010). Although the rate of suicide in 2009 was higher for Active Component soldiers (137) compared to those in the Reserve Components (102), the AC suicides accounted for 57% of the total suicide deaths, yet AC soldiers only represent 49% of all soldiers in the Army. However, as of the publication of the Army's 2010 report on suicide, the trend had reversed, and the RC statistics for suicide are now higher than the AC. Nevertheless suicide rates have risen over time in the both AC and RC (US Army's Health Promotion Risk Reduction Suicide Prevention Report 2010).

The increase in mental health symptoms as a result of the stressful nature of the combat environment has presented service members and military leadership with intractable challenges. Symptoms of posttraumatic stress are antithetical to the warrior spirit and inconsistent with the behaviors and persona so highly valued in the military environment. Therefore, those who suffer may be reluctant to admit it or seek help, and may rather suffer in silence, numb the pain, or end it by taking their own lives.

The following statement from the Army's 2010 report is acknowledgment by Army leadership of the challenges encountered by soldiers who want or recognize they need help, but fear the consequences from seeking it:

Stigma is typically the perception among leaders and soldiers that help-seeking behavior will either be detrimental to their career (e.g., prejudicial to promotion or selection to leadership positions), or that it will reduce their social status among their peers. The perceived stigma associated with seeking behavioral health treatment represents a very real barrier to care for individuals who would benefit from professional treatment. This barrier is further increased within the military culture where mental toughness is seen as a sign of strength, while seeking behavioral health assistance may be a sign of weakness. (p.22)

This reality not only has the potential of affecting a soldier's military career, but for NG/R soldiers it may affect their ability for continued or future employment in the civilian community. The fear of being perceived as weak may well generalize to support systems outside the military.

The ultimate costs of treatment for posttraumatic stress and related mental health problems associated with military personnel returning from Iraq and Afghanistan are yet to be determined. It is prudent, however, that prevention as well as treatment be studied. Since 70 percent of the returning veterans reportedly do not develop chronic symptoms, identifying the mitigating factors that support their salubrious transition is crucial for at least three reasons. If this nation's defense is dependent upon a volunteer military, it is important in order to maintain the long term viability of the Armed Forces. Next, limited resources may prohibit providing adequate treatment for the vast numbers of patients for short and long-term care. Finally, the toll of human suffering that untreated posttraumatic stress symptoms can have on military personnel and their relationships with their partners, children, families, friends, in the workplace and ultimately on society at large is inestimable.

Focus of Research

The focus of this study was to advance the identification of those factors that promote reintegration of military personnel back into society following deployment to a combat environment. This research was intended to examine the three variables of self-efficacy, social support, and spirituality with regard to their effects on National Guard soldiers' readjustment to civilian life from a minimum of six months to a maximum of 18 months following deployment. Symptoms of PTSD and levels of resilience were also evaluated.

Motivation for Research

The future of our involvement in the Middle East and against terrorism around the world appears to be rife with uncertainty. It is essential that NG/R military personnel be psychologically prepared to respond effectively and appropriately to situations they encounter in a combat environment. They must also be able to successfully reintegrate back into relationships with their families, friends, employers, and society in general. The operational tempo of the military since the 2001 attack on the U.S. has resulted in the unparalleled deployment of NG/R personnel to combat zones (Vogt et al., 2008b). The consequences associated with those deployments make it imperative that factors which promote resilience to those experiences are identified and studied. The information derived from such studies can be used by military leadership to implement individual, group, or family programs, as appropriate, to maximize human potential and minimize human suffering. This research is conducted with the intent to support that effort.

It is monetarily and morally imperative to identify the factors that promote resilience and reduce the development of chronic post trauma stress symptoms in NG soldiers returning to civilian life after deployment to a combat environment. It will provide mental health

professionals as well as government and community leaders with the information needed to develop treatment and support services, which will minimize the adverse effects of war on our civilian-soldiers.

Theoretical Support

In pursuit of understanding service members' psychological reactions to experiences in a combat environment and how they adapt following exposure, several theoretical constructs and approaches emerged. The following describe those foundational ideas. For this study, the definition of resilience is based on a premise that the term represents a common adaptive characteristic inherent in human beings (Masten, 2001). It is an interactive concept that refers to overcoming stress or trauma (Rutter, 2006) and returning to a previous level or attaining an improved (Bonnano, 2007) level of psychological and behavioral functioning.

The effects of psychological trauma manifested by service members between six and 18 months following their return from duty in Iraq or Afghanistan was examined within the context of the current criteria for diagnosis of Post Traumatic Stress Disorder as conceptualized in the Diagnostic and Statistical Manual –IV -TR (American Psychiatric Association, 2000).

Albert Bandura's Social Cognitive Theory (SCT) provides the foundation for the influential role of self-efficacy and social support consistently demonstrated in the literature. In SCT an individual's thoughts and actions, particularly with regard to their beliefs about their own capabilities, influence the person's behavior. The theory also posits that interaction between the individual and the environment involves human beliefs and cognitive abilities that are developed and modified by social influences including the types and quality of social support in the environment. These constructs have implications in this study for service members throughout the deployment cycle.

Finally, the definition of "spirituality" as conceived in this research is most accurately reflected as proposed by Sheridan (2004) as "the search for meaning, purpose, and connection with self, others, the universe, and ultimate reality, however one understands it, which may or may not be expressed through religious forms or institutions" (Sheridan, 2004, p. 10). The social modeling aspect of SCT also provides the basis for the development of human spirituality (Bandura, 2003).

Research Questions

The purpose of this study was to investigate the following three research questions:

1. Are social support, spirituality, and self-efficacy factors that promote resilience in National Guard soldiers returning to civilian life following deployment to a combat environment?

2. Do social support, spirituality, and self-efficacy influence the development of PTSD in National Guard soldiers returning to civilian life following deployment to a combat environment?

3. Does resilience influence the development of PTSD in National Guard soldiers returning to civilian life following deployment to a combat environment?

Chapter Two

Literature Review

This chapter presents an overview of the research addressing the most salient factors relevant to the adjustment of National Guard soldiers returning to civilian life following their experiences in Iraq or Afghanistan. It covers the various aspects of PTSD including theoretical and clinical conceptualizations, as well as characteristics unique to combat and the military environment. It will also address the evolution of the study of resilience, and the ambiguity surrounding the construct of resilience and related terminology. Three factors materialized from the literature as particularly influential in positive human adaptation post trauma. Thus, this section will also cover how self-efficacy, spirituality, and social support have been found to impact response to traumatic events.

PTSD

PTSD and combat. With approximately 8% of the population at sometime in their lifetimes meeting criteria for the disorder, PTSD can be considered a major health problem. More than one third of those who meet criteria also experience prolonged distress lasting for years (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Rates for military veterans of the Iraq and Afghanistan wars had been estimated even higher at 20% (Kessler et al., 1995). However, according to a study using Veterans Affairs data between 2002 and 2008, of 289,328 Iraq and Afghanistan veterans who were first-time users of the VA healthcare system, 21.8% were diagnosed with PTSD and 17.4% with depression (Seal, Metzier, Gima, Bertenthal, Maguen, & Marmar, 2009).

Higher combat exposure has been associated with a higher risk for PTSD (Seal et al., 2009). Approximately 91% of soldiers and marines, who were serving in four combat infantry

units in Iraq, reported having been attacked or ambushed and 86% reported knowing somebody who was injured or killed, with 50% - 57% stating that they had handled or viewed human remains (Hoge et al., 2004). Approximately 55% - 58% of soldiers, who deployed to Iraq, have been exposed to an explosion involving a booby trap or an improvised explosive device (IED). Exposure to these types of situations that could have resulted in death or serious injury, present mental health challenges for the thousands of military personnel who are deployed to combat zones (Reger & Gahm, 2008). Repeated deployments have increased the risk of developing a stress disorder in response to combat trauma. Soldiers serving repeated deployments are 50% more likely than those with one tour to suffer from acute combat stress, which increases the likelihood of developing PTSD. With over 450,000 personnel having been deployed more than once, demand for empirically-based treatments has increased (Reger & Gahm, 2008).

Conceptualization of PTSD. Mason (1998) states that the phrase "Posttraumatic Stress Disorder" evolved in response to the symptoms exhibited by the large numbers of Vietnam veterans, who continued to suffer following their experiences in combat. The condition was finally recognized with an actual formal diagnosis of the disorder in the third edition of the American Psychiatric Association's Diagnostic and Statistical Manual which was published in 1980 (Mason, 1998).

Trauma has been linked with the human experience and depicted in literature, art, and official documents since the beginning of recorded history. It has been identified by various names when associated with the horrors of war, e.g., *nostalgia*, *soldier's heart*, *battle fatigue*, *combat neurosis*, and *war neurosis* (Paulson & Krippner, 2007; Stahl & Grady, 2010). In World War I, a British military psychiatrist, Charles S. Myers, identified the symptoms of traumatized soldiers as *shell shock* and attributed it to explosion-related concussion. He subsequently realized

that the same symptoms were occurring in those who were not in direct combat and made a distinction between the neurological condition *shell concussion* and *shell shock* which was a psychological problem (Lasiuk & Hegadoren, 2006). An American psychiatrist, Abram Kardiner, whose work on war-related trauma published in 1941, identified these symptoms as having emerged as a failed attempt to adapt to the traumas associated with war. The foundation for the criteria which originally established PTSD in the DSM –III in 1980 evolved from the results of his work (Lasiuk & Hegadoren, 2006; Ozer, Best, Lipsy, &Weiss, 2003). When PTSD was introduced, it was classified as an anxiety disorder, with symptoms common to all types of trauma; however, the criteria were primarily based on the empirical data derived from studies of combat veterans (Ozer et al., 2003). PTSD is characterized by three clusters of symptoms: (a) re-experiencing of the traumatic event, (b) avoidance of stimuli associated with the trauma and (c) hyperarousal or hypervigilance (Benish, Imel, & Wampold, 2008).

There are some scholars in the field who consider that the creation of PTSD as a separate disorder in the DSM was a mistake, and moved the mental health field away from a better understanding of the psychological responses to trauma (McHugh & Treisman, 2007). They believe that the decisions were more of a political than medical nature. They are also of the opinion that many of the symptoms are non-specific and could be unrelated to the trauma itself (McHugh & Treisman, 2007). They contend that these symptoms may represent the onset of another psychiatric disorder or progression of an addiction, and that the field should return to its previous standards of diagnostic practice (McHugh & Treisman, 2007). The preponderance of the research, however, indicates support for the PTSD diagnosis (Freidman, Keane, & Resick, 2006).

Theoretical models of PTSD. The original theoretical models that addressed PTSD were based on learning and classical conditioning processes. The theories infer that fear and anxiety become an unconditioned response to a traumatic event, and that other stimuli, which are present at the time, may also become conditioned stimuli, and bring about the same emotional reactions. Most trauma victims' symptoms extinguish naturally over time. However, the continuation of PTSD symptoms in response to trauma-related stimuli in the absence of harmful reactions is not explained by classical conditioning (Hassija & Gray, 2007).

In 1960, Mowrer developed a two-factor theory of fear that 1) supported the idea that classical conditioning explained the acquisition of fear and anxiety associated with stimuli directly and indirectly linked to the traumatic event, and 2) posited that operant conditioning principles explained the avoidance and subsequent reinforcement of reduction in fear and anxiety, consequently preventing extinction of the conditioned response (Smith & Suda, 1999).

Cognitive theoretical explanations of PTSD based on Peter Lang's work in his bioinformational theory of fear in 1977, supplemented learning and conditioning principles. He conceptualized fear as being represented in memory as structures composed of elements of stimulus response and meaning. These elements combine to form a program for the purpose of avoiding or escaping danger (Lang, 1977, 1979). In 1986, Edna Foa and M.J. Kozak further developed Lang's work into their own conceptual framework, which they called Emotional Processing Theory (EPT). They proposed that the discriminating factor between PTSD and other anxiety disorders is that the traumatic event adds the dimension of a violation of safety (Foa & Kozak, 1986). As it applies to PTSD, EPT infers that the dysfunctional fear structures of trauma survivors involve cognitions and that these structures must be modified through psychosocial

interventions to allow the trauma to be processed, and for natural healing to occur (Rauch & Foa, 2006).

There has been considerable research seeking to identify the individual and environmental factors and characteristics that contribute to the development of PTSD. Studies have sought to determine what causes some individuals who are exposed to trauma to develop trauma-related injuries, while others emerge either unaffected or experience personal growth. In the general population, meta-analyses of the research indicate that risk factors for the development of PTSD have been identified with gender, previous trauma, adversity, personal and family psychiatric history, as well as social, educational, and intellectual disadvantage (Brewin, Andrews &Valentine, 2000). Postdeployment factors including social support have also been demonstrated to influence recovery (Benotsch et al., 2000). More recent studies are placing greater emphasis on cognitions than on pre and peri-traumatic factors (Benight, Ceislak, Molton, & Johnson, 2008).

Although the prevalence of PTSD and depression is generally lower in the military than in the civilian population, military personnel who have experienced combat are at an increased risk for developing the disorders (Gahm, Lucenko, Retzlaff, & Fukuda, 2007). All risk factors for the development of PTSD in the civilian population also applied to the military populations, except for gender, which was not identified as a significant risk factor (Gahm et al., 2007). Sutker et al.'s study of military service members participating in Operation Desert Storm assessed the psychological distress in the combat environment associated with ethnicity and gender. They concluded that ethnicity plays a potentially prominent role in the development of PTSD, but again, did not find gender to be a factor (Sutker, Davis, Uddo, & Ditta, 1995). This is

also supported by the National Vietnam Veterans Readjustment Study which actually reported lower rates of PTSD in female veterans (Brewin et al., 2000).

Additional risk factors unique to military personnel in a combat environment include amount of combat exposure, experience of perceived threat, difficult living and working environment, and lack of preparedness for deployment. These stressors have implications for postdeployment health (Vogt et al., 2008b).

Further considerations of PTSD in the current conflicts. Traumatic brain injury (TBI) and PTSD have been identified as the "signature" wounds or injuries of the current conflicts referred to as Operation Enduring Freedom (OEF) in Afghanistan and Operation Iraqi Freedom (OIF) in Iraq. The most common cause of combat casualties in the Iraq war has been from blast injury created by IEDs. Twenty-two percent of all combat injuries sustained in OEF and OIF have involved brain injury (Burke, Degeneffe, & Olney, 2009). Troops who have suffered a mild TBI may be at an increased risk of developing PTSD due to an impaired ability to process emotional information related to the trauma (Stahl & Grady, 2010). There is also disturbing information that is emerging from recent studies, which indicates serious mental disorders may not surface for months after service members have left the combat zone (Taber & Hurley, 2010; Walker, Clark & Sanders, 2010).

