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Perceived Deployment Stressors And Well-Being Among Veterans Of Iraq And Afghanistan

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PERCEIVED DEPLOYMENT STRESSORS AND WELL-BEING AMONG VETERANS OF IRAQ AND AFGHANISTAN

by

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This dissertation, submitted by Abigail Fuller in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done, and is hereby approved.

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Abigail Fuller
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TABLE OF CONTENTS

LIST OF FIGURES

Figure Page

LIST OF TABLES

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ABSTRACT

The current wars in Iraq and Afghanistan are unlike previous wars and present new challenges for service members post deployment. Currently, service members deployed to Iraq and Afghanistan are experiencing a number of stressors that may have implications during their post deployment adjustment (Kline et al., 2010; La Bash et al., 2009; McNulty, 2005). Few studies were found that examined the stressors of deployment and their relationship to the health and well-being of veterans upon return home. Therefore, a more complete understanding of the deployment experiences of Iraq and Afghanistan veterans is needed in order to have an adequate understanding of the impact of deployment on returning veterans' health and well-being.

Thirty eight U. S. Marines and Sailors that deployed to Iraq and Afghanistan were recruited for the study. Using the Deployment Risk and Resilience Inventory (DDRI) questionnaire and the General Well-being Schedule (GWB), the following research questions were analyzed: 1) What do U.S. Marines and Sailors who deployed to Iraq and Afghanistan perceive as stressors? 2) What is the relationship between perceived deployment stressors and the health and well-being of U.S. Marines and Sailors who deployed to Iraq and Afghanistan after returning home?

The following were identified as stressors by the Iraq and Afghanistan veterans, Deployment Concerns (Perceived threat), Combat Experiences, and Post-Battle Experiences. Multiple regression analysis was used to detect the amount of shared

variance and strength of relationships between the variables of interest, perceived deployment stressors and participant well-being. A linear regression analysis showed a non-significant relationship between deployment stressors and participant well-being (F (6, 31) = 1.45, p = >.05) with an R^2 of .22. Significant negative correlations were found between participant well-being scores and Life Concerns (r = -0.37, p = < 0.05) and participant well-being scores and Deployment Concerns (r = -0.32, p = < 0.05).

The U.S. Marines and Sailors in this study did identify certain deployment stressors associated with combat that could put them at risk for impaired well-being. Indeed, this knowledge will help health care providers have a better understanding of the health care needs of Iraq and Afghanistan combat veterans. Furthermore, this knowledge will lead to the design of more holistic treatment and wellness programs for our returning war fighters.

CHAPTER I

INTRODUCTION

Gulf War I was unique in that it presented the U.S. forces with many new challenges. Unlike previous wars, there was an extremely rapid mobilization of forces, the deployment of very large numbers of National Guard and reserve forces, deployment of a uniquely large number of women to combat support functions and the threat of chemical and biological warfare. Deployed service members were exposed to a wide variety of stressors in the pre-combat phase (Desert Shield) as well as the combat phase (Desert Storm). Currently, service members deployed to Iraq and Afghanistan are experiencing a range of stressors which can have implications during their post deployment adjustment. Research suggests that some stressors may be more salient for certain subgroups, such as National Guard/reserve and men and women (La Bash, Vogt, King, and King, 2009; Cater-Visscher et al., 2010).

There is very little empirical evidence to date that provides a comprehensive understanding of deployment stressors and their relationship to the health and well-being of veterans of present day combat operations. A more complete understanding of the deployment experiences of returning Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) veterans is needed in order to have an adequate understanding of the impact of serving in a combat zone. Therefore, the purpose of this study was to

identify the stressors of deployment to a war zone and examine their relationship to the health and well-being of U. S. Marines and Sailors after returning home from deployment.

Rationale for Study and Significance to Nursing

La Bash et al. (2009) asserts there is a real need for a more thorough understanding of stressors experienced by Iraq and Afghanistan war veterans in order to inform empirical inquiries and ensure that the appropriate post deployment assessments are made. Despite exhaustive searching, very little published literature was found that provided a comprehensive understanding of deployment stressors and their relationship to the health and well-being of combat veterans.

The Department of Veterans Affairs (VA) is experiencing an increased demand for services from veterans from the Iraq and Afghanistan Wars. According to Spelman, Hunt, Seal, and Burgo-Black (2012) approximately 1.44 million individuals have separated from the military and are eligible for The Department of Veterans Affairs (VA) services, and 772, 000 veterans have already used VA health care services. The Iraq and Afghanistan wars differ in important ways from previous wars, most notably by the urban insurgency warfare and sectarian religious conflict (Fontana & Rosenheck, 2008). The new veterans are now much younger than those from previous wars and a far higher portion served in National Guard and reserve units (Schurr, Lunney, Bovin, & Marx, 2009; Tanelian & Jaycox, 2008). In addition, the deployments are longer, and more frequent than conflicts such as Vietnam and The Persian Gulf War with little time at home between deployments (Kline et al., 2010; McGregor, Han, Dougherty, & Galarneau, 2012; Tanelian & Jaycox, 2008). These dissimilarities would suggest that

different treatment regimens might be needed for this new group of veterans (Fontana & Rosenheck, 2008). Although some similarities may exist between veterans of previous wars and Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) veterans, there may be salient differences that may require researchers to approach this cohort differently.

Without information on the range of deployment experiences of current Iraq and Afghanistan veterans, practitioners and researchers are likely to draw primarily from what is known about veterans of prior wars such as Persian Gulf War I and Vietnam (La Bash et al., 2009). When comparing previous wars, there are similarities as well as differences in combat experiences. It is important that these differences are considered when addressing the health care needs of Operation Iraqi Freedom and Operation Enduring Freedom veterans. It is important that health care practitioners have an adequate understanding of the full breadth of deployment experiences of Iraq and Afghanistan war veterans, in order to make the appropriate clinical assessments and pose relevant research questions for this veteran group. (La Bash et al., 2009).

Future research into health and psychological and social well-being, as well as other health problems resulting from deployment, can be addressed using Roy's humanistic approach (Roy 1981, p. 99). Using a humanistic approach allows nurses to develop and implement appropriate nursing interventions that will assist the combat veteran in the healing process (Nayback, 2009). Veterans of Iraq and Afghanistan are considered a vulnerable population. Nursing has always been sensitive to the needs of vulnerable populations and committed to protecting them against stressors that impact their health and illness. Not only military nurses, but nurses in every health care setting,

should be informed about the health care and wellness needs of this vulnerable cohort so they can inform and educate veterans and their families about stressors to facilitate recovery. Military and civilian nurses can incorporate study findings of this cohort into their practice and research, and make a positive impact on the health and well-being of military veterans and their families (Nayback, 2009).

This study's purpose was to identify war related stressors of U.S. Marines and Sailors who deployed to Iraq and Afghanistan and determine their relationship to the health and well-being of these war fighters upon return home. Nurses and other health care providers must have an adequate understanding of the stressors experienced by service members deployed to a combat zone in order to assist this cohort in achieving and maintaining a state of wellness. Therefore, subsequent research would appear warranted that identifies and describes the deployment stressors experienced by Iraqi and Afghanistan war veterans when deployed to a combat environment.

Conceptual Framework

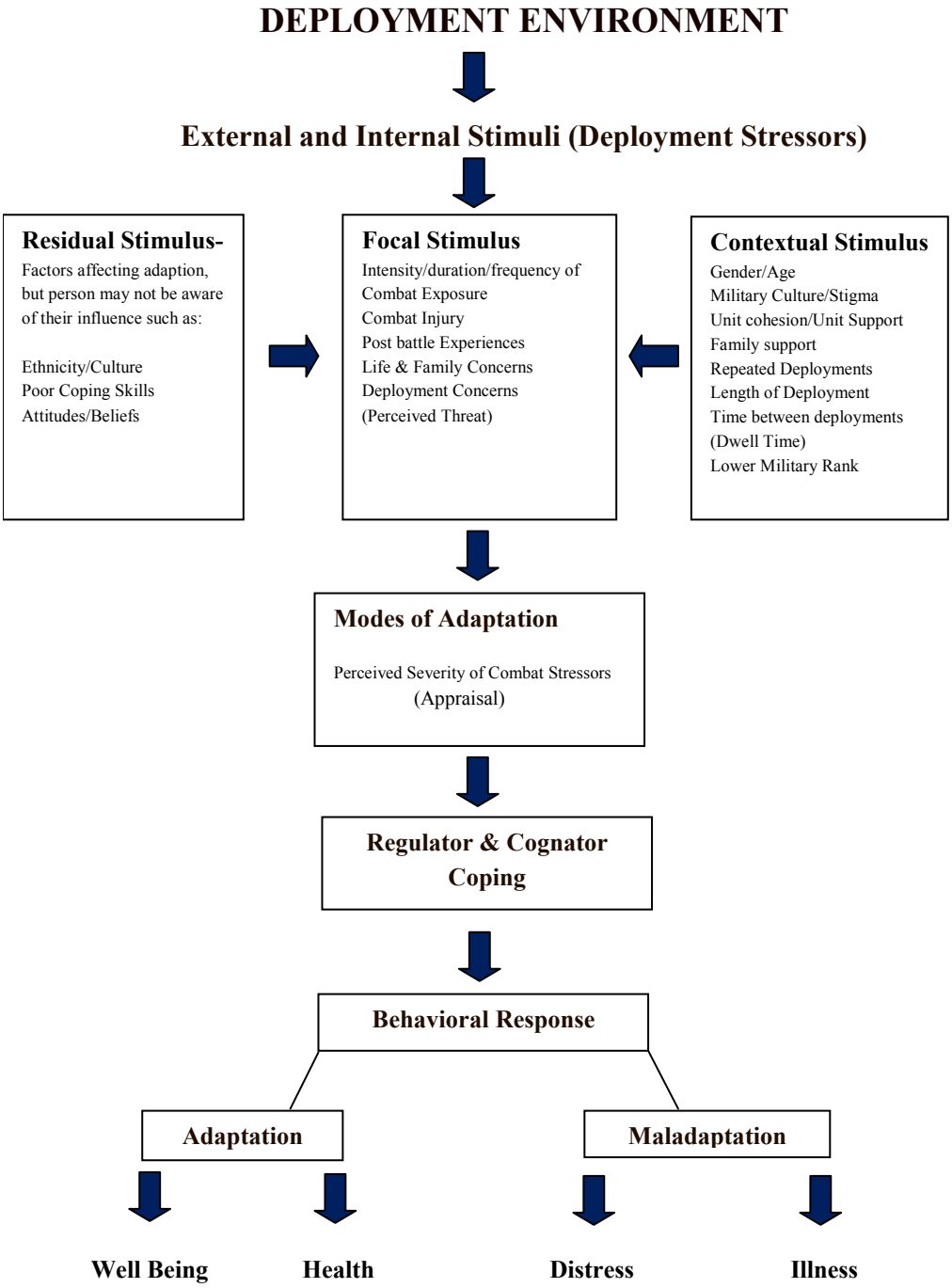
The Roy Adaptation Model was used as the framework for understanding the military veteran as an adaptive system when challenged by the stressors of deployment to a combat environment. For the combat veteran, appraisal becomes an important part of the adaptation process when confronted with the stress of deployment to a war zone. Lazarus and Folkman (1984) define psychological stress as "the relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (p. 21). Whether or not an individual judges a person-environment relationship as stressful depends on cognitive appraisal (Lazarus & Folkman, 1984, p.21). Appraisal is a process by which an

individual evaluates whether an encounter with the environment is stressful and if so, what should be done to deal with the situation (Folkman & Lazarus, 1984, p.21). Therefore the Lazarus's Transactional Model of Stress will be included as part of the theoretical framework. In order to provide a fuller picture of the individual, their environment, appraisal of health threat, adaptation and outcomes, this study will utilize both the Roy Adaptation Model and the Folkman and Lazarus Transactional Model of Stress.