Milliken, Auchterlonie, and Hoge (2007) conducted an analysis on data collected from 88,000 soldiers at Walter Reed Army Institute. They found that some soldiers who were initially screened and identified as having transient symptoms, were subsequently found to have mental health problems. However, a larger number who were initially screened and had no symptoms, were found to have developed symptoms at a six month re-screening. This prospect is particularly problematic with National Guard and Reserve service members who return to

civilian life after deployment and often lose military medical support. The same study indicated that 36% of those soldiers at a subsequent six month follow-up continued to have some kind of mental problems, e.g., depression, aggressive behavior, or suicidal thoughts, yet were receiving inadequate care or no care at all (Milliken et al., 2007).

It has been reported that between 18 to 45% of OEF/OIF veterans at a VA polytrauma inpatient center meet criteria for PTSD (Clark, Walker, Gironda, & Scholten, 2009). As research continues on the casualties from Iraq and Afghanistan, some researcher s with the Veteran's Administration (VA) are revaluating previous diagnoses of TBIs as possibly being part of a more complex comorbidity. This syndrome has been described as "Postdeployment Multi-Symptom Disorder" and includes PTSD, chronic pain, and mild TBI. It is being considered as a more effective paradigm from which to approach treatment of significant numbers of OEF/OIF veterans (Clark et al., 2009).

Resilience

The research typically addressed the polarities of the reactions of military personnel following exposure to exceptionally stressful or traumatic experiences in a combat environment. Those who returned from war seemingly unscathed were characterized as being resilient or having resilient qualities. The development of psychiatric symptoms or disorders such as PTSD was indicative of poor adaptation; the opposite of being resilient. It was therefore important in this study to explore the construct of resilience as it relates to service members' ability to return to civilian life following deployment to Iraq or Afghanistan.

The term resilience is derived from the Latin word "resilire" meaning to "rebound." It is defined as "1 a: an act of springing back; b: capability of a strained body to recover its size and shape after deformation, esp. when the strain is caused by compressive stressors – called *elastic*

resilience; and 2: the recoverable potential energy of an elastic solid body or structure due to its having been subjected to not exceeding the elastic limit" (Webster's Third International Dictionary Unabridged, 2002). The word has a variety of definitions and applications depending on the context (business, medicine, psychology).

The American Psychological Association (APA) defines resilience as "the process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands. A number of factors contribute to how well people adapt to adversities, predominant among them (a) the ways in which individuals view and engage with the world, (b) the availability and quality of social resources, and (c) specific coping strategies" (APA Dictionary of Psychology, 2007).

A review of the literature suggests that some researchers view resilience as a process while others perceive it as an outcome, and still others as a stable state of being (Almedom & Glandon, 2007). The basic concept of individuals exhibiting resilience when confronted with tragedy or adversity has been passed down for centuries through heroes and heroines depicted in literature, art, music, and story-telling. As psychology began to develop as a science, the concept of adaptation was reflected in various theories including natural selection and ego psychology (Snyder & Lopez, 2002).

Richardson described a metatheory of resilience and resiliency theory as having been historically developed in a three part conceptual framework which he called "three waves of resiliency inquiry" (Richardson, 2002). He referenced a 30 year longitudinal study conducted by Werner and Smith which began in 1955. The study involved children designated as high risk due to environmental factors, who did well irrespective of their circumstances. The researchers categorized the personal and environmental resilient qualities the individuals held in common.

For example, having supportive people in their lives was a common environmental factor. This seminal study launched the first wave of inquiry into the theory of resilience (Richardson, 2002).

The pioneering studies beginning in the 1970s also focused on the psychopathology and problems of "at risk" children. Researchers continued to identify personal qualities associated with resilience, including having an easy temperament, self-mastery, self-efficacy, planning skills, self discipline, and being female. Concepts such as locus of control, humor, critical thinking skills, and problem-solving skills became associated with resilience. Support within and outside the family emerged as significant factors (Richardson, 2002).

These early researchers argued that the information obtained by studying the children who developed well despite risk or adversity, may inform theories about the causes of psychopathology and provide insight for potential interventions. This generated more research and exploration over the next twenty years which spread across the field of developmental psychology (Masten, 2001). These studies posited that most individuals are capable of demonstrating quite extraordinary resilience and reflected what Masten called the "power of the ordinary" (Masten, 2001, p. 235).

In the "second wave" of resiliency theory, the focus shifted from identifying resiliency characteristics to discovering the process of how individuals acquire resilient qualities (Richardson, 2002). Many of the earlier assumptions about resilience, especially the notion of resiliency being unique or special to particular individuals, have been refuted (Masten, 2001). From its early focus on primarily quantitative measurements of child development, resiliency theory now incorporates a more holistic, contextual, and transgenerational analysis. Masten credits this period with research on attachment, the psychobiology of stress systems, self-regulation systems, and interactions with families as stress regulators (Masten, 2007).

According to Richardson, the concept of resilience as an innate motivational force in everyone emerged from the third wave of resilience inquiry (Richardson, 2002). The focus of the resilience research during this period became a proactive approach toward enhancing protective factors and preventing negative outcomes. Experiments and interventions were fashioned to bolster competence and promote wellness (Masten, 2007). Masten suggested that resilience research is entering into a fourth wave which employs an integrated and multi-level systemic approach that builds on information from previous study and has been engendered by technological and scientific advances (Masten, 2007).

There are several recent studies maintaining that research on resilience must move beyond the symptoms measure model, to a more holistic, contextual model if it is to be better understood. Siebert (2002) asserts that people are an amalgam of complexities, potential, and flexibility and that resilience is possible for most people because it is "something you do, not something you have" (Siebert, 2002, para 6). There is general agreement that resilience should no longer be considered an exception and can be viewed as a positive developmental component having immense importance in negotiating the transitions that occur later in life (Dutton & Zisook, 2005; Greve & Staudinger, 2006).

An adjunct to the growing field of resilience theory is the growth of positive psychology. Juxtaposed to the historical focus of psychology on the pathology of the human mind and behavior, positive psychology proposes to redirect the efforts of the field toward identifying those factors that allow individuals and communities to thrive (Seligman, 2000). Proponents of this approach seek to explore the complexities of the human mind and personality, and the array of social and possibly innate forces which contribute to a person's ability to be resilient after a highly traumatic event. Phenomena included are "stress-related growth," "post-traumatic

growth," "thriving," and "benefit finding" (Jennings, Aldwin, Levenson, Spiro, & Mroczek, 2006, p. 116).

Martin Seligman suggests that people who acquire the skill of learned optimism are able to lessen the effects of depression and anxiety. He contends that if an individual's stylistic approach to explain events that occur in life is one of optimism, it eliminates helplessness. However, if one has a pessimistic style, helplessness thrives (Seligman, 1990).

The vast majority of research indicates that optimism in the face of stress or trauma is beneficial. Minimal evidence exists, however, that absolute optimism may be a liability rather than an asset. In her article on "How Resilience Works", Coutu cites an interview done with former POW Admiral Jim Stockdale, who, when asked about the role of optimism in living through eight years of captivity, speculated that the optimists who daily thought they would be released eventually "died of broken hearts." Coutu suggests that when people reasonably face reality, they prepare themselves to act in ways that allow them to endure and survive extraordinary adversity (Coutu, 2002). Siebert (1996) regarding his work with POW and Holocaust survivors argues that people do what needs to be done to bring equilibrium back into their lives. In one interview, he quoted a former POW saying, "Staying alive was an act of defiance; I wanted to prove to them that although they could break my body, they could not break my spirit" (Siebert, 1996, p. 220).

There have been several studies that have examined the long-term effects of military combat experience on veterans. In 1948, psychopathologist Henry A. Murray, while working in the Office of Strategic Services, conducted a study of returning veterans and determined that combat experience did not always result in some form of negative outcome. Those men whom he deemed to be among the strongest and most resilient had experienced numerous traumatic

events. It was evident to Murray that the greatest challenge was to identify which determinants would be predictive of a positive or negative effect on personality (Office of Strategic Service, 1948, as cited in Elder & Clipp, 1989, p. 317). While this was an early beginning in trying to understand the impact of trauma and loss on developmental processes, it was not until the 1970s that studies began exploring the developmental effects of combat experience and aging, to loss, trauma, and resilience.

The studies by Elder and Clipp (1989), Aldwin et al. (1994), and Jennings et al. (2006), seem to corroborate Murray's early assessment that veterans with moderate to heavy combat experience viewed their military service as having more positive than negative benefits. Elder and Clipp's 1989 study of 149 World War II and Korean War veterans examined how combat experience related to adaptations later in life, and if it was correlated to resilience. They determined that adverse changes in life-style were not related to combat experience but rather to "the strain of being separated from loved ones during the war, a disrupted life, and career delays" (p. 324). Further, they suggest that veterans who had experienced heavy combat believed that war had taught them to cope with adversity, which assisted them in later life. Their study indicated that veterans with extensive combat suffered the strongest symptoms of bad memories and combat anxieties. However, that group also perceived their wartime experience as having provided them with not only an appreciation for life, but with coping skills and the self-discipline to deal with it (Elder and Clipp, 1989).

Aldwin, Levenson, and Spiro's 1994 study of combat exposure and its correlation to vulnerability and resilience had similar findings for the 1,287 men sampled. Motivated by the belief that stress was pervasive in a combat environment, they were interested in examining why some individuals endured adverse conditions while others perished. They discovered that

generally the participants in the study reported the more appealing effects of military service (e.g., cooperation and teamwork, broader perspective, coping with adversity, positive feeling about self) than undesirable (e.g., separation from spouse, life disruption, delayed career, misery and discomfort). They concluded that the positive aspects of the veterans' military service lessened the negative impact of their combat experience (Aldwin, Levenson, & Spiro, 1994).

More recently, Jennings et al. studied 615 men from the Normative Aging Study who indicated in 1990 that they viewed their combat experience as generally having positive benefits. They wanted to determine if there was a relationship between this assessment and the notion of greater wisdom when these men were assessed again in 2001. They expected that the trauma of combat, especially at high levels, would be mitigated by the overall perceived benefits of military service – the higher the level of combat, the greater the wisdom. They found that, while high levels of combat were not associated with wisdom in later life moderate levels of combat were, and that wisdom was likely derived from how an individual appraises and copes with the stressful situation, rather than from the experience itself (Jennings et al., 2006).

This suggests that how one adapts may be more related to management style or coping skills used to handle the stress, rather the stress itself. This study and those of Elder & Clipp (1989) and Aldwin et al. (1994), demonstrate that veterans have been able to draw upon their service-related traumatic experiences and foment positive effects on long-term adaptation (Jennings et al., 2006).

Despite the negativity associated with public response to returning Vietnam veterans, a study by Dohrenwend et al. (2004) found that 70.9% of male veterans from that conflict evaluated their service as having a positive influence on their present lives (Dohrenwend et al., 2004). A study of Gulf War I veterans also found evidence of posttraumatic growth associated

with experience in a combat environment (Maguen, Vogt, King D., King L., & Litz, 2006). These studies support the conjecture that personal growth resulting from combat-related stress is timeless, and will occur in those participating in current and future conflicts.

Self-Efficacy

Albert Bandura added the critical piece of self-beliefs to existing learning theories when he presented the concept of perceived self-efficacy within the context of Social Learning Theory (Bandura, 1977; Pajares, 2002). Bandura describes the concept as follows:

> Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave. Such beliefs produce these diverse effects through four major processes. They include cognitive, motivational, affective and selection processes. (Bandura, 1994, para. 1)

The following four primary sources provide the information from which these expectations are formulated: (1) performance accomplishments or mastery experiences; (2) vicarious experiences or seeing social models similar to oneself succeed at comparable tasks; (3) verbal persuasion or social persuasion by others that one possesses the capabilities; and (4) physiological states or signal of emotional or physical reactions to situations (Bandura, 1977, 1994).

In 1986, Bandura presented an evolved version of his Social Learning Theory which he called Social Cognitive Theory (SCT), to emphasize the crucial role which cognitive processes play in creating human behavior (Pajares, 2002). Cognitive, vicarious, self-regulatory, and self-reflective processes perform critical roles in human adaptation and change (Bandura, 1989). This

theory has its roots in an agentic perspective that regards people as self-organizing and proactive, rather than simply as reactive organisms shaped by the environment or driven by inner impulses (Pajares, 2002).

Bandura emphasized the concept of reciprocal determinism as a dynamic and continuous reciprocal interaction between behavior, personal factors (which include cognition, affect, and biological events), and environmental influences (Bandura, 1989, 1997; Pajares, 2002). He referred to it as a system of triadic reciprocal causation (Bandura, 1989.) Consistent with this concept, SCT supports the model of human agency, which regards individuals as possessing the core characteristics of "intentionality and forethought, self-regulation by self-reactive influence, and self-reflectiveness about one's capabilities, quality of functioning, and the meaning and purpose of one's life pursuits" (Bandura, 2001, p. 1). People's beliefs about their abilities to control events in their lives, or perceived self-efficacy, is the central mechanism of personal agency in effect within the triadic causal structure (Bandura, 1989).

Self-efficacy beliefs influence human functioning through four major psychological processes: (1) cognitive, (2) motivational, (3) affective, and (4) selection processes (Bandura, 1993). Because much of human behavior is deliberate and planned with intended goals, the cognitive processes involved in setting those goals are affected by people's beliefs in their capabilities to accomplish them. They often set the levels of challenges for themselves accordingly, i.e. if they believe their abilities are great, they will set high goals, conversely, those who see themselves less capable will be less ambitious. These original self-beliefs are mentally reinforced since action is generally rehearsed in thought. Therefore, those with positive self-efficacy visualize success and those with negative self-efficacy visualize failure. Individuals with strong perceived self-efficacy use thought to predict events and develop

alternative plans to possible scenarios. Those who are mired in self-doubt are pre-occupied with anticipating potential problems which they believe they would be unable to overcome. In the reality of stressful environments or traumatic situations, those with low self-efficacy have difficulty and become erratic in thinking while individuals with a strong sense of efficacy retain effective analytic thought processes and perform well (Bandura, 1997).

As with cognitive processes, motivational processes also heavily involve one's perceived self-efficacy. Like cognitive processes, motivation also requires forethought. The valued goals people set for themselves depend on what they believe they can accomplish, as well as whether they will achieve it. This will also involve how much effort they will apply toward reaching their goal, how much adversity they are willing to endure, and how well they recover from failures (Pajares, 2002).

Belief in one's ability to cope has an effect on people's affective processes in several ways. Perceived coping self-efficacy directly affects the level of anxiety arousal. Individuals who believe they are not capable of managing threatening or dangerous situations feel high levels of anxiety. Their thinking is distorted by fear and worry, and results in an experience of stress and depression. Biological systems respond when individuals feel stress. Some reactions to threatening situations have positive effects on the immune system and others serve adaptive functions in threatening situations. Prolonged stress, however, due to situational reality or resulting from negative thoughts stemming from low self-efficacy, can have detrimental effects on health (Bandura, 1994).

The last psychological process in which self-efficacy plays a major role is that of the selection process of the choices people make throughout their lives. It involves selection or avoidance of who to choose as a friend or partner, what activities, interests, or careers to pursue,

or virtually any decision. These selections are highly influenced by one's perceived self-efficacy and create a set of subsequent circumstances and experiences that establish the framework for life (Bandura, 1994).

There has been extensive research on the role of self-efficacy as it relates to trauma. Luszczynska et al., (2009b) conducted two studies to investigate whether self-efficacy mediates the effects of exposure, loss of resources, and life stress on posttraumatic stress among those who have survived trauma. One study assessed HIV infected survivors of Hurricane Katrina and the other study assessed survivors of motor vehicle accidents. The results of both studies indicate that perceived self-efficacy mediates the relationship between the burdens of trauma and subsequent posttraumatic adaptation. These findings are consistent with similar findings in previous studies with survivors of Hurricanes Andrew and Opal, regarding the mediating effects of self-efficacy on the relationship between loss of resources, and psychological distress (Luszczynska et al., 2009b).

Flatten, Wälte, & Perlitz (2008) conducted another study with acute physical trauma patients to determine the role of self-efficacy for self-regulation in the post trauma adaptation process. The results suggested that a trauma victim's perceived self-efficacy in the immediate period following the traumatic event is a predictor of risk for later development of posttraumatic stress symptoms (Flatten, Wälte, & Perlitz, 2008).

Although the studies in the literature regarding self-efficacy are primarily domain-specific such as in trauma victims' perceived coping self-efficacy, Bandura also recognized that individuals may develop a broader set of beliefs about their capabilities (Bandura, 1997). Researchers have further developed that concept which has been conceptualized as general self-efficacy. It is characterized as a global belief in one's competence to deal with novel tasks and to

cope with adversity in a broad range of stressful or challenging situations (Kvarme, Haraldstad,

Helseth, Sorum, & Natvig, 2009; Luszczynska, Gutiérrez-Doña, & Schwarzer, 2005). This

broader conceptualization of perceived self-efficacy is the perspective applied to assess

participants in this study.

Self-efficacy relative to the experience of traumatic events has been studied within

multiple contexts. Victims of natural disasters, physical and sexual abuse, war, torture, and

accidents have been the subjects of research in an effort to determine the correlative effect

between self-efficacy and response to trauma exposure (Bandura, 1997; Benight et al., 2008;

Cieslak, Benight, & Lehman, 2008; Ginzburg, Soloman, Dekel, & Neria, 2003; Grant, Beck,

Marques, Palyo, & Clapp, 2008; Hobfoll et al., 2008; Luszczynska, Benight, & Cieslak, 2009a;

Sumer, Karanci, Berument, & Gunes, 2005). Studies have been conducted to determine how self-

efficacy affects those who have experienced other types of stressors such as poverty,

homelessness, living without healthcare, and suffering burnout as a helping professional

(Alarcon, Eschleman, and Bowling, 2009; Bowsher & Keep, 1995). General self-efficacy has

also been researched internationally as a factor that promotes overall health and well-being

(Kvarme et al., 2009; Luszczynska et al., 2005).

The construct of self-efficacy is among several personality characteristics including locus

of control, optimism, hardiness, resilience and sense of coherence, which have been related to

positive outcomes in response to trauma exposure (Tedeschi & Calhoun, 1995). These

characteristics, as employed in response to crises, have been studied primarily within the context

of social learning theory (Tedeschi & Calhoun, 1995). Other research has suggested that ego-

strength, hardiness, self-esteem, self-efficacy, and optimism are intercorrelated and combine to

ultimately produce a higher order factor of health-proneness (Bernard, Hutchison, Lavin, &

Pennington, 1996). Additional studies have addressed a variety of theories, concepts and models as potential factors in affecting psychological health (Deci & Ryan, 2008; Ehring, Ehlers, & Glucksman, 2008; Grant et al., 2008; Hobfoll, 1989, 2001; La Guardia, 2009; Marsh and Yeung, 1998; Ratelle, Vallerand, Chantal, & Provencher, 2004).

The literature is limited on studies involving military participants that examine issues relating to self-efficacy. Two studies, however, explored perceived self-efficacy (PSE) in association with the long term effects of combat stress reaction (CSR) and PTSD. The first study was conducted with 213 Israeli veterans of the 1982 Lebanon War who were assessed three years after the war. Soldiers who had experienced CSR during combat had lower levels of PSE three years later than those who had not experienced CSR. Those who had PTSD but who had not experienced CSR, did not have lower levels of PSE. The authors suggest that the results can be explained on the premise that CSR involves both an affective and cognitive reaction regarding conditions that occur during battle consequently affecting PSE. PTSD is primarily an affective condition caused by anxiety and does not necessarily require a cognitive evaluation, therefore, it would not inevitably lower PSE (Weisenberg, Schwarzwald, & Solomon, 1991).

The second study involved three groups of Israeli veterans from the 1973 Yom Kippur War. The groups consisted of 112 veterans who had suffered CSR; 98 veterans who had received medals for bravery; and 189 veterans as controls. The groups were assessed 20 years after the war for PTSD, PSE, and attributional style, meaning, how an individual tends to understand what causes events to occur, i.e., if they are within or outside his/her control. The results of this study showed that those with CSE had the lowest PSE, while the decorated veterans reported the highest levels of PSE. Those with CSR were more likely to attribute events to factors outside their control than decorated veterans. The researchers speculate on three possible explanations

for their results. First, they contend that the way the soldier functions on the battlefield affects PSE and attributional style. A second possibility is that the quality of the soldier's functioning derives from an existing PSE and attributional style. The third alternative is that PSE, attributional style, and battlefield functioning share correlative influence. The lower the PSE, the more vulnerable the soldier is to CSR, which then lowers the PSE. The higher the PSE, the more likely the soldier is to engage in heroics which then increase his or her PSE. This study also supported previous findings that linked PSE and attributional style to PTSD to wit, those with PTSD had lower PSE and were more likely than those without PTSD to attribute all events to factors outside their control (Ginzburg, 2003).

Another study explored four proposed predictors of self-efficacy in a sample of 442 Norwegian soldiers who were preparing for a peacekeeping mission in Kosovo. Out of the four predictors: (1) personal experience, (2) military skills and abilities, (3) risk perception, and (4) coping style, beliefs in military skills and abilities was the best predictor when evaluating self-efficacy in soldiers preparing to engage in peace-enforcing operations. The results indicate that providing realistic training which is tailored to the specific environment in which the troops will operate is crucial to ensure that the expectations they develop regarding how to cope with potential encounters, are realistic (Solberg, Laberg, Johnsen, & Eid, 2005).

A recent study examined immediate and long-term effects on self-efficacy of successful performance in a parachuting program by Air Force cadets. The purpose of the study was to determine if improved self-efficacy would be reflected in leader self-control and assertiveness. Accomplishments of two tasks in the parachuting program were compared; soaring and freefall. The task that required cadets to overcome the most dangerous situations and achieve personal mastery was associated with the greatest increase in self-efficacy. The authors suggest that the

success and self-efficacy gained by the cadets will generalize to other dangerous or stressful situations as they become leaders in the future (Samuels, Foster, and Lindsay, 2010).

Much of the research related to stress, trauma, or performance conducted on military personnel or associated with the military, however, has addressed the concept of hardiness (Adler & Dolan, 2006; Bartone, 1999, 2000, 2003, 2005, 2006, 2008; Borders & Kennedy, 2006; Delahaij, Gaillard, & van Dam, 2010; Eid & Morgan, 2006; Florian, Mikulincer, & Taubman, 1995; King, L., King, D., Keane, Fairbank, & Adams, 1998; King, L., King, D., Foy, Keane, & Fairbank, 1999; Maddi, Brow, Khoshaba, & Vaitkus, 2006; Maddi, 2007; Rosen, Wright, Marlowe, Bartone, & Gifford, 1999; Sutker, et al., 1995; Taft, Stern, King, D., & King, L., 1999; Vogt, Rizvi, Shipherd, & Resick, 2008a; Zakin, Solomon, & Neria, 2003; Waysman, Schwarzwald, and Solomon, 2001). Kobasa (1979), who originally introduced the concept, described hardiness as a personality structure derived from existential theory (Bowsher & Keep, 1995; Kobasa, 1979). Individuals who exhibit the hardy personality type possess three characteristics: (1) a belief that they can control or influence events in their lives; (2) a commitment or involvement in the activities in their lives; and (3) an expectation that change presents challenge which results in personal growth or development (Bartone, 1999; Funk, 1992; Kobasa, 1979, Tedeschi & Calhoun, 1995). These characteristics are related to the outcomes described below in Bandura's explanation of self-efficacy. The essential elements of hardiness are similar to the results found in those with high self-efficacy and self-efficacy has been more broadly and more extensively researched relative to stress and trauma. Therefore, self-efficacy was chosen as the construct for this study.

Social Support

Research on the significance of social support as it relates to peoples' physical and psychological health began in the 1970s when it was identified as a primary factor in the development of various diseases and illnesses (Cassel, 1975; Chronister, Chou, Frain, & da Silva Cardoso, 2008; Cobb, 1976). In civilian populations, social support has been researched in conjunction with numerous medical conditions, e.g., cancer, AIDS, multiple sclerosis, and psychological disorders including depression, anxiety, and addiction (Chronister et al., 2008). Cobb (1976) found that social support played a protective role for people in crisis caused by various pathological states, e.g., low birth weight, arthritis, alcoholism and depression. Studies have also been conducted within the context of recovery from trauma or stress and from the perspective of rehabilitation. Social support not only has been positively associated with health and well-being but also with posttraumatic growth and has been negatively related to stress and mortality (Chronister et al., 2008; Prati & Pietrantoni, 2009).

The concept of social support relative to military personnel has been studied from various perspectives with respect to its effect on reactions to stress or trauma. There is extensive evidence to suggest that perceived social support is significantly related to the psychological outcome of soldiers' responses to stressful or traumatic situations (Alpass, Long & Blakely, 2004; Benotsch et al., 2000; Geuze, Vermetten, de Cloet, Hijman, & Westenberg, 2009; Ghafoori, Hierholzer, Howsepian, & Boardman, 2008; Hunt & Robbins, 2001; King, D., King, L., Taft, Hammond, & Stone, 2006; Lieberman, Solomon, & Ginzburg, 2005; Limbert, 2004).

There were three theoretical perspectives from which social support was presented in the literature. The first was the stress and coping approach, which contends that social support acts as a protective factor from the effects of adverse events. The second theory is from a social

constructionist perspective, positing that social support positively affects health by raising self-esteem and assisting in self-regulation. The third viewpoint was from a general relationship processes perspective that suggests that effects on health derived from social support cannot be delineated from benefits derived from other relationship processes, such as intimacy or companionship (Lakey & Cohen, 2000).

The most influential of the theoretical approaches is the stress and coping theory which views social support as a protective factor or buffer for an individual faced with stress or trauma through either the supportive actions of others or the belief that support is available (Lakey & Cohen, 2000). It is that perspective from which the preponderance of research on social support relevant to this study is derived. Within that concept, social support has been described and measured in various ways, yet no definition emerged (Chronister et al., 2008; Elal & Krespi, 1999). However, two broad categories have been commonly identified. The first is the structural aspect, which relates to the quantity and characteristics of an individual's social network, e.g., how many contacts and the types of contacts one has and is usually measured by a count or whether or not a characteristic is present. The second feature of the theory involves the functional dimension of social support and generally refers to the type of support behavior and social exchange involved (Chronister et al., 2008).

In the context of the functional dimension, James House (1981) identified four types of support which influence how people cope with stressful events: (1) *emotional* support is associated with empathy, trust, caring, and love; (2) *instrumental* support involves tangible aid and material resources; (3) *informational* support includes providing facts, knowledge, and suggestions or advice which individuals can use to help themselves; and (4) *appraisal* support includes affirmation and feedback with which individuals can evaluate themselves (Campbell-

Grossman, Hudson, Keating-Lefler, & OfeFleck, 2005; House, 1981). House's model has been referenced in many studies in various disciplines albeit with adaptations to his model (Campbell-Grossman et al., 2005; Elal & Krespi, 1999; Hyman, Gold & Cott, 2003; Chronister et al., 2008; Niles, 1996). The functional element of social support has been further defined by received supportive behaviors, perceived satisfaction from support received, and perceived availability of support that would be required in the event of a crisis or emergency (Chronister et al., 2008).

The literature on civilian populations indicates a stronger relationship between perceived social support and psychological health than that between received social support and psychological health. This finding was demonstrated in a meta-analysis of 26 studies involving social support and outcomes related to rehabilitation and another meta-analysis of 37 studies involving the protective role of social support for first responders (emergency personnel, e.g., police, fire, medical), in promoting mental health (Chronister et al., 2008; Prati & Pietrantoni, 2010).

Meta-analyses conducted by Brewin et al., (2000) and Ozer et al., (2003), included a review of 145 studies that examined risk factors that predicted PTSD. A study of veterans from the 1990-1991 Gulf War indicates that poor interpersonal problems associated with PTSD symptoms have a detrimental effect on social support (King, D. et al., 2006). Another study was conducted on a group of Dutch veterans, half of whom had PTSD and half did not, who had been deployed on United Nations peacekeeping missions in Lebanon, Cambodia, or Bosnia. Those with cognitive deficits associated with PTSD exhibited poorer social functioning than their counterparts without PTSD (Geuze et al., 2008). Research with a group of New Zealand veterans also found that PTSD scores were negatively related to cognitive functioning and that those who had restricted social networks also had poorer cognitive functioning (Alpass et al., 2004).

Boscarino (1995) studied 2,490 veterans 15-20 years after they had served in Vietnam and found that those with low social support had an 80% greater risk of having PTSD than those with average social support and had a 180% greater risk than those with high social support (Boscarino, 1995).

Service members' relationships with their mates and spouses have also been researched from multiple perspectives. In a longitudinal population-based study, Milliken and colleagues identified a four-fold increase in interpersonal conflict, warning of the potential danger to couple and family relationships. Spouses were recognized as valuable assets to implementing early strategies for treatment since they were more likely to seek help for themselves and their soldier-partners than the soldiers themselves (Milliken et al., 2007). Some research estimates that individuals who have PTSD are 60% more likely to experience marital instability (Galovski & Lyons, 2004). Ghafoori et al. (2008) explored the adjustment to military trauma, and in a sample of 104 veterans, primarily from the Vietnam conflict (86 %). Compared to the group without PTSD, those who currently had PTSD also had significantly higher romantic insecure attachment (Ghafoori et al., 2008).