The Roy Adaptation Model

The combat veteran is confronted with a variety of stressors when deployed to a combat environment (LaBash et al., 2009). Nursing can play a key role in assisting individuals to adapt effectively, and progress toward optimal well-being. The Roy Adaptation Model is based on humanistic values that add to the scientific assumptions of systems theory and adaptation theory (Roy, 1988). The major concepts of the model are person, environment, nursing and health. There are several key elements of the Roy Model, stimuli (residual, focal and contextual), coping behaviors, and modes of adaptation, that apply to the deployed service member. How these concepts relate to the deployed veteran will be discussed in further detail. The diagram in Figure 1 depicts a conceptual model based on the Roy Adaptation Model (Roy, 1984).

The philosophic and scientific underpinnings of Roy's conceptual model are based on the general principles of humanism and veritivity. Humanism as defined by Roy (1988) as, "a broad movement in philosophy and psychology that recognizes the person and subjective dimensions of human experience as central to knowing and valuing" (p. 29). Roy (1988) believes that an individual possess creative power, exhibits



Source: Adapted from Andrews & Roy (1986). Essentials of the Roy Adaptation Model (pp. 1-73).

Figure 1. Theoretical framework using Roy's Adaptation Model.

purposeful behavior, is holistic, and strives to maintain subjectivity and integrity, all intrinsic to Humanism. Nursing's holistic approach is rooted in humanism. When caring

for a person it is important that nurses consider the person holistically. Veritivity is a philosophical premise that connotes "there is an absolute truth" (Roy, 1988, p. 29). It is a principle of human nature that affirms purposefulness of life, creative power and unity (Roy, 1991 p. 6).

The individual person or human adaptive system is the main focus of nursing. Roy conceptualizes the person as an adaptive system that includes input (stimuli and adaptation level), central processes (the regulator and cognator as coping mechanisms) effectors (four modes), and output (adaptive and ineffective responses) (Roy, 1984, p. 30). This living adaptive system is constantly growing and developing within a changing environment. An exchange of information, matter and energy between the person and the environment is occurring. The individual functions as a whole to express meaningful human behavior that effectively adapts to changes within the environment, and in turn affects the environment (Roy & Andrews, 2009, p. 32). A person's health can be described as a reflection of this interaction and adaptation; a dichotomy of adaptive and ineffective responses to the changing environment. Roy regards both adaptation and health as ongoing processes (Andrews & Roy, 2009 p. 48).

Roy derived the scientific assumptions from Helson's adaptation theory; it purports adaptive responses are a function of incoming stimulus and the adaptive level. Stimuli may arise from either the internal or external environment. Roy (1984) identifies inputs as stimuli and adaptation level as a particular internal pooling of stimuli (p. 30). The stimuli are conceptualized into three classifications: focal stimuli, which immediately confront the individual, contextual stimuli, which are all other stimuli present in the situation that contribute to the effect of focal stimulus, and residual stimuli are

environmental factors that may be affecting the individual but are unclear in a given situation (Roy, 1986, p. 35). The deployed combat veteran might be confronted with focal stimuli/stressors from the aftermath of battle such as, "I was involved in removing dead bodies after battle or "I saw the bodies of dead civilians". Whereas, a contextual stimulus such as unit support, "my unit was like family to me" might provide a moderating effect to the focal stimulus (stressor) the aftermath of battle (Armfield, 1994, Bicknell, 2005). More difficult to validate, residual stimuli such as, cultural beliefs regarding death during combat, could impact focal stimuli or stressors, thus making it more difficult for the combat veteran to cope with the situation. These stimuli all come together to make up the person's adaptive level.

According to Roy, an individual is an adaptive system that involves the complex interaction of both internal (originating from within self) and external stimuli (originating from environment) that provoke a response. These stimuli form the environmental circumstances within which the individual effectively adapts. Adaptation is defined by Andrews and Roy (1986) as "the changing point that represents the person's ability to respond in a situation" (p. 33.) Adaptation is further defined by Roy (2009) as "the process and outcome whereby thinking and feeling people, as individuals or in groups, use conscious awareness and choice to create human and environmental integration" (p. 26). Behavior, the outcome of the adaptation process includes both internal and external actions and reactions that are formulated as either adaptive responses or maladaptive responses.

An adaptive response is a behavior that maintains the integrity of the individual. An ineffective or maladaptive response is behavior that does not lead to goals, or that

disrupts the integrity of the individual. Examples of ineffective responses demonstrated by veterans in response to war zone experience include, chronic debilitating PTSD symptoms, higher rates of alcohol and drug abuse, nicotine use, increase in risk-taking behaviors, obesity and suicide (Elder, Shanahan, & Colerick-Clipp, 1997; Fuller, 2004; Hoge, Castro, Messer, McGurk, Cotting, & Koffman, 2004; Kline et al., 2010; Prigerson, Maciejewski, & Rosenheck, 2002). Roy (2009) believes that adaptive behavior leads to individuals achieving their goals, to their survival, growth, reproduction and mastery (p. 39). Examples of adaptive responses include actively seeking out counseling and mental health services, enhanced coping skills, positive re-appraisal and effective adaptation.

According to Roy and Andrews (1991, p. 34), important stimuli that influence a person's adaptive behavior are; ethnicity and belief system, family and growth and development, age, gender, socioeconomic status, the integrity of the individual's adaptive modes, their perception and knowledge of the stressor, changes in the internal or external environment, medical management, use of drugs, alcohol, tobacco, and political or economic stability. The human adaptive system has inputs of stimuli coming from the external environment as well as from the internal environment. Roy and Andrews (1991, p. 7) suggests common stimuli, both internal and external, form the environmental circumstances within which the individual effectively adapts or does not adapt. Stimuli in the deployment environment can disrupt an adaptive system, affecting the service member's health and well-being.

The literature identifies a number of internal and external stimuli that may influence the well-being of military members. Lower military rank, educational level,

and socio economic status, lack of social support and repeated deployments, have been identified as influencing the likelihood that a military member copes or adapts poorly (Kline et al., 2010; Milliken, Auchterlonie, & Hoge, 2009; Nayback, 2009; Vogt, Pless, King, & King, 2005). In some studies female gender has been identified as a risk factor for developing depression and PTSD after deployment (Carter-Visscher et al., 2010; Vogt et al., 2005). Women exposed to sexual stress such as rape or sexual harassment, have been found to have a fourfold increase in risk of development of PTSD over exposure to duty related stress alone (Merrill, 2001; Vogt et al., 2005; Wolfe, Brown, & Kelley, 1993). Some external and internal factors, such as strong unit and family support, may exert a positive effect. This has been identified in the literature as a potential moderator for stress and may decrease the likely hood of developing PTSD (Armfield, 1994; Bicknell, 2005; Sharkansky et al, 2000). Research suggests that with strong unit support, combat veterans are more successful at coping with the stressful event and there is less likelihood of developing PTSD or other mental health problems, after returning home from deployment. Research findings support Roy's concept of key internal and external stimuli that influence whether the deployed service member is effectively able to adapt to his or her wartime experience and whether he or she will develop health issues (Barrett et al., 2002; Sharkansky et al., 2000).

The person processes environmental changes by means of coping mechanisms that Roy has termed regulator and cognator mechanisms and then responds with ineffective or effective adaptive responses (Andrews & Roy, 1986, p. 34). Andrews and Roy (1986, p. 38) define coping mechanisms as "innate or acquired ways of responding to the changing environment". Innate coping mechanisms are genetically determined and

automatic, and acquired coping mechanisms are learned behaviors when confronted with stimuli. The concept of coping includes two individual coping dimensions, the regulator coping subsystem and the cognator coping subsystem. The coping mechanisms of the regulator subsystem occur through neural, chemical and endocrine processes. The coping mechanisms of the cognator subsystem occur through cognitive-emotive processes. The cognator subsystem "responds through four cognitive-emotive channels: perceptual/information processing, learning, judgment, and emotion" (Andrews & Roy, 1986, p. 39).

Roy identified four adaptive modes in which the cognator and regulator coping mechanisms can be observed in the individual. These four modes are: physiological/physical mode, self-concept mode, role function mode, and interdependence mode. The physiological mode pertains to the way in which the person responds physically to environmental stimuli. This mode is "the manifestation of the physiological activities of all the cells, tissues, organs, and systems comprising the human body" (Andrews & Roy, 1986, p. 41). The self-concept mode is a psychosocial mode that focuses specifically on the psychological and spiritual aspects of a person (Andrews & Roy, 1986, p. 41). This mode consists of the beliefs and feelings that an individual holds about him or herself that directs their behavior (Andrews & Roy, 1986, p. 41). The role function, one of two social modes, focuses on the roles an individual occupies in society. Social integrity, the basic need underlying role function, is defined as "the need to know who one is in relation to others so that one can act" (Andrews & Roy, 1986, p. 135). The interdependence mode, the second of two social modes, focuses on those interactions related to the giving and receiving of love, respect and value. This

mode involves affectional adequacy that incorporates the need to be nurtured and to nurture.

Roy (2009) define health "as a state and process of becoming integrated and whole" (p. 27). The goal of nursing is to promote adaption in each of the adaptive modes, helping veterans reach the goal of becoming an integrated whole person. In order to promote the integrity of wholeness of the human adaptive system (combat veteran) the nurse can alter, increase, decrease, remove or maintain the focal stimulus (deployment stressors). If this is not possible then, the contextual stimuli, such as poor coping skills, may be altered so that adaptation between person and environment is promoted and the health and well-being achieved and maintained by the combat veteran.

Because of the Roy Adaptation Model's underlying holistic philosophical underpinnings and systems-based scientific approach, Roy's model provides an effective framework within to understand how the military veteran functions as a human adaptive system when confronted with the internal and external stressors of the deployment to a combat environment. Moreover, Roy's model allows us to view the combat veteran as a holistic individual, one who is attempting to successfully adapt to the stressors and challenges of the combat environment.

Lazarus Transactional Model of Stress

Before the development of Lazarus' Transactional theory of Stress, stress was viewed in the literature as either a stimulus or a response because the critical variables of appraisal and coping were missing (Lazarus & Folkman, 1984; Rice, 2000). Prior to the introduction of these theoretical concepts, interventions to reduce stress were vague and unspecified (Rice, 2000). Psychological stress is defined by Lazarus and Folkman as "a

relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (1984, p. 21). Whether or not the individual will perceive this relationship as stressful will depend on how they appraise the situation, or cognitive appraisal.