Hamilton et al. (2009) reported data from 45 couples from which the male partner had returned from OEF or OIF within approximately five months. In an effort to identify additional variables that may soldiers' recovery, they examined the influence of a female partner's primary trauma on the male soldier and the level of relationship satisfaction. Their findings indicate that the female partner's primary trauma negatively affects relationship satisfaction for both the soldier and his partner and that the partner's arousal symptoms were most associated with low levels of satisfaction, ultimately affecting the soldier's recovery (Hamilton, Goff, Crow, & Reisbig, 2009).

There has also been other research on the effects of post-deployment social support regarding those specifically identified as OEF/OIF veterans and their families (Doyle & Peterson, 2005; Erbes, Polusny, MacDermid, & Compton, 2008). These studies reiterate that National Guard and Reserve service members have the same combat exposure as active component service members. However, they and their families experience greater disruption and have fewer support systems in place to assist them with reintegration after deployment (Renshaw, Rodrigues, & Jones, 2009). Wilcox (2010) conducted an investigation in 2007-2008 with 83 married male soldiers who had participated in combat within the last seven years to explore the significance of social support subtypes and the association of those subtypes to soldiers' PTSD levels. She found that combat veterans do differentiate between specific sources of social support, including a significant other, family, friends, and military peers and that support from friends had the lowest impact (Wilcox, 2010).

Social support has also drawn the attention of researchers who are studying stress reactions from a neurobiological and genetic perspective (Ozbay, Fitterling, Charney, & Southwick, 2008; Southwick, Ozbay, Charney, & McEwen, 2008; Rosal, King, J., Ma, & Reed, 2004). The neurobiology related to social connections between individuals and groups, as well as within community settings have been linked to levels of resilience and to risk of PTSD. When an individual encounters a stressful or threatening situation, the sympathetic nervous system (SNS) reacts by releasing epinephrine and norepinephrine to assist the body in the fight or flight response (Ozbay et al., 2008). Those resilient to stress are able to maintain levels for appropriate response, but those who develop PTSD are thought to have hyperreponsive SNS reactions (Ozbay et al., 2008). Preliminary studies indicate that genetic predisposition provides some

individuals with inherited alleles, resulting in resilience to stress, while others inherit a genetic vulnerability (Southwick, Vythilingam, & Charney, 2005).

Since the 1950s animal studies have revealed that not only did social support act as a protective factor against stressful or adverse conditions, but those who were isolated or lacked a familiar support system actually developed physical and psychological disorders. Research involving human beings have reflected the same results in both laboratory and field studies. (House, 1981)

The association of neuropeptides oxytocin and vasopressin with the regulation and promotion of social attachment behavior in animals has been well established (Insel & Young, 2001; Ozbay et al., 2008; Southwick et al., 2008). More recent studies have validated the connection of these neuropeptides to the regulation of human behavior (Ozbay et al., 2008). Neuroscientists Insel and Young speculated that for attachment to occur, oxytocin and vasopressin "must link social stimuli to dopamine pathways associated with reinforcement" (Insel & Young, 2001, p. 135). Preliminary laboratory studies in humans indicate that oxytocin may lower anxiety and reduce cortisol responses under stressful conditions. Participants in the laboratory studies who also received social support, scored lowest on anxiety and cortisol levels (Ozbay et al., 2008).

The hypothalamic-pituitaryadrenal (HPA) axis is a major factor in the connection between stress and illness (Rosal et al., 2004). It is responsible for the endocrine output during the body's stress response (Stahl & Grady, 2010). In normal stress response the HPA axis has generally been associated with the activation of the hypothalamus that secretes corticotrophin-releasing factor (CRF), which then stimulates the anterior pituitary gland to release adrenocorticotrophic hormone (ACTH) (Southwick et al., 2008; Stahl & Grady, 2010). ATCH

causes dehydroepiandrosterone (DHEA) and glucocorticoid (cortisol) to be released from the adrenal gland. The glucocorticoid then binds to receptors in the pituitary, hippocampus, and hypothalamus, where it inhibits CRF release thus ending the stress response (Stahl & Grady, 2010). However, chronically elevated glucocorticoid levels may cause damage to the hippocampus resulting in impairment in inhibition of HPA activation. This would produce greater glucocorticoid levels and potentially further damage to the hippocampus. Oxytocin may inhibit the HPA axis reactivity to stress Ozbay et al., 2008).

The literature clearly indicates that neurobiogenetic factors are involved in the development of social attachments as well as in the mediating the effects of social support (Ozbay et al., 2008; Southwick et al., 2008). Research is continuing to uncover the biochemical chain of events involved in various mental states that are associated with human interactions from infancy to old age, and will potentially provide ways to promote resilience to stress (Ozbay et al., 2008; Young, 2010).

Spirituality

The relationship between *religion* and *spirituality* as they correlate to coping with stress and trauma has been studied extensively in various civilian populations in recent years (Ano and Vasconcelles, 2005; Cann, et al., 2010; Chen & Koenig, 2006; Falsetti, Resick, & Davis, 2003; Galanter, 2010; Harris, Winskowski, & Engdahl, 2007; Harris, et al., 2008; Pargament, Koenig, & Perez, 1999; Shaw, J. & Linley, 2005; Weaver, Flannelly, L., Garbarino, Figley, & Flannelly, K., 2003). The effects of religion and spirituality as they relate to combat-related stress and trauma with military personnel has become the focus of increased research and study as a result of the challenges inherent in the unconventional and guerilla warfare of modern conflicts (Dekel, Solomon, Elklit, & Ginzburg, 2004; Drescher, Smith, & Foy, 2008; Fontana & Rosenheck, 2004,

2005; Gilliland et al.; Hufford, Fritts, & Rhodes, 2010; Litz et al., 2009; McLaughlin, McLaughlin, & Van Slyke, 2010; Owens, Steger, Whitesell, &Herrera, 2009).

The terms spirituality and religion have been distinctively defined, as well as used interchangeably in the literature in studies related to their effects on stress and trauma (Ano & Vasconcelles, 2005; Chen & Koenig, 2006; Connor, Davidson, & Lee, 2003; Falsetti, Resick, & Davis, 2003; Harris et al., 2007; Shaw, Joseph, & Linley, 2005; Vis & Boynton, 2008; Weaver et al., 2003; Wiggins, Uphold, Shehan, & Reid, 2008). Although religion and spirituality have been considered the same in the past, distinct concepts clarifying each have been beginning to emerge since the mid 20th century (Hill et al., 2000; Schlehofer, Omoto, & Adelman, 2008). Many have explored and compared the differences in depth and presented models of the relationship between the two constructs (Hill et al. 2000; Schneiders, 2003). The most common definitions of religion referred to a belief system that includes a set of beliefs and practices or rituals that generally involve a community of people who observe the same customs and traditions of worship (Worthington & Aten, 2009). Inherent in most concepts of "religion" or being "religious" is a sense of transcendence related to a God or other sacred beings or objects associated with a particular religion (Worthington & Aten, 2009). "Spirituality" is generally defined as a search for the sacred through self-transcendence in seeking meaning and purpose to life (Galanter, 2010; Gilliland et al., 2010). The term "sacred" is regarded to be determined by the individual and could be a divine being, divine truth, nature, or whatever may be the person's objective (Hill et al., 2000; Schneiders, 2003).

Some researchers have acknowledged that the lack of consistency and consensus regarding terminology and perspective impedes the pursuit of scientific inquiry into this subject (Hill et al., 2000). This difficulty is exemplified in a meta-analysis conducted by Ano and

Vasconcelles (2005) on 49 studies relevant to religious coping and psychological adjustment to stress. The operational definition used to screen their studies was derived from a model developed by Pargament (1997) in which religious coping was defined as "the use of religious beliefs or behaviors to facilitate problem-solving to prevent or alleviate the negative emotional consequences of stressful life circumstances" (Koenig, Pargament, & Nielsen, 1998, p. 513). They included both positive and negative strategies of religious coping with respect to five key religious functions which were identified as: meaning; control; comfort/spirituality; intimacy/spirituality; and life transformation. Their descriptions of these areas present a challenge in drawing distinctions from religious-coping strategies and those that may have a purely spiritual function (Pargament, Koenig & Perez; 2000).

Shaw and Linley (2005) also conducted a systematic review of 11 studies that reported links between religion, spirituality, and posttraumatic growth. They did not distinguish between the terms religion and spirituality and clearly state that religious participation may not include a spiritual component and that spirituality may not involve religious participation. These researchers acknowledge that the distinction has not been made in the literature and speculate that it is "probably wrong" to combine the two constructs (Shaw & Linley, 2005).

There is considerable attention in the literature indicting a trend by Americans to differentiate between religion and spirituality and away from affiliation with an organized religion (Ano & Vasconcelles, 2005; Galanter, 2010; Hill et al., 2000; Schlehofer et al, 2008; Weaver et al., 2003; Worthington & Aten, 2009). Although there has been a decrease in the number of people who identify with a particular religion, 94% indicated on a Gallup survey in 2004 that they believed in God or a universal spirit (Lyons, 2005). Today more Americans identify themselves as "spiritual" (83%) than "religious" (64%) (Galanter, 2010). There is

reportedly a record number of Americans (16%) that say they either have no religious identity or had an undesignated response when surveyed (Gallup, 2010). This number has been gradually increasing since the tracking of religion by Gallup which began in 1948 when the response was at 5% then dropping to nearly zero in the 1950s. By 1990 the number had reached 11%, reflecting a 6% increase over a 42 year period. Over the past nine years there has been 5% increase, indicating a much more rapid trend. In 1957 Gallup polled Americans for the first time as to whether they believed that religion was old fashioned and out of date. At that time, 7% said yes compared to 28% in 2010 (Newport, 2010). Yet some surveys suggest that 90% of Americans pray, while 75% report that religious involvement is a positive experience, and 88% claim that religion is important (Hill et al., 2000).

A comparison of the 2008 American Religious Identification Survey results between the religious self-identification of United States civilian and military adult populations, illustrates that the military is basically reflective of the civilian population regarding its religious composition. The top three most highly represented categories for the civilian and military groups respectively were as follows: Catholic (25.1%; 25.07%); Baptist (15.8%; 15.84%); and No Religious Preference (NRP) (15%; 13.4%) (Kosmin & Kevsar, 2008). The same similarities were found in the Jewish (1.2%; 1.7%), Muslim (.6%, .6%), and Eastern (.9%, 1.1%) religions. The vast majority in both the civilian (76%) and military (75.98%) populations self-identified with the Christian religious tradition (Kosmin & Kevsar, 2008).

Regardless of the focus or definitions, there is overwhelming evidence in the literature connecting religion and spirituality to the effects of stress or trauma. Meta-analyses of multiple studies, however, found various types of associations. Weaver et al. (2003) examined all articles written in the *Journal of Traumatic Stress* published in the 1990s to determine the extent to

which the subjects of religion and spirituality were addressed. Out of a total of 469 articles published, 22 articles (4.7%) mentioned religion or spirituality. There was an increase from the first half of the decade (3.2%) to the last five years (6%). They found few actual studies on the subject and speculated the reason may be because researchers in the fields of psychology and psychiatry are inclined to have low participation in religious activities and traditionally received little training on the subject (Weaver et al., 2003). In a meta-analysis of 49 studies, Ano & Vasconcelles (2005) examined the multi-faceted nature of religious coping and the positive and negative strategies individuals employ to cope with stressful situations. Their findings support that religious coping strategies are significantly related in the psychological adjustment to stress, i.e. positive religious coping strategies yield positive outcomes. The use of positive strategies was also associated with less depression, distress, and anxiety. Negative religious coping strategies e.g. blaming God or crediting the devil, were positively associated with individuals who experienced more depression, distress and anxiety. A few studies, however, indicated that negative religious coping may be associated with a spiritual struggle that will result in a positive spiritual growth experience (Ano & Vasconcelles, 2005).

Shaw, Joseph, and Linley (2005) conducted a review of 11 studies that demonstrated a relationship between religion, spirituality and posttraumatic growth. The studies included varied demographic samples including parents of murdered children, women with histories of multiple trauma and abuse, HIV-positive women, people suffering various medical illnesses, personal losses, and residents of Oklahoma City at the time of the bombing. The results of their review evince that traumatic events can effectuate religious and spiritual beliefs and practices. There is confirmation that existing religious beliefs can be beneficial for psychological recovery as well as in personal growth posttrauma (Shaw et al., 2005). Consistent with other meta-analyses, they

also identified that some individuals' belief systems can be destroyed by traumatic experiences (Chen & Koenig, 2006; Drescher et al., 2008; Shaw et al., 2005).

A multi-year survey was conducted at University of California, Los Angeles, to study spirituality in the lives of college students. The sample included 112,232 entering first year college students from 236 colleges and universities throughout the United States. The purpose was to determine how students conceive spirituality, the role it plays in their lives, and how educational institutions can improve in facilitating students' spiritual development (Austin, A., Austin, H., & Linholm, 2010). The age group of this sample is similar to a large percentage of military personnel who are and have been engaged in combat operations in Iraq and Afghanistan (Defense Management Data Center, 2008). The results illustrate that although the highly spiritual and their less spiritual counterparts were both susceptible to psychological stress, the highly spiritual students were more likely to be able to cope with and find meaning in hardship. Spirituality and religiousness among this group was also related to practicing positive measures of well-being, e.g., maintaining a healthy diet and above average physical health. Conversely, those who disclosed experiencing greater religious struggles than their peers were more likely to report drinking alcohol, smoking cigarettes, staying up at night, and missing classes due to illness. They were less likely to report maintaining a healthy diet and above average physical health (Austin et al., 2010).

Research findings conducted on veterans have been congruous with those in civilian populations in demonstrating an association between religion and spirituality and both combat stress or trauma (Gilliland et al., 2010; Linley & Joseph, 2004). The studies in the veteran population also vary in focus and scope. Fontana and Rosenheck (2004) examined data from a Department of Veterans Affairs inpatient and outpatient sample of 1,385 primarily Vietnam

veterans (95%) in specialized PTSD programs. They evaluated the interrelationships between combat trauma, PTSD, guilt, social functioning, and change in religious faith to explain the frequency of use by veterans of mental health services. Their results indicated that the greatest use was by those who had feelings of guilt for having killed people and failed to prevent the death of others, which also contributed to a weakening of religious faith. They suggested that utilization of the therapeutic relationships and services in the VA system was motivated by the veterans' search to find "meaning and purpose to their traumatic experience" (Fontana & Rosenheck, 2004, p. 582).

A study was conducted on 174 combat veterans from various wars including World War II (3%), Korea (3%), Vietnam (75%), post-Vietnam (33%), Gulf War I (19%), Iraq (8%) and Afghanistan (5%) that also addressed the issues of PTSD, guilt, depression, and meaning of life relating to combat stress (Owens et al., 2009). The findings confirmed that age, combat exposure, depression, guilt and meaning in life are predictive of PTSD severity. The younger veterans had less severe PTSD. Those who had more combat experience, depression and guilt and less meaning in life reported more severe PTSD. The researchers also found that for those with low to moderate levels of depression, meaning in life related to less severe PTSD (Owens et al., 2009).

Another study involved the assessment of forgiveness and religious coping in 213 veterans diagnosed with PTSD who were receiving treatment at a VA outpatient clinic. The researchers found that difficulty forgiving oneself or others and negative religious coping were associated with mental health difficulties for veterans with PTSD (Witvliet, Phipps, Feldman, & Beckman, 2004). Dekel and colleagues (2004) studied a group of 396 Israeli veterans from the 1973 Yom Kippur War. They examined the association between "personal world assumptions

and . . .combat stress reactions (CSRs), PTSD, and PTSD's course among three groups of Israeli veterans" (p. 407). One group was comprised of veterans who had suffered CSR during combat. A second included only decorated combat veterans, while the third was a control group of combat veterans. The results showed that individuals who had experienced CSR and those who had developed PTSD had less self-esteem and less faith in the benevolence of people than those in the decorated veteran and control groups (Dekel et al., 2004).

As related by Drescher et al. (2006), a Navy chaplain conducted a survey in 2005 at a retreat for 31 Marine Corps chaplains and medical personnel who had recently returned from duty in Iraq. Almost all participants reportedly agreed that spirituality was important and that their experiences in Iraq had affected them in that respect. There were three common changes that emerged among the group: "(1) their faith had been challenged, (2) they had found new purpose, and (3) their spiritual religious practices had changed" (p. 298). Drescher et al. identified the ways that veterans of Iraq and Afghanistan may be affected by war in general and the unique experiences presented by the current conflicts. They proposed three issues be considered when working with returning combat veterans: (1) that combat experiences may tax spiritual resources and result in greater need for medical services, (2) that negative religious coping symptoms may exacerbate or be associated with more severe depression or PTSD, and (3) those who have difficulty forgiving and with issues of guilt or hostility may be at greater risk for more severe problems as time passes. The authors suggest that the current conflicts, as identified in previous studies, have introduced distinctive challenges with multiple deployments and expansive use of the RC who have less training time, fewer resources, and have to make greater life adjustments. The lines of battle are less distinguishable and add an unpredictability and stress on support troops, whose exposure to injury was previously less than combat troops.

They also pointed out that although support for the troops is still high, public support for continuing the war effort appears to be mixed (Drescher et al., 2008).

Religious and spiritual rituals have also been studied with respect to brain functioning and their physical as well as psychological effects (Anastasi & Newberg, 2008). The results of brain imaging suggests that spiritual practices have long-term effects on the frontal lobes of the brain which, through connections to the limbic system, may ultimately help to mediate processes involved in attention, memory, and emotion (Newburg et al., 2010). These elements are integrally involved in processing stressful or traumatic events (Cahill, 2009). Mind-body techniques have been practiced by warriors in ancient cultures for thousands of years to enhance mental acuity and build physical strength and agility (Hufford et al., 2010). Recent technological developments in brain imaging e.g., functional magnetic resonance imaging (fMRI), positron emission tomography (PET), and single photon emission computed tomography (SPECT), have provided the opportunity to better understand brain function. It is now possible to monitor the activity of the brain during, e.g., during meditation and prayer, as well as study the long-term effects of such practices (Newberg, 2001).

A study using SPECT imaging compared the cerebral blood flow (CBF) of long-term meditators with non-meditators. The results showed that the CBF in the prefrontal cortex, parietal cortex, thalamus, putamen, caudate, and midbrain, was significantly higher in long-term meditators than non-meditators (Newburg et al., 2010). Long-term meditators had higher activity in the prefrontal cortex and middle frontal cortex. They also showed thicker cerebral cortices in several areas and increased brain volume in the frontal lobes, which assist in mediating in activities that involve attention, emotions, and memory (Newburg et al., 2010). Decreased cerebral blood flow in specific areas of the brain has been associated with certain psychiatric

disorders including PTSD and depression (Newberg and Alavi, 2010). Changes in CBF have also been studied before and after psychotherapy during retrieval of traumatic memories in individuals who have symptoms, but do not meet full criteria for PTSD. The researchers posit that there may be similarities between the neuronal mechanisms involved in sub-threshold PTSD and "those underlying the fragmented and non-verbal nature of traumatic memories in full PTSD" (Peres et al., 2007, p. 1491).

Another study examined two groups of Catholic college students for the effects of religious ritual on anxiety (Anastasi & Newberg, 2008). One group recited the Rosary while the other viewed a video with religious content. Both groups were administered pre and post tests which measured anxiety levels. The anxiety level of the group that recited the Rosary lowered significantly compared to those who watched the video with religious content. The Rosary is more cognitively and physically ritualistic in form than religious in content, yet the result of the task was much more effective in reducing anxiety. The authors suggest that perhaps it was the ritual rather than the religious aspect that provided the benefit (Anastasi & Newberg, 2008). Several other studies on meditative rituals have demonstrated short-term decreases in anxiety and depression and resulted in lower blood-lactate levels and lower blood pressure (Anastasi & Newberg, 2008). Dr. Andrew Newberg, a neuroscientist at the University of Pennsylvania, is among those researchers who continue to study neurotheology and hope to discover how religion and spiritual beliefs and their accompanying rituals or practices affect human beings (Newberg, 2001).

The knowledge gained from recent advancements in research in the areas of trauma and spirituality is extremely significant in the context of providing training and services to military combatants. The information yielded from the latest research and the requirement to sustain a

more diverse military population engaged in complex global conflicts, have impelled the military leadership to address the issue of spirituality as a crucial element in its warriors' overall fitness (Bonura, 2009; Dugal, 2009; Hufford et al., 2010; Litz et al., 2009).

Although the focus on developing spiritual fitness and treating moral injury is recent, the United States military has recognized the importance of attending to the spiritual needs of its members since its inception in 1776 (Roetzel, 2009). The practice of assigning Chaplains to units has its institutional and organizational roots in the structure of British military and also had been well established in the militaries of the French, Spanish, and Dutch (Otis, 2009; Roetzel, 2009). However, the spiritual origin of its tradition is found in the Old Testament in passages such as Deuteronomy 20:2-4 (Thompson, 1978) where it is written:

> When you are about to go into battle, the priest shall come forward and say to the soldiers: 'Hear, O Israel! Today you are going into battle against your enemies. Be not weak hearted or afraid; be neither alarmed nor frightened by them. For it is the Lord, your God, who goes with you to fight for you against your enemies and give you victory.'
>
> (The New American Bible, 1992)

The Judeo-Christian philosophy and tradition has provided the theological basis and the justification for the conduct of war for much of Western civilization (Roetzel, 2009). Military chaplains have historically been involved with people of non-Christian faiths since the beginning, although initially their primary mission was one of conversion of non-Christians to Christianity (Brinsfield & Baktis, 2009). The experiences of WWII and Vietnam generated issues involving different cultures and various religions and belief systems requiring the military to provide for the spiritual needs of a more diverse population. Between 1970 and 1987 religious pluralism proliferated with the addition of 2000 new religious groups (Brinsfield & Baktis,

2009). The primary mission of the military chaplaincy is to ensure that all military settings support the free exercise of religion and worship (Otis, 2009).

As stated earlier, the religious composition of today's military is essentially a reflection of society and although primarily Christian in orientation, represents increasing religious and spiritual diversity (Hunter & Smith, 2009; McLaughlin, et al., 2010). There is some indication in the literature that intolerance and proselytizing have been revealed in contemporary policies (Hunter & Smith, 2010). In recent years the military has been accused of continuing to promote the Christian faith to the point of discrimination against those of other faith preferences. For example, in 2005, there was an investigation at the Air Force Academy for inappropriate treatment of cadets based on religion (Hunter & Smith, 2010). In another case, the families of military members killed in Iraq who were of the Wicca faith, were denied the right to put the Wicca emblem on government funded headstones until required to do so after a nine-year court battle with the VA (Hunter & Smith, 2010). There have also been accusations of conservative Christians evangelizing and acting prejudicially in theatres in Iraq and Afghanistan (Hunter & Smith, 2010).

These incidents, however, are inconsistent with the commitment professed by the Department of Defense (DOD) and supported by the military chaplaincy to accommodate religious diversity (Brinsfield & Baktis, 2009; Hunter & Smith, 2010; Otis, 2009). Reports prepared within the DOD have predicted increased demands on military combatants in the areas of physical, psychological, and spiritual fitness (Hufford et al., 2010). Research groups have recommended that military leaders at all levels receive education and training regarding: religious differences; resources available for assistance; developing and implementing mental and spiritual fitness programs at the unit level before, during, and after deployment; and in the

identification, referral, and monitoring of service members who need support (Hufford et al., 2010; Hunter & Smith, 2010). In an article written in 2009 by a military chaplain while attending the Army War College, he wrote that while the Army professes to provide an environment conducive to physical, psychological, mental, and spiritual development for its leaders, it "remains overtly silent in developing the spiritual aspect" (Dugal, 2009, p. 17). He called for the Army's senior leaders to engage with chaplains, educators, physicians and mental health providers to address the issue. He stated that research affirmed that "if the Soldier's spirit is neglected it will be at the expense of the Soldier's recovery, resiliency, mission and ultimately the Nation's mission" (Dugal, 2009, abstract).

Summary

From a review of the literature, self-efficacy, social support, and spirituality are inextricably associated with the way service members react to stress and trauma experienced in a combat environment and their subsequent adjustment when returning from it. These constructs can all be considered from the perspective of Social Cognitive Theory (Bandura 1997, 2003). However, the literature also reflected the emerging research which potentially relates these constructs through genetics and neurobiology. Inclusion of relevant information from all disciplines is necessary to address the complexities of combat stress and trauma inherent in modern warfare.

Chapter Three

Methodology

The purpose of this study was to evaluate soldiers six to eighteen months following their return from Iraq or Afghanistan. The study was specifically designed to examine the relationship between self-efficacy, social support, and spirituality in National Guard soldiers' readjustment to civilian life following experience in a combat environment. Self-report questionnaire data were collected from currently serving California National Guard soldiers to address the research questions and hypotheses. This chapter includes the hypotheses, a description of the sample of the study, measurement instruments used, and the administration of the survey instruments.

Hypotheses

A review of the literature revealed significant associations between combat exposure, self-efficacy, social support, and spirituality, and adjustment following experience in a combat zone. Higher levels of combat exposure are predominantly associated with higher levels of posttrauma symptomology. Higher levels of self-efficacy, social support, and spirituality are primarily associated with resilience following combat trauma. Therefore, the following three research hypotheses are proposed:

- Hypothesis 1: For National Guard soldiers returning to civilian life from deployment to a combat environment, higher levels of self-efficacy, social support, and spirituality, and lower levels of combat exposure, will predict lower levels of posttraumatic stress disorder symptomology.

- Hypothesis 2: For National Guard soldiers returning to civilian life from deployment to a combat environment, higher levels of self-efficacy, social support, and spirituality, and lower levels of combat exposure, will predict higher levels of resilience.

- Hypothesis 3: For National Guard soldiers returning to civilian life from deployment to a combat environment, higher levels of resilience, will predict lower levels of posttraumatic stress disorder symptomology above and beyond the effect of combat exposure.

Research Model

To address the hypotheses outlined above, the conceptual research model is presented.
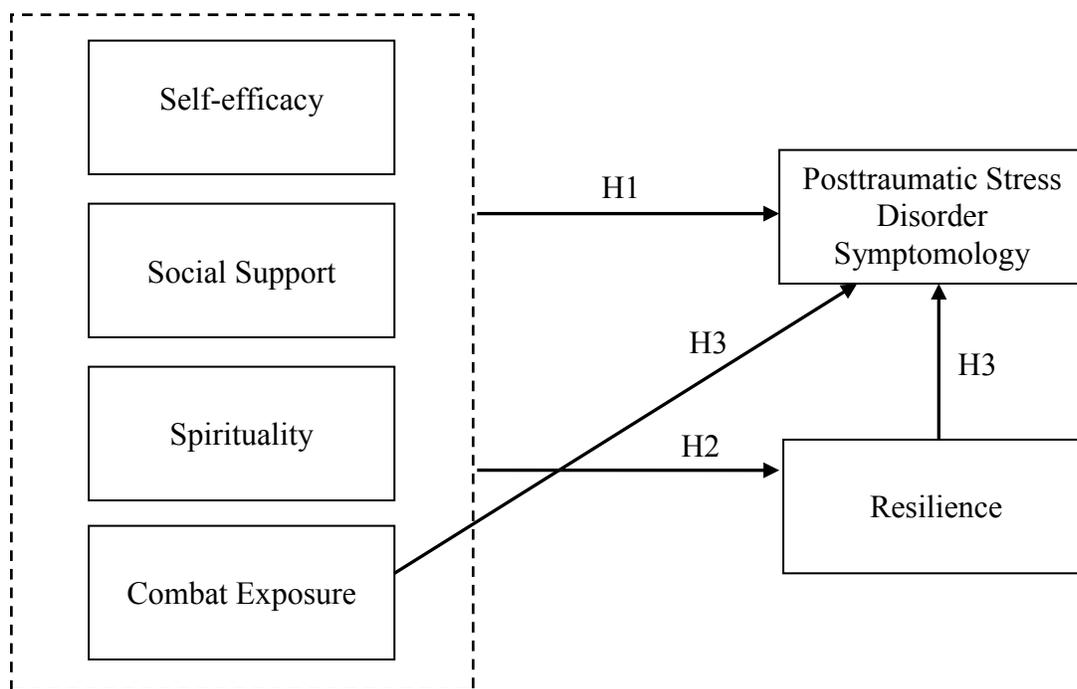
Figure 1. **Research Model**

Design and Data Collection Procedures

Data for this study were restricted to National Guard personnel because research suggests that readjustment for Reserve Component service members differs from that of service members in the Active Component (Vogt et al., 2008b). The decision to include only California National Guard soldiers was an attempt to involve a homogeneous group of soldiers. The survey was

administered to soldiers from groups who shared unity of command in an effort to ensure that soldiers had experienced similar organizational policies, procedures, and professional training.