Lazarus and colleagues developed a cognitive phenomenological model of coping that is based on the belief that how people cope with stress affects their physical, psychological and social well-being. As in the Roy Adaptive Model, stress is viewed as a dynamic and reciprocal interaction between person and environment. In an encounter with a stressful situation, the individual attempts to deal with the environment in order to cope with the situation, in turn altering the environment and its effect (Webb, 1996). The phenomenological model of coping theory identifies two processes, cognitive appraisal and coping, as critical mediators of this stressful person-environment encounter and their outcomes (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Guren, 1986).

Cognitive appraisal is defined as "a process through which a person evaluates whether a particular encounter with the environment is relevant to his or her well-being, and if so, in what ways" (Folkman et al., 1986, p. 992). It consists of two main types, primary appraisal, which is largely appraisal of the situation, and secondary appraisal, when the person considers coping methods. In primary appraisal the person assesses to what extent there is stress involved, and whether or not there is anything at stake in this encounter (Folkman and Lazarus, 1984, p. 32). In secondary appraisal the person judges what if anything can be done to overcome or prevent harm and deal with the situation (Folkman & Lazarus, 1984, p. 35). Various ways of coping are then considered, such as

altering the situation or accepting it, seeking more information, and evaluating available resources, including social support and constraints.

During the primary and secondary appraisal process the individual determines if the person-environment encounter has significance for their well-being (Folkman & Lazarus, 1984, p. 31). If it has been determined that it does hold significance, then the individual decides if it should be regarded as a threat (harm or loss) or a challenge (the possibility of mastery or benefit) to well-being. The threat to well-being depends on how the threat or stress is perceived by the individual. Furthermore, how the individual behaves in response to the threat and how they perceive the threat depends on their appraisal of coping resources and outcome expectations (Shaw, 1999).

Keil (2003) in her analysis of the term, "coping" asserts that the notion of stress and coping relate symmetrically to one another; stress being the situation that the individual copes with, and coping as one possible response to stress. Lazarus and Folkman define coping as "the person's constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the person's resources (1984, p. 141). Folkman et al. (1986) found that coping was strongly related to cognitive appraisal, and varied forms of coping were used depending on what was at stake and the options for coping. Moreover, they found that coping was also differentially related to satisfactory and unsatisfactory encounter outcomes.

Folkman (1982) proposed that when one is experiencing a stressful event, the extent of stress is defined by the relationship between the importance of the event in terms of commitments (i.e. values, goals, what is at stake) and the perceived availability

of coping resources. Physiological stress is experienced by the individual when that which is at stake is substantial and the available coping resources are less than adequate to manage the situational demands. If the imbalance is great, then the level of stress will be great as well (Folkman, 1982). Research has shown that maladaptive ways of coping can adversely affect physical and emotional health (Shaw, 1999, Smith, Patterson, & Grant, 1990). If the combat veteran's available coping resources are inadequate to meet the stressful demands of the combat environment, their health and well-being could be adversely affected.

When discussing coping, there are two main focuses as defined by Lazarus and Folkman (1984) in the Transactional Model of Stress: to manage or alter the source of the stress and to regulate the emotional response (p. 150). These are called problem-focused and emotion focused coping respectively (Folkman & Lazarus, 1980). The appraisal of coping resources or the question, "what can I do about this situation?" is termed secondary appraisal as opposed to appraisal of the situation itself, which is called "primary appraisal" Folkman et al., 1986). Furthermore, Lazarus and Folkman (1984) consider coping a process, one that changes over time and with various situations (p. 142). Suggesting that as a person copes with a situation, they change the situation or they change their feelings about it, and require new appraisals or reappraisals that engender new coping strategies.

As individuals are adapting to the stressful situation, they match their coping strategy to the situation (Smith, et al., 1990). "According to appraisal theory, in a threatening or harmful situation that is appraised as holding few possibilities for beneficial change, the person will employ emotion-focused modes of coping"

(Folkman & Lazarus, 1980, p. 231). On the other hand, when a situation is appraised as having the potential for change, the person will use problem focused coping to alter the situation that produced the emotional distress (Folkman & Lazarus, 1980). Examples of emotion focused coping strategies include efforts that are directed at reducing or managing the emotional distress, such as trying to see the humor in the situation, the assignment of blame (to self and to others), avoidance or detachment (Folkman & Lazarus, 1980). Examples of problem focused coping strategies include coping strategies for altering or managing the source of the problem, such as seeking information, trying to get help, and taking direct action (Folkman & Lazarus, 1980).

Shaw (1999) suggests in her framework for research on coping health, illness and behavior, that the effectiveness of coping might be assessed in terms of health and well-being as appropriate outcomes. She views appraisal as an integral part of the process of coping with a health threat or threatening experience, and incorporates it into her framework for research. Optimal psychological and physical health is the desired outcome for the combat veteran returning from Iraq and Afghanistan. The appraisal process is important as it is the process by which the combat veteran determines if the situation is threatening or non- threatening, and then decides on a coping strategy. Appropriate appraisal and actions will result in physical and/or psycho-social well-being. On the other hand, less appropriate appraisal and actions could result in distress or ill health (Shaw, 1999). This appraisal process is dynamic, with the changing situation or environment, the combat veteran goes through the process of adapting these changes, and devising new coping strategies or relying on old ones.

Research suggests that there is a correlation between psychosocial and traumatic life events and physical health (Brunner, 1997; Pence et al., 2012). It has also been suggested that disease can be caused by stressful life events (Huling, Baccaglini, Choquette, Feinn, & Lalla, 2012; Vlajinac, et al., 2012). In addition, there is also considerable evidence to support war-zone exposure has negative mental health consequences (Barrett et al., 2002; Carter-Visscher et al., 2010; Kline et al., 2010; Vogt et al., 2005). Both civilian and military nurses are in a good position to promote holistic health in the vulnerable combat veteran population. Through research initiatives such as this one, combat veterans healthcare needs can be addressed and prevention programs can be initiated to prevent stress-related health care issues.

Problem Statement and Purpose

Deployment to a combat environment can be a stressful experience for service members and can have an impact on their health and well-being post deployment. Very few studies have identified the stressors experienced by Iraq (OIF) and Afghanistan (OEF) veterans who deployed to a combat environment and explored the relationship these stressors have on their health and well-being. It is essential that nurses and other health care providers treating this cohort have an adequate understanding of the stressors experienced by Iraq and Afghanistan veterans in order to provide care that meets the unique needs of this vulnerable population.

Therefore, the purpose of this study was to identify perceived deployment stressors of a group of U.S. Marines and Sailors who deployed to combat environments in Iraq and Afghanistan, and determine if there was a relationship between these perceived stressors and the health and well-being of these war fighters upon their return home.

Research Questions

1. What do U.S. Marines and Sailors who deployed to Iraq and Afghanistan perceive as stressors?
2. What is the relationship between perceived deployment stressors and the health and well-being of U.S. Marines and Sailors who deployed to Iraq and Afghanistan after returning home?

Delimitations

1. Only those service members that returned from deployment to Iraq and Afghanistan were included in the study.
2. Those surveyed in this study were Naval and Marine Corps Reservists who were in the active reserve.

Limitations

1. Participants from only two branches of service and only one Marine Division.
2. The subjects in this study may not be representative of the general combat veteran population as it was drawn from one Marine Reconnaissance Battalion.
3. There were large variations in time since last deployment of many of the Marines and Sailors, since many unit members were deployed at different times according to the needs of the Active Duty Navy and Marine Corps.

Assumptions

1. There are a combination of stressors associated with traditional combat, insurgency warfare, and peacekeeping missions.

2. Unit cohesion/support and family support may have a moderating effect on the stressors experienced in a combat environment and result in the military member coping and adapting better upon return home from deployment.

Operational Definitions

Operational definitions were provided for the following variables and concepts:

Stressor: "A demand made of an organism that upsets its homeostasis, restoration of which depends on a nonautomatic and not readily available energy-expending action" (Antonovsky, 1979, p. 72). Using the Deployment Risk and Resilience Inventory, a construct such as Deployment Concerns would be considered a stressor because its mean value of 3.1 was greater than the median value of 3.

Stress: Stress is seen as the factor or set of conditions that is being coped with (Lazarus & Folkman, 1984, p. 21). "A relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus & Folkman 1984, p. 21). People continuously evaluate or appraise relationships with the environment relative to their well-being. This post appraisal state may often change over time and across environments (Lazarus, 1990).

Coping: "Constantly changing cognitive and behavioral efforts to manage specific external and /or internal demands that are appraised as taxing or exceeding the resources of the person"(Lazarus & Folkman, 1984, p. 141).

Well-being: Well-being can be defined in terms of an individual's physical, mental, social, and environmental status with each aspect interacting with the other, and each having differing levels of importance and impact according to each individual

(Kiefer, 2008). Using the General Well-being Schedule, total scores range from 0-110, with low scores representing greater distress (Dupuy, 1978). For example: a score less than sixty would represent severe distress and a score higher than 73 would indicate positive well-being.

Deployment: A service member sent to duty overseas to serve and protect the interests of the United States of America in peace time and in time of war.

Active Duty: Full-time duty in the active military service of the United States. It is a general term applied to all active military service with the active force without regard to duration or purpose.

Reserve Forces: Selected reservists who regularly participate in monthly drills and at least two weeks of active duty training per year.

Risk Factor: Those factors that are positively related to post deployment health problems (DRRI, 2003).

Resilience Factor: Those factors that are negatively related to post deployment health problems (DRRI, 2003).

Construct definitions for deployment stressors (DRRI, 2003):

Preparedness (Training and Deployment Preparation): The extent to which an individual perceives that he or she was prepared for deployment. This includes the extent to which military personnel believe they had the equipment and supplies they needed, were trained to perform necessary procedures and tasks, and were prepared for what to expect during the deployment (Vogt, Proctor, King, King, & Casterling, 2008).

Combat experiences: Stereotypical warfare experiences such as firing a weapon, being fired on (by enemy or friendly fire), witnessing injury or death, and going on special missions and patrols.

Post-Battle Experiences: Exposure to the consequences of combat, including observing or handling human and animal remains, dealing with prisoners of war, and observing to the consequences of combat such as, devastated communities and homeless refugees.

Deployment Concerns/Perceived threat: Fear for one's own safety and well-being in a war zone, especially as a response to exposure to circumstances of combat, including nuclear, biological, or chemical agents, missiles, and friendly fire incidents.

Life Concerns (Concerns about life and family/relationship disruptions): The extent to which participants worried that deployment might negatively affect the family or other relationships.

Unit Support: The perception of assistance and encouragement in the war zone from other unit members, unit leaders, and the military in general.

NBC exposures: Endorsed exposures to an array of nuclear, biological, and chemical agents that the veteran believes he or she encountered while serving in a war zone.

CHAPTER II

REVIEW OF LITERATURE

This section of the dissertation reviews the literature and research concerning stressors of the deployment experience and what impact they have on veteran health and well-being. First, the primary focus of the literature review is presented with a discussion of the various deployment stressors as identified in the literature. Next a discussion of the stressors of serving in combat zones and the impact it may have on veteran health and wellbeing. The chapter concludes with a discussion of the emotional and psychological effects of serving in a war zone to include posttraumatic stress disorder and the effect it may have on veteran health.

Deployment and Related Stressors

Deployment as defined by the Center for Army Lessons Learned, is the movement of forces within areas of operation, the positioning of forces into formation for battle, and/or the relocation of forces and material to desired areas of operation. Whether combat or peacekeeping, deployments can mean long stretches of time spent away from family and friends coupled with difficulties in communication back home, inconvenient to harsh field conditions, lack of privacy and an unpredictable combination of boredom, uncertainty, and threat (Bartone, Adler, & Vaitkus, 1998; La Bash et al., 2009). Moreover, deployment to a war zone is associated with increased risk of exposure to psychological and physical trauma and environmental hazards that may adversely impact

the physical health and well-being of combat veterans (Jakupcak, Luterek, Hunt, Conybeare, & McFall, 2008).

The Desert Shield/Desert Storm (Gulf War I) was unique in that it presented the U.S. forces with many new challenges. Service members were exposed to a wide variety of stressors in the pre-combat phase (Desert Shield) as well as the combat phase (Desert Storm) (Vogt et al., 2005). Studies have indicated that stressful and traumatic deployment experiences are associated with a variety of negative mental health consequences, including depression, anxiety and posttraumatic stress disorder (PTSD) (Gifford, Ursano, Stuart, & Engel, 2006; King, King, Gudanowski, & Vreven, 1995). In addition, multiple deployments can be stressful for service members and may put them at greater risk for developing mental and physical health problems (Kline et al. (2010).

Currently, service members deployed to Iraq and Afghanistan are experiencing a range of stressors which are anticipated to have implications during their post deployment adjustment (La Bash et al., 2009). It has been suggested that some stressors may be more salient for certain subgroups such as National Guard and reserve personnel, and women (Gaylord, 2006, La Bash et al., 2008, Lane, Hourani, Bray, & Williams (2012). A recent study by Lane et al., (2012) used data from the Department of Defense Health-Related Behavior surveys collected from 18, 342 reservists and 16, 146 active duty personnel to examine stress levels and indicators of mental health. Study findings revealed that reservists who had been deployed, reported higher rates of suicidal ideation and attempts than did active-duty personnel who had been deployed and higher rates of posttraumatic stress disorder symptomatology than did any active duty personnel and reservists who had not been deployed (Lane et al., 2012). In contrast, a study on the effects of family

concerns on the mental health of British forces serving in Iraq and Afghanistan, revealed no significant difference between active duty and reserve personnel in the number of mental health outcomes (Mulligan et al., 2012).

Serving in a combat environment is a high-risk, high-stress situation, and certain factors can impact how a service member responds to this stressful environment. Organizational differences such as branch of service, duty station, and training may influence how combat veterans appraise and cope with the combat environment (Gaylord, 2006). Conversely, this theory appears to exist in contradiction to those of Elder, Shannahan, and Colerick (1997). Elder et al. (1997), in their study of World War II veterans' physical health, found that the veterans' organizational position, i.e., rank mobility, branch and division had no bearing on their physical health decline or death in the 15 year period after the close of the war.

A more complete understanding of the deployment experiences of returning warriors is needed in order to have an adequate understanding of the impact of combat stressors on health and well-being. Health care providers must have a good understanding of the complexity of military service, specifically that of serving in a combat zone, in order to better understand the service member's response to stress (Gaylord, 2006). Few published studies are available that address the long range stressors experienced by U.S. military personnel deployed to Iraq and Afghanistan. Furthermore, there is very little empirical evidence to date, providing a comprehensive understanding of deployment stressors and their relationship to health and well-being of combat veterans (La Bash et al., 2009; McNulty, 2005). Therefore, this study focused on

the stressors experienced when deployed to a war zone and their impact on the health and well-being of our returning war fighters.

With the increasing involvement of the United States in military actions in Afghanistan and Iraq, the number of veterans in these conflicts could rise steadily (Reeves, Parker, & Konkel-Parker, 2005). The armed forces of the current era differ from those of the Vietnam and previous eras. Today's military is composed of a much smaller, all volunteer force. The U.S. military population is ethnically diverse, with significant portions of the armed forces comprised of minorities, ranging from 24% in the Air Force to 40% in the Army (Reeves et al., 2005). In addition, approximately 16% of the active U.S. armed forces are women, and more than 50% of service members are married (Reeves et al., 2005).

Since the War on Terror began in 2001, National Guard and reserve forces continue to play an important role in sustaining military operations in Iraq and Afghanistan (Milliken, Auchterlonie, & Hoge, 2009). Along with their active duty counterparts, significant numbers of National Guard and reserve personnel may be exposed to significant stresses related to deployment. Dates of deployment can often be unpredictable and duration of their active duty may not be known when they are first deployed. This uncertainty could create an unstable environment for service members and their families.

Since 1990, troops have been deployed to the Persian Gulf, Somalia, Haiti, and Bosnia, Kosovo, Afghanistan, Iraq and sites of numerous natural disasters. Due to the smaller, all volunteer force, military members may be more likely to deploy to Iraq and Afghanistan than in other conflicts (Ritchie, 2001). Adler, Huffman, Blasé, and Castro

(2005) assert that the increased deployment rate is stark contrast to the four deployments reported by soldiers who entered the service more than 20 years ago. Furthermore, this increased deployment rate is, in part, due to U.S. involvement in peacekeeping missions that have resulted in service members deploying to the same operations theatre multiple times for deployments typically lasting longer than 6 months (Castro & Adler, 1999). The accelerated deployment rate is also due to an increased number of combat missions that require year-long deployments (Galloway, 2003).

Identifying Stressors of the Deployment Environment

Since September 11, 2001, 2.4 million military personnel have deployed to Iraq and Afghanistan (Spelman, Hunt, Seal, Burgo-Black, 2012). Being deployed to War is a life changing experience. There may be complex individual factors that determine how a service member responds to their deployment environment (Gifford et al., 2006). It is possible that many service members will be resilient throughout their deployment experience and benefit and grow from the experience. However, some service members may be less resilient, and have poor mental and physical health outcomes or exhibit re-adjustment problems upon return home (Gifford et al., 2006).

Gifford et al. (2006) examined stressors experienced by Persian Gulf War (PGW) veterans in the early stages of deployment (Operation Desert Shield) prior to the start of the war (Operation Desert Storm). The study focused on the stressors reported from the pre-combat phase of deployment (Operation Desert Shield), when U.S. service members prepared for war in the desert. The researchers assert that too often the focus is placed on combat related stressors and less on other stressors of deployment such as family concerns or austere living conditions. They found that the stressors reported changed

during the course of deployment. Common early phase deployment stressors identified were as follows; the uncertainty of tour length, lack of communications, austere and crowded living conditions, and cultural isolation (restricted behavior, e.g. females not allowed to work in T-shirts). In regards to major concerns about combat, most service members expressed fear of the possibility of a friend getting killed or wounded, followed by concerns about their own safety, and not getting adequate medical care if wounded. Interestingly, killing or wounding the enemy during combat operations was low on their list of anticipated stressors. Other research by Marlowe (2000) examined how stressful the combat experience was perceived by soldiers who had been under enemy fire during the Persian Gulf War. In contrast to the Gifford et al. (2006) findings, Marlowe (2000) found that those soldiers who had a confirmed enemy kill (16.5%), often found it a stressful (23.8%).

McNulty (2005) examined perceived stressors and health care needs of active duty Navy personnel who were deployed aboard three aircraft carriers in support of Operation Enduring Freedom (OEF) and Operation Iraq Freedom (OIF). The study evaluated member well-being, adaptation, coping anxiety, stress, and health care needs during pre-deployment, mid deployment and post deployment phases. Study findings revealed that the deployment experience was more stressful for service members who had minimal naval service, zero to one previous deployments, newly married, younger age (under 25 years of age), no high school education, and enlisted rank, were at greater risk for experiencing extreme anxiety during deployment. No significant difference was found in risk for high stress and anxiety in regards to gender, race or marital status. There were some disturbing findings in regards to anxiety and suicidal ideation. In all

phases of deployment, active duty members reported alarming rates of suicidal ideation (2.4% in pre-deployment, 4.9% in mid deployment, and 3% in post-deployment) and equally alarming levels of anxiety (McNulty, 2005).

A more recent study by Schmied et al. (2012) studied the mental health of 1,336 treatment seeking service members who were deployed to Iraq from January 2006-January 2007. The study sample was comprised of Marines, Army and Navy personnel. Mental health interventions recommended by military mental health providers in Iraq were described in the study. Similar to the McNulty (2005) study, the researchers found high rates of anxiety (31%). The most common psychiatric diagnoses were anxiety disorders (31%, including 11% with posttraumatic stress disorder), followed by adjustment (27%), and mood disorders (25%, including 22% with depression). As in the study by McNulty (2005), younger age, enlisted rank, and having no previous deployments appeared to be stressors for this cohort and precursors to mental health problems.

La Bash et al. (2009) in their comprehensive review of mainstream media reports published from the beginning of the Iraq War in March 2003 to March 2005, found that a combination of stressors were associated with traditional combat, insurgency warfare, and peacekeeping operations (La Bash et al., 2009). **"**The researchers identified seven constructs or "stressor conceptualizations" for Iraq war veterans, 1) aspects of traditional warfare, to include combat exposure, perceived threat, features of the difficult living and working environment, and exposure to the aftermath of battle; 2) exposure to environmental toxins, nuclear, biological and chemical (NBC) exposures; 3) preparedness and training (i.e., the extent to which military personnel had the proper

equipment and instruction to complete required tasks); 4) Lack of deployment social support and poor unit cohesion; 5) sexual harassment and assault; 6) general harassment (i.e., exposure to harassment that is nonsexual but that may occur on the basis of one's biological sex, race/ethnicity, sexual orientation, or other minority status); and 7) concerns about life and family disruptions (i.e., concerns about damaging one's careers and/or relationships with partners or family members (LaBash et al., 2009, p. 234)." These stressor conceptualizations are consistent with the deployment stressors identified by focus groups of Persian Gulf War veterans for the development of the Defense Risk and Resilience Inventory (Vogt et al., 2008).

Mulligan et al. (2012) studied 2,042 British military personnel who were deployed to Iraq and Afghanistan to determine the impact of events at home and military support for the family on current mental health during deployment. Study findings revealed that perceived home difficulties significantly influenced the mental health of deployed British military personnel. Concerns about major issues at home were associated with more reporting of adverse mental health effects. In addition, negative perceptions of military support for family members were associated with more negative reports of mental health status. Although other studies have suggested that strong unit support may mitigate deployment stress (Armfield, 1994; Bicknell, 2005; Sharkansky, 2000). Mulligan et al. (2012) found that mental health disorders and PTSD still persisted in a substantial minority of personnel regardless of perceived unit support.

In the article by La Bash et al. (2009) insurgency warfare, prevalent in the Iraq War, is identified as a stressor. This type of warfare, unlike traditional warfare, is one where the front lines are not defined. The insurgents mix into the general population and

may infiltrate enemy lines, making it very difficult to detect the enemy. In traditional warfare, combat arms personnel face the enemy in battle. Now, since there is no definable front line, combat support and service support personnel deployed to Iraq and Afghanistan may face contact with the enemy and suffer injury or death. Insurgency warfare can be wearing, taking its toll on service member's physical and emotional health (Kripenvich, 2004; La Bash, et al., 2009). One of the central features of insurgency warfare, which can be particularly stressful for combat veterans, is the exposure to atrocities (Kripenvich, 2004). Improvised explosive devices (IEDs) are a common insurgent tactic that is used to attack U.S. military vehicles and convoys. These explosive devices have seriously injured and killed many service members since the Wars in Iraq and Afghanistan (Kripenvich, 2004; La Bash et al., 2009).