Prior to data collection, approval for the proposed research was obtained from the Antioch University Santa Barbara Institutional Review Board. The Informed Consent Form (see Appendix B) detailed the purpose of the study, possible associated risks and potential benefits, as well as the confidential and anonymous nature of the data collected. It provided participants with information regarding the right to withdraw from participation at any time without penalty and the right to contact the primary researcher and Antioch University with any questions regarding the study. The Informed Consent Form stated that the estimated completion time would be approximately 10-15 minutes.

Participation of soldiers was voluntarily obtained through coordination with leadership at the unit level. The primary researcher administered the self-report questionnaires to volunteers at various National Guard unit locations throughout California. The primary researcher administered all surveys except twelve. Twelve surveys were administered by three other mental health professionals licensed in California who were trained by the primary researcher to administer the surveys.

Sample

A total of 247 soldiers completed the survey. Of those who completed the survey, two had never deployed to a combat zone, two had never deployed to Iraq or Afghanistan, and 20 had not returned within the 6-18 month window; their responses were excluded from the ensuing data analysis. The sample included a total of 223 soldiers currently serving in the California National Guard (213 male, 10 female). Although the age range was 20-57 years, 57% were under the age of 30. Caucasians (42.6%) and Hispanic-Americans (35%) represented approximately 78% of

the racial demographic. The majority of soldiers had attained a level of education which included some college. Over one third possessed a high school diploma or GED and 20 soldiers had graduated from college with bachelor degrees. The years of service performed by soldiers ranged from two to 34 years. The number of deployments individuals had completed to a combat zone varied from one to four. Forty-two percent of the soldiers identified themselves as single, 42.3% were married or partnered, and the remaining were divorced or separated. Among religious preferences, Catholic (39%), Protestant (20%), and None (24%) were the most highly represented categories.

The vast majority of soldiers had deployed to Iraq (81%) while only 2.3% had deployed to Afghanistan. Five percent had deployed to both countries and the remainder had deployed to either Iraq or Afghanistan and another combat zone. As part of the demographic questionnaire, soldiers were asked if they had been present when an explosion occurred, to which 78% answered affirmatively.

Military ranks are represented by pay grade. Pay grades are divided into three groups representing increasing seniority: Enlisted (E), Warrant Officer (W), and Officer (O). Enlisted pay grades begin at E-1 and end with E-9. Senior to all enlisted ranks, are Warrant Officer pay grades which begin at W-1 and end at W-5. Senior to all Enlisted and Warrant Officer pay grades are Officer pay grades which begin at O-1 and finish at O-10, the four star general or admiral rank. The majority of soldiers were enlisted in the ranks of E-5 and below (77.5%). Approximately 20% were E6 –E8, there was one Warrant Officer, and five Officers.

Most soldiers' military occupational specialty (MOS) in the sample was infantry (70%) which is the Army's basic ground combat fighter MOS. Other soldiers worked in the supply field (9.4%), vehicle maintenance (6.7%), and were vehicle drivers (5.4%). Appendix A presents a

demographic profile of the 223 National Guard soldiers who completed the survey and are included in the data analysis.

Instrumentation

There were six scales employed to assess constructs addressed in the three hypotheses. In an effort to remain consistent with prior research, each instrument was adopted from existing instruments with proven reliability and validity. Coefficient alpha was used to confirm all scale reliabilities.

Posttraumatic Stress Disorder Checklist – Military Version. Posttraumatic stress symptomology related to experience in a combat environment was measured in this study by the PTSD Checklist (PCL). The PCL is a 17 item self-report scale designed to measure the symptoms of PTSD-based criteria specified in the Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revised (DSM-IV-TR). The 17 questions on the PCL-M refer to symptoms related to stressful military experiences. Each question is rated from 1 (Not all) to 5 (Extremely) regarding the degree to which the respondent has been bothered by the particular symptom in the preceding month. An example of a checklist statement is "Repeated, disturbing *dreams* of a stressful military experience?" Scores are added and totals >50 indicate a probable diagnosis of PTSD (Weathers et al., 1993). Estimated ranges for Cronbach's alphas are between .94 and .97 (Weathers et al., 1993).

Ego Resiliency Scale. To measure resilience, the Ego Resiliency Scale (Block & Kremen, 1996) was administered (Block & Kremen, 1996). The instrument was designed to assess one's capacity to modify his or her responses to changing, particularly stressful circumstances (Tugade & Fredrickson, 2004). This ability to adapt implies flexibility to apply self-restraint or take action, as appropriate (Letzring, Block, & Funder, 2005). The scale consists

of 14 items on a 4-point Likert scale ("1=Does not apply at all, 2=Applies slightly, 3=Applies somewhat, and 4=Applies very strongly"). An example statement is "I am more curious than most people." Cronbach's alpha reported in Block and Kremen's original study was .76 (Block & Kremen, 1996).

General Self-Efficacy Scale. The level of self-efficacy for participants in the current study was measured by the General Self-Efficacy Scale (GSE). The GSE (English version) was developed by Schwarzer & Jerusalem (1995) to assess a general sense of perceived self-efficacy, in order to predict one's ability to cope with the challenges of daily life, and to adapt, following varied types of stressful life events. It consists of 10 positively worded items, each of which refers to an ability to successfully cope and implies an internal attribution of success (Jerusalem & Schwarzer, 2008). All items on the scale are scored on a 4-point Likert scale ("1=Not at all true, 2=Hardly true, 3=Moderately true, and 4=Exactly true"). An example of a statement on the scale is: "I can usually handle whatever comes my way." Scores are obtained by adding responses and can range from 10-40, with higher scores indicating greater levels of general self-efficacy (Schwarzer & Jerusalem, 1995).

High reliability and construct validity were confirmed in several studies with a diverse pool of participants (Luszczynska et al., 2005). In terms of criterion validity, the GSE has predicted success in various vocational, educational and military fields (Sherer & Adams, 1983). The original version of the GSE was developed in Germany in 1979 and has been translated into 28 languages in 23 countries. Cronbach's alphas ranged between .75 and .91.

Multidimensional Scale of Perceived Social Support. The level of perceived social support was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS). The scale includes 12 items assessed using a 7-point Likert scale ranging from "Very strongly

disagree (1) to Very strongly agree (7). There are three subscales which address different types of support and include family, friends and significant other. An example of an item on the scale is "There is a special person with whom I can share my joys and sorrows." The MSPSS was tested on 275 college student in introductory psychology classes at Duke University. Cronbach's alpha reported in the original study was .88 (Zimet, Dahlem, Zimet, S., & Farley, 1988).

Spiritual Involvement and Beliefs Scale. The Spiritual Involvement and Beliefs Scale (SIBS) was administered in the current study to assess spirituality. The SIBS was originally designed for use across religious traditions (Hatch, Burg, Naberhause, & Hellmich, 1998). It was intended to assess various aspects of spirituality, including beliefs and practices (Lease, Horne, & Noffsinger-Frazier, 2005). The scale consists of 26 items in a modified Likert ranging from strongly agree to strongly disagree. An example of a statement on the scale is: "My life has a purpose." Cronbach's alpha reported in the original study was .92 (Hatch, Burg, Naberhause, & Hellmich, 1998). For a subsequent study using the instrument assessing 393 women in substance abuse treatment, Cronbach's alpha was reported as.83 (Arevalo, Prado, & Amaro, 2008).

Deployment Risk and Resilience Inventory: Combat Experiences. The Deployment Risk and Resilience Inventory (DRRI) was developed as a tool to assess the psychosocial risk and resilience factors related to military personnel who are deployed and the consequences associated with their mental and physical health (King, L., King, D., Vogt, Knight, & Samper, 2006). There are 14 sections within the DRRI that measure different risk and resilience factors. The Combat Experiences Scale (CES) is the measure used in this study to assess level of combat exposure and intensity. It is a true or false 15 dichotomous item scale (0=no, 1=yes). An example statement is "I killed or think I killed someone in combat." Cronbach's alpha reported in the original study was .85.

Chapter Four

Results

Chapter four details the statistical data analyses and findings. The research hypotheses were tested using regression analysis. SPSS Version 18 was used to assess normality of the data, obtain descriptive statistics as well as scale reliabilities, and to address the research hypotheses.

A power analysis was conducted to determine the number of participants needed for the current study to achieve a .8 power level with an effect size of $p < .05$. A sample size of 85 participants was recommended to achieve medium effect size using the four independent variables in the study. The sample size obtained for this study exceeded that number, therefore, there were no concerns regarding power to detect effects in this study.

The use of stepwise regression meets the cautionary criteria as described by Cohen and Cohen (1983). The goal of this research was predictive since the four independent variables had been identified from the research as having valid associations with the dependent variables. The second condition which called for the independent variable to study participant ratio to me 1-40 as met, as the study ratio was 1-55 (Cohen & Cohen, 1983).

Data Analysis

Where the data were not normally distributed, transformations were applied. The Pearson correlations for all study variables are presented in Table 1. The internal-consistency reliability of all constructs was assessed using Cronbach's alpha, and the reliabilities are at the diagonal in Table 1. All Cronbach's alpha results are high. Each of the independent study variables was significantly related to the dependent variables; resilience and PTSD symptomology.

Table 1. *Pearson Correlations between Study Variables and Reliabilities*

	Resilience	PTSD	Self-efficacy	Social Support	Spirituality	Combat Experiences
Resilience	**.92**					
PTSD	-.26**	**.96**				
Self-efficacy	.34**	-.15*	**.90**			
Social Support	.3**	-.18**	.12	**.97**		
Spirituality	.15*	-.16*	.03	.15*	**.87**	
Combat Experiences	-.16*	.37**	.00	-.12	-.05	**.86**

* p<.05 (2-tailed)
**p<.01 (2-tailed)

The means and standard deviations from each of the instrument norm populations and those of the study sample are in Table 2. All norms match except those on the measures for PTSD symptomology and combat experiences. The population, which determined the norms for the instrument for PTSD symptoms, the PCL-M, consisted of veterans who had contacted the National Center for PTSD for clinical services or to participate in research, indicating that they were seeking help for existing mental health symptoms and would, therefore, have a high average score with less deviation. The study population included randomly selected soldiers who were still serving and would, therefore, reflect lower overall scores. The individuals with scores indicating severe symptoms of PTSD would likely be fewer, and their scores would have a greater variance from other soldiers.

Regarding the differences in the means and standard deviations in scores on the Combat Experiences Scale of the DRRI, the instrument norm populations included a much more diverse group including representatives from different branches of service, a greater percentage of females, and most likely a variety of specialties that would have presented varying degrees of

combat experiences. On average, they would reflect lower levels of combat experience with greater deviation from those that experience intense combat. The study sample, however, was much more homogeneous in that the vast majority were combat soldiers who experienced greater exposure to enemy contact, and whose primary mission was to engage in combat operations. Their scores were consistently higher on the DRRI with less deviation.

Table 2. *Means and Standard Deviation Comparisons*

Variable	Current Study		Other Published Samples	
	M	SD	M	SD
The Ego Resiliencey (ER) Scale	3.01	.61	3.05	.34
PTSD Checklist – Military Version (PCL-M)	35.49	16.87	64.20	9.10
General Self-Efficacy Scale (GSE)	32.54	4.36	29.48	5.33
Multidimensional Scale of Perceived Social Support (MSPSS)	5.09	1.44	5.58	1.07
Spiritual Involvement and Beliefs Scale (SIBS)	81.58	12.52	91.15	12.02
Combat Experiences Scale - Deployment Risk and Resilience Inventory (DRRI)	6.64	3.87	3.40	5.20

Comparison norms for the Ego Resiliency Scale were derived from participants surveyed at 18 and 23 years of age, who resided in urban areas and were part of the Block and Block Longitudinal Study of Cognitive and Ego Development at the University of California at Berkley. The norms for the General Self-Efficacy Scale were resultant from a sample of 1,595 US-American adults; 50.9% male and 49.1% female. For the Multidimensional Scale of Perceived Social Support, the norms were from a sample of 154 college students, ranging n age from 18-51 years old, from ethnically and socioeconomically diverse backgrounds. The norms obtained from the Spiritual Involvement and Beliefs Scale involved 393 urban, low-income women admitted to a substance abuse treatment program in an urban area.

Testing of Research Questions and Hypotheses

As stated earlier, the overarching research problem addressed by the study is to determine if higher levels of self-efficacy, social support, and spirituality promote resilience and prevent the development of PTSD symptomology in National Guard soldiers who are returning from a combat environment to civilian life. Regression analyses were conducted to test the three hypotheses. All testing used an alpha (α) = .05 cutoff for statistical significance.

For Hypothesis 1, the model using self-efficacy, social support, spirituality and combat experience as independent variables to explain the dependent variable, posttraumatic stress disorder, was significant with an F-Statistic of 20.277 and Significance = .000. Stepwise regression was employed to assess the strength of the predictors as each was entered into the model. A Log transformation had previously been performed on the dependent variable PTSD to transform the skewed distribution to a normal one. Table 3 presents the standardized beta coefficient for each variable entered into the model and the R^2 change. The independent variables, social support and spirituality, did not meet the alpha = .10 cutoff to remain in the model, but the overall R^2 was .18 leading to partial support of Hypothesis 1. Findings indicate that combat exposure is the strongest predictor of PTSD, accounting for 14% of the variance. Self-efficacy accounted for an additional 4% of the variance.

Table 3. *Regression of Total PTSD, $R^2 = .18$*

IV	β	R^2 Change
Combat Experience	.38**	.14
Self-efficacy	-.20**	.04
Social Support		ns
Spirituality		ns

Dependent variable: Log transformed PTSD scores
**p<.01 (2-tailed)

For Hypothesis 2, the model using self-efficacy, social support, spirituality, and combat experience as the independent variables with resilience as the dependent variable achieved an F statistic = 11.223 and significance = .000. Stepwise regression was employed to assess the strength of the predictors as each was entered into the model. Table 4 presents the standardized beta coefficient for each variable entered into the model and the R^2 change. Self-efficacy accounted for 13% of the variance while the other variables accounted for smaller amounts.

Table 4. *Regression of Total Resilience, $R^2 = .20$*

IV	β	R^2 Change
Self-efficacy	.36**	.13
Social Support	.18**	.03
Combat Experience	-.15*	.02
Spirituality	.14*	.02

* p<.05 (2-tailed)
**p<.01 (2-tailed)

For Hypothesis 3, the model using resilience and combat experience as independent variables to explain the dependent variable, posttraumatic stress disorder, was significant with an

F-Statistic of 20.277 and Significance = .000. Stepwise regression was employed to assess the strength of the predictors as each was entered into the model. Table 5 presents the standardized beta coefficient for each variable entered into the model and the R^2 change. Combat experience accounted for 13% of the variance while 4% was due to resilience.

Table 5. *Regression of PTSD, R2 = .17*

IV	β	R^2 Change
Combat Experience	.36**	.13
Resilience	-.21**	.04

**p<.01 (2-tailed)

A number of demographic characteristics were examined to determine if relationships differed as a result. The amount of time a soldier had spent in the military was the only factor that emerged as important. Service members who enter military service incur an eight year commitment. A conscious decision to continue to serve past the initial obligation implies an informed and experienced understanding of the requirements of military service. Therefore, this study considered the possibility that associations among study variables may differ based on a service members' time in service. Analyses were conducted separately for those who served for more than eight years and those who served for eight years or less. Stepwise regression was employed to assess the strength of the predictors for PTSD as each was entered into the model. Table 6 compares regression results of total PTSD from soldiers with greater than eight years in the military with those that have eight years or less time in service. The data reflected from soldiers with more than eight years time in service achieved an F statistic = 7.591 and significance = .000. The independent variable social support did not meet the alpha = .10 cutoff to remain in the model, but spirituality itself accounted for 13% of the variance and combat

experience only 6%. Self-efficacy accounted for an additional 5% of the variance. The results for

the group with eight or fewer years in the military achieved an F statistic = 25.853 and

significance = .000. The independent variables spirituality, self-efficacy and social support did

not meet the alpha = .10 cutoff to remain in the model, but 21% of the variance was accounted

for entirely by combat experience.

Table 6. *Regression of Total PTSD Based on TIS*

	Soldiers with > 8 years TIS $R^2 = .25$		Soldiers with ≤ 8 years TIS $R^2 = .21$	
	β	R^2 Change	β	R^2 Change
Spirituality	-.37**	.13		ns
Combat Experience	.25*	.06	.46**	.21
Self-efficacy	-.23*	.05		ns
Social Support		ns		ns

* p<.05 (2-tailed)
**p<.01 (2-tailed)

The same two subgroups were examined using the model with spirituality, combat

experience, and self-efficacy as the independent variables, with resilience as the dependent

variable. Table 7 presents the standardized beta coefficient for each variable entered into the

model and the R^2 change for the regression comparing sample data from soldiers with greater

than eight years time in service (>8 years TIS) with those with equal to or less than eight years in

time in service (≤ 8 years TIS). For the group with >8 years TIS, the model with self-efficacy

and spirituality as the independent variables with resilience as the dependent variable achieved

an F statistic = 10.746 and significance = .000. Stepwise regression was employed to assess the

strength of the predictors as each was entered into the model. The independent variables social

and combat experience support did not meet the alpha = .10 cutoff to remain in the model. Self-efficacy accounted for 14% and spirituality for 10% of the variance. Combat experience was not a significant factor. The results reflected for those with the ≤ 8 years TIS achieved an F statistic = 12.528 and significance = .000. The independent variables spirituality and social support did not meet the alpha = .10 cutoff to remain in the model, but self-efficacy accounted for 12% of the variance and combat experience for 8%.

Table 7. *Regression of Total Resilience Based on TIS*

	Soldiers with > 8 years TIS $R^2 = .23$		Soldiers with ≤ 8 years TIS $R^2 = .20$	
	β	R^2 Change	β	R^2 Change
Self-efficacy	.37**	.14	.35**	.12
Spirituality	.32**	.10		ns
Combat Experience		ns	-.27**	.08
Social Support		ns		ns

**p<.01 (2-tailed)

Summary of Findings

The results from the study sample showed that the level of combat exposure was the most salient factor predictive of PTSD, which accounted for 14% of the variance when all four variables were considered. Self-efficacy accounted for an additional 4%, while social support and spirituality were not statistically significant. Therefore, soldiers with higher levels of combat exposure and lower self-efficacy reported higher levels of PTSD. The first hypothesis proposed that for National Guard soldiers returning to civilian life from deployment to a combat environment, higher levels of self-efficacy, social support, and spirituality and lower levels of combat exposure will predict lower levels of posttraumatic stress disorder symptomology.

Without findings of relational significance for social support and spirituality, the first hypothesis was only partially supported.

When examining the determinants for resilience in the study sample, self-efficacy accounted for 13% of the variance. An additional 7% of the variance was explained by social support (3.3%), spirituality (2.1), and combat exposure (1.8%) combined. The results supported the second hypothesis which proposed that higher levels of self-efficacy, social support, and spirituality and lower levels of combat exposure will lead to higher levels of resilience.

The analysis of the relative effects of combat exposure and resilience on the development of PTSD revealed that while resilience was statistically significant, level of combat exposure was a more predominant influence. Level of combat exposure accounted for 13% of the variance, while 4% was due to resilience. This result is consistent with the theory of the third hypothesis, which postulated that higher levels of resilience will predict lower levels of posttraumatic stress disorder symptomology even after accounting for the effect of combat exposure.

In an attempt to identify any demographic or experiential factor that may have had a significant influence on the study results, each aspect of information was evaluated for effect. Only one characteristic was distinctly compelling; the amount of time soldiers had been in military service specifically affected the results. In the model, when all independent variables were assessed as predictors of PTSD, regression results from soldiers with more than eight (> 8) years time in service (TIS) revealed considerable differences in construct influence than those with less than eight years (< 8) of military service. For those with > 8 years TIS, spirituality accounted for 13% of the variance, and combat only 6%. Self-efficacy accounted for an additional 5% of the variance, and social support did not meet the cutoff to remain in the model. The results for the group with less than or equal to eight years time in service, showed combat

experience as the predominant influence for those soldiers meeting criteria for PTSD. Combat experience accounted for 21% of the variance, whereas spirituality, self-efficacy, and social support did not meet the cutoff to remain in the model.

When the same two subgroups were examined using resilience as the dependent variable and spirituality, combat experience, and self-efficacy as the independent variables, with resilience as the dependent variable, again the groups differed substantially. The strongest predictors of resilience in soldiers with greater than eight years time in service, was self-efficacy, which accounted for 14% of the variance followed by spirituality, which explained 10%. Social support and combat experience did not meet the cutoff to remain in the model. Combat experience was not a significant factor. Higher self-efficacy, which accounted for 12% of the variance, emerged as the primary influence for soldiers with less than or equal to eight years time in service. The level of combat exposure remained significant, accounting for 8% of the variance, with social support and spirituality also not significant in this model.

Twenty-four percent of the study sample likely met criteria for PTSD. There was no equivalent sample available in previous research to which the study sample could be compared; therefore, a study sample with the most similar characteristics was selected. The information obtained from the demographic questionnaires indicated that the study sample is demographically consistent with information presented in a study by Hoge et al. (2004) for soldiers who had returned 3-4 months earlier from deployment to Iraq in 2003. Although their sample included 72% AC and 31% RC military personnel, the rate of personnel meeting criteria for PTSD grew from 5% prior to deployment to 12.9% following deployment. In the current National Guard study sample, which included soldiers who had returned from deployment between 6-18 months prior to the survey, 24% met criteria for PTSD. In the 2003 study group,

31% had a combat arms occupational specialty, whereas in the current study 70% of soldiers participating were the combat arms field. Other significant differences between the two groups were the racial composition and age distribution. The racial composition among the 2003 group included 60% White, 21% Black, 12% Hispanic and 8% others, while the current sample was comprised of soldiers who were 42.8% White, 5.8% Black, 35.1% Hispanic and 16.3% others. The number of soldiers under 30 years of age in the 2003 sample was 82%, where in the study sample 56% were under age 30.

Chapter Five

Discussion

This chapter provides a discussion of the present study's results and their implications with regard to existing research and current theory. The purpose of this study was to expand upon previous research relating to factors associated with the adjustment of National Guard soldiers returning to civilian life following deployment to a combat environment. The ultimate objective of this study was to identify factors that may be developed, enriched, or fortified, prior to, during, or following deployment to a combat environment, which could promote resilience, and minimize maladaptive reactions, to the stress encountered in a war zone. A particular focus was placed on citizen-soldiers, who generally have greater challenges when mobilized for deployment and return to civilian life.

Significant Findings

The 223 CA National Guard soldiers surveyed in this study were predominately combat infantryman (70%) and were assigned to infantry companies. Most had been deployed to Iraq (80.7%) within the previous 6-18 months during the 2008-2010 timeframe. The survey measuring symptoms for PTSD revealed that 24% of the soldiers likely met criteria for diagnosis. Since the survey was voluntary and each soldier's anonymity assured, it is unknown how many soldiers recognized their symptoms or had sought support. The primary factor found to be associated with a soldier meeting criteria for PTSD was his level of combat exposure. The extent of combat experienced by these soldiers was of greater magnitude than the average levels reported by Active Component soldiers on the same survey in previous studies (King, D., King, L., & Vogt, 2003). Self-efficacy, social support, and spirituality had been suggested in previous research to have a positive effect on postwar adjustment. However, the only characteristic in the

current study, which was also found to be negatively related to PTSD in addition to combat experience was a higher level of self-efficacy. Social support and spirituality were not significant when considering the results of the entire group.

The results were quite different when analyzing the three characteristics as they related to resilience. All three factors were important, although self-efficacy demonstrated more than twice the effect as the other elements combined. The negative effect of combat on resilience was also statistically significant, but was greatly diminished when the other factors were considered. Also, higher resilience in soldiers was associated with lower levels of PTSD above and beyond combat exposure.

This research did not find that social support and spirituality were significantly related to PTSD for the group as a whole. However, unlike previous research in this study, these variables were assessed after controlling for self-efficacy which may have affected the results. It also may be that different survey instruments would have more effective with a military sample in capturing information about social support and spirituality. It is possible that self-efficacy could have undermined the influence of social support in the regression process, since both were significant when individually evaluated with respect to resilience.

Because of the incongruence of the difference with previous research, additional evaluation of demographic information was evaluated. The purpose of additional examination of the data was to further determine the difference between soldiers whose scores were consistent with a diagnosis of PTSD and those who scored high on resilience. Interestingly there were no demographic differences between those with or without PTSD and no differences between those who scored high or low on resilience or social support. Age, marital status, religious preference,

deployment information, race, rank, education, etc., were all analyzed with respect to the factors being studied.

Only one demographic factor emerged as being associated with divergent outcomes relating to factor comparisons; time in service (TIS). Analyzing this element introduced the opportunity to explore another perspective. Soldiers who were still serving under their 8-year contractual obligation may have had distinctive profiles and consequently different responses than those who had decided to stay in the military past their completed eight-year commitment. In fact, there were expected differences demographically in the two groups including age, rank, and marital status. Those that enter the military are generally young, often are still single, and because they are new to the profession, enter at the lowest rank. The group with less than or equal to eight years of military service, as anticipated, was on average younger, lower in rank, and mostly single, whereas those with over eight years of service were older, married, and primarily E5 and above.

When all independent variables were assessed, spirituality became the most influential factor in reducing the development of PTSD for soldiers with more than eight years time in service. Self-efficacy was also important in minimizing PTSD following deployment for these soldiers, albeit to a lesser degree. Social support did not appear to be a significant factor. For those soldiers with eight years or less, none of the three factors served to reduce the incidence of PTSD, with only the level of combat experience prevailing in influence.

The strongest predictor of resilience in soldiers with more than eight years in the military was self-efficacy, followed by spirituality. As stated previously, for this group, self-efficacy was significant in lowering the severity of PTSD symptoms, but spirituality had the greatest influence. For soldiers with less than eight years, higher self-efficacy emerged as a primary

influence, but spirituality was not significant in promoting resilience for this group. Social support was not a significant contributor for either group. It is possible that developmental stage influences the importance of factors affecting resilience in soldiers. It may be that maturity and life experience leads to greater importance of spirituality in making meaning of stress encountered in combat or circumstances beyond an individual's control. Whereas for younger or less experienced soldiers, their belief in their own overall ability to handle stressful or challenging situations may be the best predictor of resilience.

Implications for Military Leaders

The results are encouraging for military leaders. Perceived self-efficacy, the belief in one's capabilities to produce desired actions, is a characteristic that can be easily nourished, developed, and strengthened in the military environment. The potential demonstrated in this study for self-efficacy to not only promote resilience in service members, but to prevent the development of PTSD in many service members, is extremely promising for the health of the force. An in depth understanding by leaders and trainers of the concepts of development and methods of building self-efficacy at the service member level, as well as collectively at all organizational levels, could have profound effects on service members' reactions while operating in and when returning from a combat environment. On-going screening of soldiers and focused attention and training for those who have low self-efficacy would be beneficial to the individual and the unit. Screening during the predeployment period may indicate additional training prior to deployment to ensure maximum preparedness for the challenges of combat. Another finding that has major implications for trainers and leaders is the understanding of the importance of spirituality in maintaining resilience and preventing mental health problems among senior military personnel who deploy to combat zones. It was evident in this study that the seasoned

warrior's ability to make meaning of his experience in the context of his belief system, enabled him to persevere during and following combat. Professional military education, as well as leader training, could be utilized to address the spiritual needs of service members. Instruction on the importance of incorporating spiritual fitness into the service member's total fitness program could also be integrated into the curriculum.

Increased postdeployment screening for the RC would be appropriate due to their increased vulnerability and limited oversight by military leadership as well as medical and mental health personnel. As with the sample in this study, there may be significant numbers of personnel in the ranks who meet criteria for PTSD. Therefore, providing mental health support during monthly and annual training may encourage soldiers to seek mental health treatment if needed.

Relevance to Previous Research

The results of the current study are consistent with the preponderance of previous studies which support the association between stress experienced in a combat environment and the subsequent development of psychological problems. Studies regarding veterans of previous wars including WWII, Korea, Viet Nam, and the Gulf War, showed that service members who experienced greater or more intense combat had higher levels of symptoms consistent with PTSD (Dekel, Solomon, Ginzburg, & Neria, 2003; Green, Grace, Lindy, Gleser, & Leonard, 1990). The same results have been duplicated on postdeployment assessments among veterans of OIF and OEF where mental health problems were significantly associated with combat experiences (Hoge, Auchterlonie, & Milliken, 2006).

The higher rate of PTSD found in the current study (24%), compared to 12.9% in the 2003 primarily AC Iraq veterans sample, supports research that has found higher rates of mental

health problems in RC troops than in their AC counterparts. The higher rate in the present study, reflecting a 6-18 month window after returning from deployment, may also support evidence of a delayed effect from combat stress, particularly among the RC (Milliken et al., 2007). This may be a result of the complex adjustments RC personnel are required to address. As stated previously, in addition to interpersonal readjustment with family and friends, RC military personnel may have financial burdens incurred from having been deployed. They may have the added stress of having to seek employment and re-establishing healthcare benefits, while still providing for their families in the interim. The fact that 75% of the current study's participants reported having been present during an explosion, is also consistent with previous studies reporting that 55-58% of soldiers who deployed to Iraq experienced booby trap or IEDs. The rate of PTSD among RC soldiers who experience life-threatening situations, including explosions, was over 24% (Reger & Gahm, 2008).