Although being deployed on a peacekeeping mission is different from being deployed on a combat mission, they do have some stressors in common. For example, both can mean long stretches away from family and friends, inconvenient and harsh conditions, and an unpredictable combination of boredom, uncertainty and threat (Alder et al., 2005). Alder and colleagues (2005) examined the impact of deployment length and no prior deployment experience on the well-being of male and female military personnel returning from a peace keeping mission to Bosnia/Herzegovina. The researchers found that those service members with longer deployments and those with no previous deployment experience had higher distress scores. In contrast, a study by Kline et al. (2010) researching the effects of repeated deployments to Iraq and Afghanistan on the health of Army National Guard troops, found that service members who had previous

deployments were three times as likely to screen positive for posttraumatic stress disorder than those soldiers who had no previous deployments.

MacGregor et al. (2012) investigated the association of the length of time spent at home between deployments (dwell time), with posttraumatic stress disorder (PTSD) and other mental health disorders in U.S. Marines who had deployed either once (n = 49,328) or twice (n = 16,376) to Operation Iraqi Freedom. They found that those U.S. Marines with two deployments had higher rates of PTSD than did those with one deployment. Furthermore, study findings suggested that longer dwell times at home may reduce post deployment risk of posttraumatic stress disorder and other mental health disorders (MacGregor et al., 2012).

Perceived Threat of Bodily Harm and Well-being

Perceived threat of bodily harm in the war zone and the effect it has on physical and mental health has been studied in Persian Gulf War veterans. King, King, Bolton, Knight & Vogt (2008) found that perceived threat of bodily harm in the war zone and self-reported or repeated exposures to environmental hazards, may play a critical role in the health and well-being of deployed veterans. The researchers sought to determine the potential influence of war related risk factors on mental, physical and functional health outcomes with a sampling of Persian Gulf War veterans (n = 357) 10 years after the war. They used three measures from the Deployment Risk and Resilience Inventory (DRRI), Deployment Concerns (Perceived Threat), Combat Experiences, and Aftermath of Battle, to measure psychosocial stressors and a fourth risk factor to measure perceived exposure to Nuclear, Biological and Chemical (NBC) agents as reported by the veterans. Study findings revealed that perceived threat or fear of bodily harm in the combat zone and self-

reported Nuclear, Biological and Chemical exposures may play a significant role in veteran health and well-being. A synergistic effect was found with perceived threat and poorer mental health status, those veterans who perceived more exposure to environmental hazards had lower levels of functional mental health. These findings illustrate the need for more research identifying what service members perceive as stressful when deployed to a war zone. This important information could assist health care providers and researchers in predicting distress or ill health in our returning war fighters (King et al., 2008).

A study by Grieger, Kolkow, Spira, and Morse (2007) examined risk factors for posttraumatic stress disorder (PTSD), depression, and mental health care use among health care personnel (n = 102) deployed to a combat environment in Iraq or Afghanistan. The health care personnel were assessed for amount of deployment exposures and perceived threat experienced during deployment once they returned home. High percentages of health care personnel reported frequent exposure to injured or dead enemy forces (56%) and frequent exposure to combat or enemy fire (28%). In addition, high percentages of health care personnel reported frequent perception of personal danger (38%) and twenty-three percent reported frequent concern regarding their potential death. When controlling for demographic variables, study findings revealed that those health care personnel reporting frequent personnel engagement in direct combat or being fired upon by opposition forces were 17 times more likely to meet the criteria for probable post traumatic stress disorder (Grieger et al., 2007). This study is one of a few that examine specific exposures and perceptions of threat as risk factors for posttraumatic stress disorder (PTSD) and depression in deployed service members. Grieger et al. (2007)

assert that for health care personnel returning from a combat/warfare environment, threat of personal harm may be the most predictive factor in determining those that develop posttraumatic stress disorder.

Riddle, et al. (2003) reviewed the impact of chemical warfare on Persian Gulf War veteran's health and assert that the psychological impact of a chemical warfare attack, either actual or perceived, could have a negative impact on veteran health. Furthermore, the life-threatening experiences of deployment to a war zone, as well as perceived exposure to chemical agents, should be considered as an important cause of morbidity among Persian Gulf War veterans (Riddle et al., 2003). Another study by Stuart, Ursano, Fullerton, Norwood, and Murray (2003) examined perceived exposure to chemical agents (mustard or nerve gas) among Persian Gulf War veterans. Their findings were that those veterans, who perceived they had been exposed to chemical agents, reported more physical symptoms than those who did not believe they were exposed to chemical agents.

Page, Mahan, Kang, and Bullman (2005) explored the association of notification of potential exposure to chemical warfare agents with subsequent self-reported morbidity in 1,056 deployed Army Gulf War veterans. Based on their findings, potential exposure to chemical munitions at Khamisyah seemed to have no adverse effect on veteran self-perceived health status, and contradicted "the prevailing notion that perceived exposure to chemical warfare agents should be considered an important cause of morbidity among Gulf War veterans" (Page et al., 2005, p. 945). Moreover, a companion article by Mahan, Page, Bullman, and Kang (2005) examined the association of notification of potential exposure to chemical warfare agents in the 1991 Persian Gulf War with self-

reported morbidity, and found no correlation. Conversely, these results appear to exist in contradiction to those of Riddle et al. (2003) that suggest perceived exposure to chemical agents should be considered as an important cause of morbidity among Gulf War veterans. It is worthwhile to note however, that both studies were limited in that they only studied deployed Army personnel.

Deployment to a War Zone: Combat Stressors and Health

Since the Iraq war began in March 2003, over 4, 470 U.S. military members have been killed in action in Operation Iraqi Freedom(OIF)/New Dawn and 32, 226 wounded in action (Marine Corps Times, 19 Dec. 2011). Since the beginning of Operation Enduring Freedom (OEF) in 2001, 1, 835 military members have lost their lives and 15, 040 have been wounded in action (Marine Corps Times, 19 Dec 2011). Hoge et al. (2004) assert that the psychological impact is harder to quantify and estimates that one in six returning combat soldiers have reported symptoms of anxiety, depression, or posttraumatic stress disorder (PTSD). Furthermore, given that it often takes time for the full effect of war-zone exposure to be realized, one might expect that the number of Iraqi War veterans reporting negative mental health issues will increase over time (La Bash et al., 2009). Several studies have shown a relationship between exposure to war zone stressors and intimate partner violence, immediate physical and mental health and long term adjustment (Hoge et al., 2004; King, King, Vogt, Knight, & Samper, 2006; Marshall, Panuzio, & Taft, 2005). Having a family member deploy can also be a stressful time for families. Haas, Pazdernik, and Olsen (2005) found higher stress levels in pregnant women with deployed partners than those whose partners did not deploy.

Research has focused mainly on the mental health consequences of deployment to a war zone and less on the physical health consequences (Elder, Shanahan, & Colerick-Clipp, 1997; King et al., 2008). A study by Bramsen, Deeg, van der Ploeg, and Fransman (2007) examined wartime stress in relation to late life mortality among 1448 World War II military and civilian war survivors, and the potential mediating effects of mental health symptoms that were assessed prior to the study in 1992. They concluded that exposure to wartime stress as well as mental health symptoms in the long term aftermath of war, are significant predictors of late-life mortality in both military and civilian war survivors. The highest rate for late-life mortality was found among the military veterans, and those who were previously wounded. Although six decades later, the effects of war and violence still have an impact on the health of those exposed.

A longitudinal study by Elder et al. (1997) examined certain aspects of serving during World War II that might pose implications for veteran health and well-being later in life. Their study group consisted of 328 veterans who served in World War II. Two hundred and thirty six were deployed overseas and of those deployed, 204 actually experienced combat. Findings suggested that there were no significant differences in a range of pre-war characteristics, including socioeconomic status, education, occupational status, and physical health and self-worth in 1940. However, they found that during the next 15 years those veterans that deployed overseas as well those who experienced combat had a physical decline in health or death. Yet no such link was found in other times in the veteran's lives. The study findings are consistent with other research done with World War II combat veterans exploring the effects of combat stress on health and mortality (Bramsen et al., 2007; Lee, Villant, Torrey, & Elder, 1995).

Research aimed at exploring the possibility of a Gulf War syndrome in French troops deployed to the first Persian Gulf War, found the frequency of symptoms of back pain, headaches and sleeping disorders were slightly higher than those reported in previous studies from the United States and the United Kingdom (UK) (Salmon et al., 2006). Nonetheless, the symptoms reported by French troops were found to be quite similar to those reported by Persian Gulf War veterans from the U.S. and the U.K. (Salmon et al., 2006). However, there is little evidence to link specific stressors from the Persian Gulf War to specific health outcomes (Gifford et al., 2006).

Smith, Leardmann, Smith, Jacobson, and Ryan (2009) consider the health of returning U.S. service members after combat operations in Iraq and Afghanistan an important public and military health concern. Smith et al. (2009) compared before deployment hospitalizations, post deployment hospitalizations, and hospitalizations among those who did not deploy, in order to investigate morbidity among veterans of Iraq and Afghanistan. The researcher's aim, by comparing in this way, was to determine preliminary indicators of health problems secondary to deployment. Study findings indicated that after deployment, risk for any-cause hospitalization was greater when compared to pre-deployment hospitalization, but lower when compared to those who did not deploy. This study was the first to characterize a broad range of health problems among Persian Gulf War veterans. Although the study findings were significant in regards to risk for hospitalization post deployment, some of the significance may be explained by health care utilization issues that deployed service personnel experience (Smith et al., 2009). For example, deployed service members may delay seeking care for a health issue/concern because of decreased access to care while deployed. In addition to

the above findings, certain demographic characteristics were found to place those deployed at increased the risk for post deployment hospitalization, to include, female gender, older age, less education, white non-Hispanic, single, enlisted, combat specialists and Army service members (Smith et al., 2009). Similar demographic and occupational risk factors have been documented in studies of the post war hospitalization experiences of Persian Gulf War veterans (Gray, Coate, Anderson, & Han, 1996; Smith, Smith, Ryan, & Gray, 2006; Smith, Corbeil, Ryan, Heller, & Gray 2004).

Levy and Sidel (2009) reviewed the literature on the health effects of war among military combat veterans as well as non- combatants exposed to war. Literature ranging from the American Civil War to the current conflicts in Iraq and Afghanistan were examined to explicate the long term health consequences of war. The study concluded that mental health problems, physical injuries and disabilities are prevalent among military members and civilians exposed to the trauma of war. Furthermore, they assert that public health professionals as well as other health care professionals should strive to play important roles in addressing the long-term consequences of war. It important that all health professionals have the ability to better recognize, diagnose and treat the long term health consequences of war in military and civilian populations (Levy & Sidel, 2009).