Finally, Marx et al. (2009) conducted a study to assess neuropsychological performances on 268 AC soldiers who had deployed to Iraq between 2003 and 2006. The soldiers were assessed three times -- prior to deployment, upon return from Iraq, and again at approximately 885 days following the first assessment. Their findings also indicated that there is a significant association between the period of time since their return from deployment and the severity of PTSD symptoms (Marx et al., 2009).

The results for the current study, which indicate that the generalized role of self-efficacy is a positive factor in service members' reactions to stress in combat, are also congruent with previous studies. Benight and Bandura (2004) describe multiple studies in various settings including combat, that report results which demonstrate that self-efficacy is a focal mediator in recovering from trauma (Benight & Bandura, 2004). It may be that self-efficacy mediated the

effects of combat trauma by modifying negative cognitions. Cieslak, Benight & Lehman (2008) conducted two studies, one with sexual assault victims and the other with motor vehicle survivors. In both studies, self-efficacy regarding one's ability to cope, mediated the negative cognitions and posttraumatic stress (Cieslak et al., 2008).

There were mixed statistical outcomes for social support as a factor in this study. Social support was significant only in the present study as a factor in promoting resilience, accounting for 3.3% of the variance. It had no effect in the model on minimizing the development of PTSD. These findings diverge from a vast majority of the research reviewed for this study. Meta-analyses including over 170 studies and other independent studies conducted on civilian and military populations, identified social support as a critical factor in moderating the negative effects of stress on posttrauma recovery (Brewin et al., 2000; Chronister et al., 2008; Ozer et al., 2003). One study by Stetz, T., Stetz, M., & Bliese (2006), who studied the mediating affect of self-efficacy on social support, may have implications relevant to the current study. In studying military police officers' stress in the workplace, they determined that lower self-efficacy could even have a detrimental effect with increased social support due to an increased sense of pressure (Stetz et al., 2006). That dynamic was not evaluated in this study.

The results in the current study suggested that spirituality was a positive factor in promoting resilience, which is consistent with several meta-analyses as well as individual studies reviewed in the literature. Shaw et al. (2005) reviewed 11 studies involving varied demographics, which confirmed that religious beliefs can be beneficial for psychological recovery (Shaw et al., 2005). Ano & Vasconcelles (2005) conducted a meta-analysis of 49 studies, which supported the finding that the use of positive religious coping strategies was associated with less distress, depression, and anxiety following traumatic or stressful events (Ano & Vasconcelles 2005).

However, the current study did not find spirituality was a significant factor related to PTSD in the group analyses. Since negative religious coping skills, e.g. feeling punished by God or attributing their situation to the work of the devil, were not assessed in the current study, it is not possible to assess whether the literature regarding the adverse affect of negative religious coping skills as identified in several meta-analyses, is relevant (Ano &Vasconcelles 2005; Witvliet et al., 2004). For the group of soldiers with more than eight years of military service and past their original eight year contractual obligation, spirituality was the most influential factor in minimizing the severity of PTSD symptomology. There was nothing identified in the review of literature relevant to this finding. It may be that the maturity gained from experience in military life leads the soldier to believe in something greater than himself. Perhaps his potential to face his mortality has resulted in the development of a spiritual belief system that assists him in making meaning of his profession and the world he has experienced.

Implications for Current Theory

This study has important implications for Social Cognitive Theory (SCT). In examining those factors that contribute to resilience in service members, self-efficacy was the most influential, although social support and spirituality were also statistically significant for the group as a whole. All constructs are specifically explained by the theory and can be described by the concept of reciprocal determinism within the contextual challenges of the military experience for those deployed to a combat zone (Bandura, 1989). The nature of preparation for, participation in, and adjustment following military deployment to a combat environment, may be best evaluated through the broad scope of SCT.

As stated above, spirituality was a greater factor in promoting resilience in service members who had more military service while self-efficacy was more influential for service

members who were still serving within the eight years of their mandatory military contracts. There may be implications for developmental theory regarding the military and evolution of values throughout the life-span of service.

Limitations

The sample in this study was restricted to soldiers in the California National Guard. California differs demographically, sociologically, and culturally from many other states. The sample consequently may have been comprised of soldiers whose attitudes, experiences, and value systems may differ appreciably from those in National Guard units in other parts of the country. Therefore, the results of this study may not generalize to other National Guard unit personnel. Also, the study sample primarily involved junior enlisted personnel assigned to company level organizations; therefore, senior-ranking enlisted and officer personnel were under-represented, as were females in this primarily combat arms sample.

There was no pre-deployment history on participants to determine risk factors prior to combat experience so no comparisons could be made with post-deployment assessments for any of the variables examined to determine directionality. Because the surveys were anonymously reported, it was not possible to know if those who met criteria for PTSD, developed the symptoms as a result of cumulative impact, as referenced by Gahm et al. (2007), or as the result of one incident. Although 75% of the soldiers in the study reported being present during an explosion, there was no opportunity for differential diagnoses to determine if TBI was implicated for those who met criteria for PTSD. Related to this limitation is the fact that predictors were assessed at the same timepoint as study outcomes. Therefore, it is possible that the directions of association among these variables may have been from the outcomes to the predictors. Also, the

development of PTSD may have resulted in a decline in self-efficacy, a depletion of social support, and degradation in prior belief systems.

The study sample, which included soldiers who were randomly selected, was not matched to the sample used for comparison on the PCL-M that was part of a group who had sought counseling for mental health issues. Also, the sample population for the Combat Experiences Scale from the DRRI may have included soldiers with varying specialties from numerous units with diverse levels of combat exposure, whereas the study sample included infantry soldiers in the same units who were all exposed to high levels of combat. These dissimilarities affected the means and standard deviation results for comparison purposes.

This study used stepwise regression to evaluate the relationship of the independent variables to the dependent variables. Other multivariate methods might have offered different interpretations of the data.

Directions for Future Research

Longitudinal studies would be highly recommended for studying service members regarding readjustment following deployment to combat zones. It is impossible to understand the effects of the experience without having predeployment baseline information with which their postdeployment attitudes, beliefs, and behaviors may be compared.

The association between higher levels of self-efficacy, social support, and spirituality, and resilience in service members following deployment to a combat environment was confirmed in the present study. Continued evaluation of these three variables collectively is highly recommended to provide a better scientific understanding of the warrior's experience from a psychosocial-spiritual perspective.

Although the independent variables in the current study accounted for 20% of the variance in promoting resilience for this sample, it is just a part of what contributes to this remarkable ability to adapt. There is much more to be discovered about the nature of resilience and how to develop it in service members preparing for combat.

It is evident in the literature that multiple disciplines are studying the subject of the service member's experience and adjustment to combat trauma. However, research conducted by multidisciplinary teams may be more effective. Combining knowledge from the varied aspects of military culture, as well as the diverse psychological, sociological, biological, medical, and spiritual perspectives, may provide the amalgam of expertise necessary to address the complexity of this issue.

Conclusion

The major focus of research regarding service members in combat has overwhelmingly concentrated on their maladaptive adjustment and subsequent development of pathological symptoms. The preponderance of studies has examined full-time service members who are in the AC. An increasing effort has been directed toward the study of factors that promote resilience to combat trauma. Also, due to greater utilization of part-time military members, more studies are including the RC.

This study is part of an effort to understand what factors provide the greatest support to RC military personnel who have been, are, or will be deployed to a combat zone. There is ample evidence that when properly trained, self-assured in their skills, armed with strong ethical beliefs, and confident in the loyalty and support of significant others, service members can survive, if not thrive after the experience of combat stress trauma.

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Appendices

Appendix A

Demographics of Sample

		N	%
<u>Gender</u>			
	Male	213	95.5%
	Female	10	4.5%
<u>Marital Status</u>			
	Single	94	42.7%
	Married	88	40%
	Partnered	5	2.3%
	Divorced	23	10.5%
	Separated	9	4.1%
	No response	3	
<u>Age</u>			
	≤ 21	25	11%
	22-25	58	26%
	26-29	44	20%
	30-33	21	10%
	34-37	17	8%
	38-41	24	11%
	42-45	12	5%
	≥ 46	20	9%
	No response	1	

	N	%
Race		
Asian-Pacific	10	4.5%
African-American	13	5.9%
Asian-American	9	4.1%
Caucasian	95	42.8%
Hispanic-	78	35.1%
Other	17	7.7%
No response	1	
Religion		
Buddhist	2	.9%
Catholic	87	39.0%
Protestant	45	20.2%
Hindu	–	
Jewish	–	
Muslim	–	
None	53	23.8%
Other	36	16.1%
Time in Service		
≤ 3 yrs	39	17.6%
> 3 -8 yrs	97	43.9%
>8-12	31	14.0%
13 – 20	35	15.8%
> 20	19	8.6%
No response	2	
Education Level		
High School/GED	73	32.9%
Some College	129	58.1%
Bachelor Degree	20	9.0%
No response	1	

Appendix B

Informed Consent

Consent Form

Project Title: **Soldiers Returning to Civilian Life after Deployment: Factors Promoting Resilience**

Project Investigator: **Patti Tackett, M.A.**

Dissertation Chair: **Michele Harway, Ph.D**.

About this consent form

Please read this form carefully. It tells you important information about a research study. The project investigator will also talk to you about taking part in this research study. People who agree to take part in research studies are called "subjects." This term will be used throughout this consent form. If you have any questions about the research or about this form, please ask. If you decide to take part in this research study, you must sign this form to show that you want to take part. You will be given a copy of this form to keep.

Why is this research study being done?

The purpose of this research study is to explore the characteristics that assist soldiers in readjusting to civilian life following their deployment to a combat environment. We are asking you to take part because you have deployed to either Iraq or Afghanistan as a soldier and have returned to life back into the civilian community. Your perspective is extremely critical and your input will help establish what support may be most beneficial to soldiers upon redeployment. It will assist in directing and allocating future resources.

How long will I take part in this research study?

It is estimated that completion of all forms will require approximately 10-15 minutes of your time.

What will happen in this research study?

- The project investigator will provide you with the questionnaires at selected convenient locations. You will complete and return them on site immediately upon completion, to the project investigator.
- Data collected will be kept and stored by the project investigator in a secure location. <u>All</u> identifying information will be destroyed at the conclusion of the research study.

What are the risks and possible discomforts from being in this research study?

There are no foreseeable risks or discomforts that may result from study procedures. If, however, filling out the questionnaires triggers any uncomfortable feelings or memories from your previous experiences, you will be provided referral numbers to mental health providers whom you may contact for assistance.

What are the possible benefits from being in this research study?

You may or may not benefit directly from taking part in this research study. Your participation may assist your fellow soldiers and future soldiers, by helping to provide information vital to the development of successful programs to support citizen-soldiers returning from deployment to combat zones. Also any programs developed for returning soldiers may benefit you on any future deployments, if you continue your career in the military.

If I have questions or concerns about this research study, whom can I call?

You can call us with your questions or concerns. Contact information is listed below. Ask questions as often as you want.

Michele Harway, Ph.D. (Dissertation Chair) is the person in charge of this research study. You can call her at 805-962-8179 ext. 334 and leave a message at any time.

You can also call COL Patti Tackett (RET), M.A. (Project Investigator) at 805-801-1540 and leave a voice mail or send an e-mail to dtackett@antioch.edu with questions about this research study.

If I take part in this research study, how will you protect my privacy/confidentiality?

Your data will be identified with a random number and all information will be stored on a password protected computer file. Only the project investigator and dissertation chair will have access. Your name is not being requested therefore there is no risk of your privacy being violated.

Limits of confidentiality: California state law mandates the reporting of suspected incidence of child abuse (Article 2.5 Penal Code 11165 and 11166) as well as "dependent adult" and elder abuse by your project investigator to California authorities. (Welfare and Institution Code, Sec. 15630).

Your Privacy Rights

- You have the right to decline to answer any questions or refuse to provide any information on written forms.

- You have the right **not** to sign this form permitting us to use your information for research. If you do not sign this form, you cannot take part in this research study. This is because we need the information of everyone who takes part in this research study.
- You have the right to withdraw your permission for us to use your information for this research study. If you want to withdraw your permission you must notify the person in charge of this research study in writing.

  If you withdraw your permission, we will not be able to take back information that has already been used. This includes information used to carry out the research study or to be sure the research is of high quality.

  If you withdraw your permission, you cannot continue to take part in this research study.

Consent/Agreement to take part in this research study and authorization to use or share your information for research.

- I have read this consent form.
- I understand that this study is of a research nature. It may offer no direct benefit to me.
- Participation in this study is voluntary. I may refuse to enter it or may withdraw at any time without creating any harmful consequences to myself. I understand also that the investigator may drop me at any time from the study.

The purpose of this study is: **to determine the factors promoting resilience from stress experienced in a combat environment by National Guard and Reserve soldiers returning from deployments to Iraq or Afghanistan.**

If you understand the information we have given you, and would like to take part in this research study and also agree to allow your information to be used as described above, then please sign below:

Signature of Subject:

_____   _____
Subject   Date/Time

Appendix C

Demographic Questionnaire

DIRECTIONS: On each item please <u>fill in the circle</u> for the appropriate answer or write your answer in the blank space provided.

1) Participant ID: _____

2) What is your gender?

   O Male   O Female

3) Age: _____

4) What is your marital status?

   O Single   O Married   O Partnered   O Divorced   O Separated

5) How many children do you have? _____   What are their ages? _____

6) If you have children, how many live at home? _____   What are their ages? _____

7) Please indicate <u>where</u>, <u>when</u>, and for <u>how long</u> you were deployed to a combat zone:

   <u>Location</u>   <u>When</u> (what year(s) there)   <u>How long</u> (# months in combat zone)

1st deployment:
_____

2nd deployment:
_____

3rd deployment:
_____

4th deployment:
_____

5th deployment:
_____

6th deployment:
_____

8) Were you ever present in an area where an explosion occurred? _____

9) My family was taken care of when I was deployed.

   O Strongly Disagree O Disagree O Neutral O Agree O Strongly Agree

10) What is your highest level of education?

   O High School / GED   O Some College   O Bachelors Degree
   O Masters Degree   O Doctoral Degree

11) What is your race/ethnicity?

   O Asian-Pacific Islander O African–American O Asian-American O Caucasian
   O Hispanic-American   O Other: _____

12) What is your religious preference?

   O Buddhist   O Catholic   O Protestant   O Hindu
   O Jewish   O Muslim   O None   O Other: _____

13) Are you currently in the military?   O Yes   O No

14) What is/was your rank? _____

15) What is/was your military occupation or specialty? _____

16) How long have you been or were you in the military? _____

17) Is anyone in your family serving, or have they served in the military? If so, who and when?

18) Is there anything else you want to share that you believe is important to this survey?