Another important health consequence of combat exposure involves the potential for increased risk-taking behaviors among returning service members. Some research has directed attention to risk behaviors following combat exposure that has the potential to adversely impact the health and well-being among veterans of Iraq and Afghanistan (Fuller, 2004; Killgore et al., 2008). A study by Killgore et al. (2008) explored the

propensity for risk-taking behaviors after exposure to violent combat was explored in 1252 U.S. Army veterans of the Iraq War. Their findings suggest that violent combat experiences are predictors of propensity to engage in risk-taking behaviors such as, more frequent and greater alcohol use, and increased verbal and physical aggression towards others. Specifically, the researchers found that exposure to violent combat, human trauma, and the taking of another person's life, may alter an individual's threshold of invincibility and increase the likelihood of engaging in risk-taking behaviors upon return home from deployment (Killgore et al., 2008). A study by Fuller (2004) compared the risk-taking behaviors of 31 U.S. Marines who had deployed to combat in Iraq to the risk-behaviors 51 U.S. Marines who had not deployed to combat in Iraq Study findings revealed that the deployed group had a higher incidence of tobacco and alcohol use, and drinking while driving, then the non deployed group.

Emotional Effects of Deployment to a War Zone

Recent military operations in Iraq and Afghanistan represent the most sustained ground combat operations involving American forces since the Vietnam War (Seal, Bertenthal, Miner, Sen, & Marmar, 2007). The majority of personnel experience high intensity guerrilla warfare and the chronic threat of roadside bombs and improvised explosive devices (Seal et al., 2007). Some soldiers endure multiple tours of duty, and many experience traumatic injury. In addition, more of the wounded have survived than in previous wars. Reports have suggested high rates of mental health disorders including posttraumatic stress disorder, depression, anxiety and alcohol use disorders, among veterans of Operation Iraqi Freedom and to a lesser extent veterans of Operation

Enduring Freedom (Fontana & Rosenheck, 2008; Fuller, 2004; McNulty, 2005; Milliken, Auchterlonie, & Hoge, 2004; Reeves et al., 2005; Seal et al., 2007, Spelman et al., 2012).

War with its atmosphere of confusion and unpredictability, is an extremely stressful event that forces participants to face threat of bodily harm, and possible death (Reeves et al., 2005). Moreover, while serving in a combat zone, service members are subjected to physical demands, violence, and long separations from loved ones that can put them at risk for impaired health and well-being (La Bash et al., 2009; Seal et al., 2007; Reeves et al., 2005). Combat veterans may have to use extreme violence to accomplish organizational objectives. In addition, they may often find themselves a target of extreme violence, and in response use extreme violence for self- preservation.

Stigma associated with mental health treatment in the military is an ongoing problem and often prevents service members from seeking care for mental health issues (Hoge et al., 2004). Addressing the mental health issues of deployed service members early, prior to and during deployment, could impact the deployed combat veteran's abilities to perform duties and maintain mission readiness (Gaylord, 2006; Ferrier-Auerbach, Erbes, Polusny, Rath, & Sponheim, 2010). Furthermore, early assessment of the severity of distress experienced by combat veterans can help in preventing the progression to more chronic mental health problems such as depression and posttraumatic stress disorder (PTSD) (Gaylord, 2006; Ferrier-Auerbach et al., 2010). Combat veterans deployed to Iraq and Afghanistan face stressors that can have psychological effects such as, witnessing human suffering and deprivation, difficult living and working conditions, separation from home and family, and conflict with unit leadership (King et al., 2006; La Bash et al., 2009; Seal et al., 2007).

A unique study by Ferrier-Auerbach et al. (2010) sought to better understand the distress reported by military personnel serving in a combat zone. The researchers identified separate dimensions of emotional distress and determined which deployment characteristics and events were strong predictors of emotional distress. Study participants were 2,677 National Guard Soldiers deployed as part of Operation Iraqi Freedom in 2006-2007. The predictors of emotional distress revealed in the study were female gender, previous deployments to Operation Enduring Freedom and Operation Iraqi Freedom, and perceived factors such as believing that one was not well prepared for their role, less leadership support, and little or unpleasant contact with home. Ferrier-Auerbach et al. (2010) purport that while the combat environment cannot be altered, mediating factors such as frequency of contact with home and leadership support might be altered, thus promoting resilience in the combat environment.

Post-Traumatic Stress Disorder and Health

Previous research has suggested that posttraumatic stress disorder (PTSD) can impact the physical health of service members (Adler et al., 2005; McNulty, 2005; Suris, Lind, Kashner, Borman, & Petty, 2004). While most studies have focused on psychiatric symptoms, social effects, and use of health services, the relationship of posttraumatic stress disorder (PTSD) and other mental illnesses such as depression to physical illness, have received less attention. Several studies have examined the relationship between posttraumatic stress disorder and physical symptoms, health service use, physiologic changes, mortality and self-reported health in deployed personnel (Adler et al., 2005; McNulty, 2005; Suris et al., 2004). Epidemiological studies done with Gulf war and Iraq and Afghanistan veterans have found that individuals with posttraumatic stress disorder

describe more physical symptoms than those individuals without PTSD (Baker, Mendenhall, Simbartl, Magan, & Steinberg, 1997; Engle, Liu, McCarthy, Miller, & Ursano, 2000; Hoge, Terhakopian, Castro, Messer, & Engel, 2007). Studies of the relationship of posttraumatic stress disorder to physical symptoms in war veterans consistently show a positive relationship (Baker et al., 1997; Qureshi, Pyne, Magruder, Schulz, & Kunik, 2009).

Engle et al. (2000) examined the relationship of physical symptoms to posttraumatic stress disorder among veterans seeking care for Persian Gulf War I related health outcomes. Data were obtained from 21, 244 Gulf War veterans seeking care for war-related health concerns. The aim of the study was to examine the relationship of post traumatic stress disorder (PTSD) to physical symptoms, independent of environmental exposure reports and medical illness. Study findings revealed that for every physical symptom reported, the highest proportion of veterans reporting physical symptoms were those with posttraumatic stress disorder and lowest in those labeled as "healthy" (Engle et al., 2000).

Quershi et al. (2009) performed a systematic literature review focusing on the association between posttraumatic stress disorder and specific physical disorders. They found a limited amount of studies examining the relationship between posttraumatic stress disorder and physical disorders. They examined seven studies; three studies found posttraumatic stress disorder can have negative effects on physical health. However, evidence was lacking regarding posttraumatic stress disorders association with specific physical disorders. Unlike previous studies that primarily focus on posttraumatic stress

disorder and its effect on deployed veteran's physical health, this study focused on the stressors of combat and their effect on veteran health and well-being.

To date there are only a few published studies that examine the relationship of posttraumatic stress to physical health in Iraq and Afghanistan veterans (Hoge, Terhakaopian, Castro, Messer, & Engle, 2007; Jakupcak et al., 2008). Jackupcak et al. (2008) examined the relationship between posttraumatic stress disorder (PTSD) and physical health functioning in a sample of 108 Iraq and Afghanistan veterans seeking care at veterans' affairs clinic post deployment. Results of the study revealed that those veterans with higher posttraumatic stress disorder symptom severity had poorer health functioning. Based on their findings, posttraumatic stress disorder may play a unique role in physical health, and may be a mechanism to help determine the health of Iraq and Afghanistan veterans seeking post deployment health care (Jackupcak et al., 2008).

Although Jackupcak et al. (2008) did have some significant findings in regards to posttraumatic stress disorder and health; there were several limitations that should be considered. One, the data for the study was archival data that relied on a retrospective review. Secondly, because the sample was predominately male, the generalizability of the findings may be limited to other Iraq and Afghanistan veterans. And lastly, because the clinic provided not just mental health care, but also primary care, there may have been a higher rate of physical impairment than other veterans seeking mental health care.

Hoge et al. (2007) studied the association of posttraumatic stress disorder with somatic symptoms, health care visits and amount of absenteeism among Iraq War veterans. They surveyed 2, 863 soldiers one year after their return from combat duty in Iraq, and found a strong association between posttraumatic stress disorder and physical

health measures. Those soldiers who screened positive for posttraumatic stress disorder (PTSD) had poorer self-rated health, missed more work days, had more sick call visits, and had somatic symptoms more often than those veterans who did not screen positive for posttraumatic stress disorder (Hoge et al. 2007). Although study findings did show an association with the prevalence of posttraumatic stress disorder and physical health problems, the study results are not generalizable to other populations of deployed service members, since they are based solely on soldiers from combat infantry units. An additional limitation of the study was that the participants were not randomly selected.

A study with Israeli veterans of the 1982 war with Lebanon examined the association of initial combat stress reaction (CSR), posttraumatic stress disorder and cumulative life stress on physical health twenty years after the war (Benyamini & Solomon, 2005). Study findings revealed that veterans who had experienced combat stress reaction during the war and/ or were diagnosed with combat-related posttraumatic stress disorder 20 years after the war, reported poorer physical health which is consistent with other studies in the U.S. linking post traumatic stress disorder (PTSD) and physical health (Engel et al., 2000; Schnurr & Jankowski, 1999)

Summary

Approximately 2.4 million military personnel have deployed to Iraq and Afghanistan in support of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) (Spelman et al., 2012). The military operations in Iraq and Afghanistan represent the most sustained ground combat operations involving American forces since the Vietnam War (Seal et al., 2007). Whether combat or peacekeeping, deployments can mean long stretches of time spent away from family and friends coupled with difficulties

in communication back home, inconvenient to harsh field conditions, lack of privacy and an unpredictable combination of boredom, uncertainty, and threat (Bartone et al., 1998; Ferrier-Auerbach et al., 2010; La Bash et al., 2009; Ritzer et al., 1999). Moreover, deployment to a war zone is associated with increased risk of exposure to psychological and physical trauma and environmental hazards that may adversely impact the physical health and well-being of combat veterans (Jakupcak et al., 2008).

A more complete understanding of the deployment experiences of returning veterans is needed in order to have an adequate understanding of the impact of deployment to a war zone. Few empirical studies are available that address the long range stressors experienced by U.S. military personnel deployed to Iraq and Afghanistan. There is very little empirical evidence to date providing a comprehensive understanding of deployment stressors and their relationship to health and well-being for present day combat situations (La Bash et al., 2009). This study will provide a more comprehensive understanding of stressors experienced in Iraq and Afghanistan and valuable information for health care providers that can assist in establishing better prevention and treatment programs for our returning war fighters. The aim of this study was to add to the body of knowledge on combat stress and assist health care professionals to better recognize and treat the health consequences of serving in a combat zone.

CHAPTER III

METHODOLOGY

This chapter includes the methods and procedures for the study. A description of the subjects, instruments, method of data collection, and the statistical procedures used to analyze the data are provided. The purpose of this study was to identify and describe the perceived deployment stressors of U. S. Marines and Sailors who deployed to Iraq and Afghanistan and determine if there is a relationship between these perceived stressors and the well-being of these war fighters upon their return home.

Research Design

This descriptive, correlational study was designed to identify and describe deployment stressors and examine the relationship between the deployment stressors and service member well-being. The following research questions were analyzed:

1. What do U. S. Marines and Sailors who deployed to Iraq and Afghanistan perceive as stressors?
2. What is the relationship between perceived deployment stressors and the health and well-being of U.S. Marines and Sailors who deployed to Iraq and Afghanistan after returning home?

Sampling

A descriptive, correlational design was employed to query service members deployed to Iraq and Afghanistan. Due to the unique population required of this study, a

purposive sampling technique was be used. The proposed target population consisted of approximately 460 U.S. Marines and Sailors from a Reserve Reconnaissance Battalion in the Southwestern United States who had returned home after deployment to combat zones in Iraq and Afghanistan. Due to difficulties encountered in obtaining permission from the appropriate chain of command, participants were recruited from only one branch of service.

A power analysis calculated using Borenstein and Cohen's methodology was used to determine the needed sample size (Borenstein, Rothstein, & Cohen (1987). The power analysis calculated was based upon using the multiple regression analysis (Cohen, 1988). Possible correlation of certain deployment stressors and the well-being of U.S. Marines and Sailors from a reserve Reconnaissance Battalion were based on information gathered in a preliminary study of risk-taking behaviors among deployed U.S. Marines (Fuller, 2004) and other literature (Killgore et al., 2008; King, Vogt, & King, 2003; Wells et al., 2010). The effect size for the power analysis was estimated to be "medium". The power for this sample calculation was set at .80, alpha = .05. Therefore, a minimum of 75 subjects was needed to achieve statistical power. However, statistical power was not achieved because of the difficulties encountered in recruiting participants for the study.

Thirty eight U. S. Marines and Sailors were recruited from a reserve U. S. Marine Corps Reconnaissance Battalion. Of those participating in the study, 35 were U.S. Marines, and 3 were U.S. Navy Corpsman providing medical support to the U.S. Marine Corps. There were 37 male participants and one female participant. In order to be included in the study, Marines and Sailors had to have deployed to either Iraq or Afghanistan or both. Initially, permission was obtained from the U.S. Marine Corps

Commanding Officer (Appendix F), in order to allow the service members an opportunity to participate in the study.

Data Collection

Some data was collected online through the Survey Monkey website: www.surveymonkey.com/s/deployNavyMarines and by paper and pencil method at a Naval Operational Support Center (NOSC).

Data Collection Online

Since the U.S. Reconnaisance Marines and Sailors resided and performed their reserve duty in several different states, they were informed of the study through the Battalion Newsletter. The Battalion Newsletter contained an advertisement for the study. The advertisement contained instructions on how to access the website through Survey Monkey as well as the following key elements of an informed consent: a) participants had the option to participate or not participate in the survey, and could withdraw at any time during the survey without penalty; b) participating or not participating in the survey would not affect their military careers in any way; c) participation in the survey was considered their implied consent to participate. Since some of the questions were sensitive in nature and might cause some participants to feel uncomfortable, Department of Defense (DoD) contact information for mental health assistance was provided throughout the online survey. All participants were advised that all responses would remain anonymous, and would only be reported by the researcher as aggregate data. In addition to the advertisement for the study in the Battalion Newsletter, all the Marines received a copy of the participant letter (Appendix G) by e-mail informing them of the

study. The Marines and Sailors received an e-mail reminder for the survey two weeks after the survey was available through Survey Monkey©.

The questionnaires available through Survey Monkey© included a demographic questionnaire, a Deployment Risk and Resilience Inventory (DRRI), and a General Well-being Schedule (GWB). The time limit for responding to the survey was two months, after which time the survey was closed. Because the response rate for the online survey was only 2.6%, data were collected by paper and pencil at a later time. This change in data collection method was approved by the Institutional Review Board of the University of North Dakota.

Data Collection Paper and Pencil

Due to the low response rate (2.6%) with the online method of data collection, the researcher arranged through the appropriate chain of command, to recruit subjects on two drill weekends. The researcher met with U. S. Marines and Sailors on two drill weekends at the Naval Operational Support Center (NOSC) and briefed the participants on the following: the purpose of the study, procedures, risks and benefits of participating, measures to protect anonymity and the time commitment for the study. All participants were given the participant letter to read, and the researcher answered any questions they had about study participation. In addition, the service members were informed that they could withdraw from the study at any time, and that participating or not participating in the study would not affect their military careers in any way. Data was collected by paper and pencil method once in July 2011 with fourteen participant responses obtained. Data was collected a second time by paper and pencil method in September 2011 and twelve participant responses were obtained. The final response rate for the study was 8.3%.

Instrumentation

Demographic data were obtained with a format adapted from the Post-deployment Health Reassessment form (PDHRA), that included gender, service branch, marital status, ethnicity, education level, pay grade, number of times deployed to Iraq or Afghanistan, type of unit deployed (combat arms, combat support, and service support) and total number of months of all deployments (Appendix E).

Deployment Risk and Resilience Inventory

The Deployment Risk and Resilience Inventory (DRRI) (Appendix A) is the product of an extended psychometric endeavor to develop a comprehensive suite of scales to assess deployment-related factors that are implicated in the health and well-being of military veterans (King, Vogt, & King, 2003). King et al. (2006) developed this inventory to assess psychosocial risk and resilience factors for military personnel and veterans deployed to war zones or other hazardous environments. King et al. (2006) developed the Deployment Risk and Resilience Inventory through several components, an extensive literature review, ongoing refinement of definitions of key risk and resilience factors or constructs, and the conducting of focus groups with Persian Gulf War I veterans, that generated items for subsequent administration in a survey format. The process resulted in an instrument that has the potential to reliably assess risk and resilience factors that contribute to military personnel and veterans' well-being. Appropriate for most contemporary military deployments, it contains 14 measures that assess features of pre deployment background, deployment-related experiences and perceptions, and post deployment events and circumstances (King et al., 2006).

A key strength of the Deployment Risk and Resilience Inventory is that it is a multidimensional conceptualization of deployment experiences (King et al., 2006). Although many deployment measures focus on combat exposure, research points to other deployment factors that may render veterans more vulnerable to postwar distress and adjustment difficulties, such as exposure to circumstances surrounding the aftermath of battle and potential exposure to environmental hazards (Vogt et al., 2008).

The Deployment Risk and Resilience Inventory's systematic development through the application of focus group methodology to enhance content validity (Persian Gulf War I) and rigorous psychometric evaluation is another advantage. Gulf War veterans have revealed a high internal consistency reliability, and sufficient levels of test-re-test reliability (King et al., 2006). In addition, internal consistency reliability with Iraq veterans was also quite strong, with Chronbach alphas ranging from .77 -.90 for the factors (Vogt et al. 2008). Fikretoglu, Brunet, Poundja, Guay, and Pedlar (2006) used a French-Canadian version of the Deployment Risk and Resilience Inventory to examine the relation between deployment risk and resilience factors and post deployment functioning in a group of Canadian veterans. They found the internal consistency and test-retest reliability coefficients for the Deployment Risk and Resilience Inventory scales to be very good. Lastly, a final advantage of the Deployment Risk and Resilience Inventory is its assessment of factors that are salient for the growing number of reserve/National Guard personnel and women who have been activated in recent deployments (Vogt et al., 2005; Vogt et al., 2008).

The Deployment Risk and Resilience Inventory currently includes scales to assess two pre deployment factors (prior stressors and childhood family environment), ten

features of the deployment experience (combat experiences; deployment concerns/perceived threat; aftermath of battle; difficult living and working environment; sense of preparedness; nuclear, biological, and chemical exposures (NBCs); concerns about life and family disruptions; deployment social support; sexual harassment; and general harassment), and two post deployment factors (post deployment social support and post deployment stressors). For the purpose of this study, only the following six features of the deployment experiences will be used: Life Concerns, Unit Support, Preparedness/Training, Deployment Concerns/Perceived Threat, Combat Experiences, and Post Battle Experiences, thus eliminating the two pre deployment and two post deployment factors and four of the ten deployment experience factors.

One or more measures of deployment and risk and resilience factors may be employed as stand-alone instruments or the full set of scales may be administered in concert (Vogt et al., 200). For purposes of using the Deployment Risk and Resilience Inventory the term risk factor is used to label those factors that are positively related to post deployment health problems, whereas the term resilience factor is used to label those factors that are negatively related to post deployment health problems (Vogt et al., 2008). A definition and description of each of the risk and resilience measures/subscales used in this study are provided under conceptual definitions.

The scales were scored by summing items of each construct (i.e. combat experiences; perceived threat). Two scoring methods will be applied, one that involves simply summing responses across all items in the scale and another that involves summing response for the dichotomous (yes/no) response format, 2 = yes and 1 = no. A

more detailed explanation for how each stressor measure/subscale was scored is provided at the end of this chapter and in results section of Chapter Four.

General Well-being Schedule

The instrument used to measure participant well-being will be the General Well-being Schedule (GWB) (Appendix C). The General Well-being Schedule is a brief, instrument that is widely used in research to assess subjective feelings of psychological well-being and distress (Leonardson et al., 2003; McDowell & Newell, 1996; Taylor et al., 2003). Fazio (1977) in his validational study of the General Well-being Schedule (GWB), concluded that the General Well-being Schedule should be useful in a variety of research and applied settings, such as a quality-of-life index, and a mental health status appraisal.

The General Well-being Schedule (GWB) was first developed by Dupuy (1978) as part of a nationwide survey, the first Health and Nutrition Examination Survey (HANES I), conducted by the National Center for Health Statistics. Originally, it contained 68 items, 18 of which were used in the HANES study and form the usual set of questions referred to as the General Well-being Schedule (McDowell & Newell, 1996; Poston et al., 1998). The 18 items are combined to produce a general indicator of well-being and subscales measuring six hypothetical dimensions indicating anxiety, depression, positive well-being, self-control, vitality, and general health (Poston et al., 2003; Taylor et al., 2003).

It is a self- administered questionnaire that includes both positive and negative questions. All of the items utilize the past month as the time frame of interest. The first 14 items are rated on a six-point response Likert-type scale, representing intensity or

frequency. The remaining 4 items use a 0-10 rating scale defined by adjectives at each end, e.g. not concerned at all to very concerned. In coding replies, the polarity of certain questions is reversed (items 1, 3, 6, 7, 9, 11, 15 and 16), so a low score represents more severe distress (McDowell & Newell, 1996). Dupuy (1978) used total score running from 0-110 and for this, 14 is subtracted from the score that is derived after totaling the score of each question answered by participants (McDowell & Newell, 1996). For example: if a participant scored 94, then 14 would be subtracted from 94 to yield a final score of 80. General Well-being Schedule total scores range from 0-110, with low scores representing greater distress (Dupuy, 1978). Dupuy42 (1978) proposed cutting points to represent three levels of distress: scores 0-60 (severe distress), 61-72 (moderate distress), and 73-110 (positive well-being). In addition, six hypothesized sub scores anxiety, depression, positive well-being, self-control, vitality, and general health may be formed, as proposed by Brook et al. (1979).

Adequate test-retest reliability has been reported for the General Well-being Schedule total, with reliability coefficients ranging from .68 to .85 (Edwards, Yarvis, Mueller, Zingale, & Wagman, 1978; Fazio, 1977; Monk, 1981; Smilkstein, Ashworth, & Montano; 1982). The internal consistency of the General Well-being Schedule is reported to be high, with all alpha coefficients over .90 (Fazio, 1977; Monk, 1981; Poston et al., 1998; Taylor et al., 2003). In a study by Fazio (1977) the coefficients were 0.91 for 79 males and 0.95 for 116 females. Taylor et al. (2003) reported an alpha coefficient of 0.92 in a community sample of African American women. Poston et al. (1998) found the General Well-being Schedule demonstrated strong internal consistency for a total score of 0.91. In addition, Fazio (1977) reported correlations among the sub scores ranging

from 0.16 to 0.72. There is considerable evidence for the correlational validity of the General Well-being Schedule.

The reliability for the subscales, varied widely among researchers with alpha coefficients ranging for the four factors ranging from 0.67 to 0.91. Poston et al. (1998) found that the four factors showed strong correlations with the General Well-being Schedule (GWB) total, ranging from 0.71 to 0.92. They assert that this sizeable overlap between the total General Well-being Schedule score and the four subscales suggest that each subscale may assess the general dimension of psychological well-being rather than distinct constructs (Poston et al., 1998). Furthermore, Taylor et al. (2003) suggest that the General Well-being Schedule be utilized as a unidimensional measure of well-being instead of a measure with four distinct subscales. Findings showed that the subscales demonstrated strong correlations with each other and the General Well-being Schedule total score, suggesting that these constructs were not highly discriminable.

Leonardson et al. (2003) point out that the factor structure of the General Well-being Schedule is yet to be resolved. Previous studies have not produced a consistent factor structure (McDowell & Newell, 1996, Poston et al., 1998, Taylor et al., 2003). Therefore for the purpose of this study, the General Well-being Schedule will be utilized as a unidimensional measure, and a total well-being score of 0-110.

Previous studies have also consistently demonstrated correlational validity between the General Well-being Schedule and depression scales (Fazio, 1977; Leonardson et al., 2003. For example; Leonardson et al. (2003) noted adequate concurrent and divergent validity in association with scores on the Beck Depression Inventory-Second Edition. In Fazio's (1977) validation study, the General Well-being

Schedule total score correlated 0.47 with an interviewer's rating of depression, 0.66 with Zung's Self-rating Depression Scale, and 0.78 with the Personal Feelings Inventory. The average correlation of the General Well-being Schedule and six independent depression scales was 0.69; the average correlation was 0.64 with three anxiety scales (McDowell & Newell, 1996).

Because of the outstanding reliability and validity results of the General Well-being Schedule, many researchers recommend that it be considered for use where a general population indicator of subjective well-being is required (McDowell & Newell, 1996). In addition, some researchers recommend that it also be considered for use with some ethnic groups when measuring psychological health and well-being (Leonardson et al., 1998; Poston, et al., 2003; Taylor et al., 2003).

Independent Variables

Preparedness/Training. The stressor, deployment preparation, was measured with 14 training and preparation specific questions with one of the following responses: (1) strongly disagree, (2) somewhat disagree, (3) neither agree nor disagree, (4) somewhat agree, (5) strongly agree. Total scores ranges from 1-5 and higher scores would indicate higher levels of preparation for deployment. However, the scoring was reversed in this study, so all reported scores that were high would be representative of a high stress level (e.g. higher scores would indicate low levels of preparation) (King et al., 2006) (see Appendix A).

Life Concerns (Concerns about life and family/relationship disruptions). The stressor, life and family concerns, was measured with 14 specific questions pertaining to concerns about life and family disruptions, with one of the following responses: (1) Not

applicable, (2) not at all, (3) a little, (4) Moderately, (5) A great deal. Total scores range from 1-5 with higher scores indicating more concerns about life and family (King et al., 2006) (see Appendix A).

Unit Support. The stressor, level of unit support, was measured with 12 specific questions pertaining to relationships with other military personnel while deployed, with one of the following responses: (1) strongly disagree, (2) somewhat disagree, (3) neither agree nor disagree, (4) somewhat agree, (5) strongly agree. Total scores range from 1-5 and higher scores would indicate a higher level of unit support. However, the scoring was reversed in this study, so all reported scores that were high would be representative of a high stress level (e.g. higher scores would indicate a lack of unit support) (King et al., 2006) (see Appendix A).

Deployment Concerns (Perceived threat). The stressor, perceived threat was measured with 15 specific questions pertaining to fear for one' own safety in a war zone. Participants can respond with one of the following responses, (1) strongly disagree, (2) somewhat disagree, (3) neither agree nor disagree, (4) somewhat agree, (5) strongly agree. Total scores ranged from 1-5 with higher scores indicating a high level of perceived threat with the exception of question 2 "I felt safe" which was reverse coded to reflect the appropriate response total (King et al., 2006) (see Appendix A).

Combat Experiences (stereotypical warfare experiences). The stressor, combat experiences, was measured with 15 specific questions pertaining to stereotypical combat in a dichotomous (yes/no) response format with 1 = no, 2 = yes (King et al., 2006) (see Appendix A).

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Post-Battle Experiences (Aftermath of Battle). The stressor, aftermath of battle, was measured with 15 specific yes/no questions pertaining to post battle experiences, with 1 = no and 2 = yes (King et al., 2006) (see Appendix A).

Dependent Variable

Participant Well-being was measured by the General Well-being Schedule (GWB) (Appendix B). It is a self-administered questionnaire that includes both positive and negative questions. All of the items utilize the past month as the time frame of interest. Total scores range from 0-110, with low scores representing greater distress (Dupuy, 1978). The following scores represent three levels of distress; scores 0-60 (severe distress), 61-72 (moderate distress), and 73-110 (positive well-being) (Dupuy, 1978).

Analysis of Data

Inferential and descriptive statistics were used to examine issues that were stated in the research questions. Specifically, descriptive analysis was used to determine demographic characteristics of the sample, and to answer Research Question 1 (What do U. S. Marines and Sailors who deployed to Iraq and Afghanistan perceive as stressors? Multiple regression analysis was used to address the relationship in Research Question 2 (What is the relationship between perceived deployment stressors and the health and well-being of U.S. Marines and Sailors who deployed to Iraq and Afghanistan after returning home?). Demographic data were processed using frequency statistics. The percent of the total and the number of participants were reported for nominal and ordinal data.

This study used multiple regression to account for the variance in an ordinal/interval dependent variable (participant well-being), based on linear combinations of the following ordinal/interval independent variables (deployment stressors): Preparedness/Training, Life Concerns, Unit Support, Deployment Concerns/Perceived Threat, Combat Experiences, and Post-Battle Experiences. Standard multiple regression was used to establish that a set of independent variables (deployment stressors) explain a proportion of the variance in a dependent variable (participant well-being) at a significant level and can establish the relative predictive importance of the independent variable.

Data Analysis Procedure

Descriptive and inferential statistics were used to draw conclusions from the sample population tested. The Statistical Package for the Social Sciences (SPSS) was used to code and tabulate scores collected from the survey and provide summarized values where applicable including the median, mean, variance, and standard deviation. Missing data for each construct were re-coded by summing the items and calculating the average/mean for each missing item. In addition, demographic data were processed using frequency statistics. Pearson correlation coefficients were calculated to examine the relationship between participant well-being scores and the six deployment stressors. Multiple regression analyses were used to detect amount of shared variance and strength of relationship between the variables of interest, perceived deployment stressors and well-being.

Prior to analyzing the two research questions, data hygiene and data screening were undertaken to ensure the variables of interest met appropriate statistical assumptions. The criterion variables were evaluated for normality, linearity,

multicollinearity, and homoscedasticity prior to multiple regression analysis. Subsequently, multiple regression analyses were run to determine if any relationships existed between variables.

Reliability Analysis

Reliability analysis allows one to study the properties of measurement scales and the items that compose the scales (Tabachnick & Fidell, 2006). Cronbach's alpha reliability analysis procedure calculates a reliability coefficient that ranges between 0 and 100. Scale reliability is considered acceptable if the coefficient is ≥ 0.70. A reliability analysis from this group of 38 participants revealed that all seven constructs were sufficiently reliable. The following reliabilities were determined for the six Deployment Risk and Resilience Inventory (DRRI) variables: Preparedness, 0.83; Life Concerns, 0.86; Unit Support, 0.82; Deployment Concerns (Perceived Threat), 0.88; Combat Experiences, 0.86; Post-Battle Experiences, 0.93.

Ethical Considerations and Protection of Human Subjects

To protect the human rights of the participants, permission was obtained from the Institutional Review Board (IRB) of the University of North Dakota on June 23, 2010 (Appendix D). A protocol change was submitted by the researcher and approved on June 16, 2011 by the University of North Dakota Institutional Review Board. After receiving initial approval from the University of North Dakota IRB, the Clinical Investigation Institutional Review Board of Wilford Hall Medical Center was contacted. It was decided by the Clinical Investigation Institutional Review Board of Wilford Hall Medical Center that since the researcher was a civilian and a Doctoral student at the University of North Dakota, the study would not need to through their approval process, and approval

by the University of North Dakota Review Board would suffice (Appendix H). Upon receipt of approval by the University of North Dakota Institutional Review Board, then permission to approach participants was obtained by the Commanding Officer of the Marine Reconnaissance Battalion (Appendix F). Respect for human dignity was demonstrated by informing the Marines and Sailors about the study and that their decision to participate or not participate in the study would not affect their military careers in any way.

The study participants were treated as autonomous agents; they were briefed regarding the purpose of the study. It was explained to them that participation was voluntary and that if they choose not to participate in the study or withdraw once started in the study, they could do so at any time without penalty. The individual right to privacy, autonomy and complete anonymity was protected. Complete anonymity was ensured due to the sensitive nature of the data collected. The study participant's responses were not linked in any way to their identity, even by the researcher.

Anonymity of the study participants was maintained. There was no identifying information, (i.e. social security numbers, date of birth) asked on any of the surveys either online via Survey Monkey or on paper and pencil questionnaires. The service member's completion of the research instruments, the Deployment Risk and Resilience Inventory (DDRI), demographic questions and the General Well-being Schedule (GWB) was considered their consent to participate in the study. The use of the online survey data base www.surveymonkey.com allowed the participants to complete the survey anonymously. In addition, participant anonymity was also protected with the paper and pencil method. Each participant received their questionnaires in a large manila envelope.

As they completed their questionnaires, they were asked to seal the envelope and insert it in a drop box as they left the room. The participants were made aware in a cover letter that they would remain anonymous and that they could withdraw from the survey at any time without penalty.

There were no known physical, psychological, social, legal, or other risks for participating in the study. The only inconvenience was the time required for participating in the study, approximately 45-60 minutes. Due to the sensitive nature of some of the questionnaires (e.g. questions about combat and post-battle experiences); it was anticipated that some subjects could experience some emotional discomfort and withdraw from the study. However, no participants withdrew from the research study. Access to DoD mental health information and services were provided online via Survey Monkey and during the paper and pencil collection of data.

The potential benefits of this study outweighed the possible risks for subjects. Participating in a study such as this may have helped participants identify stressors they experienced while deployed and helped them gain a better understanding of how these stressors might affect their well-being.

Research data will be kept in a locked file cabinet at the researcher's home in San Antonio, Texas for three years. After three years the study information will be shredded as it is discarded. Confidentiality of the identity of individual subjects will be maintained, and no service member's names will be used in any publication. The information obtained will only be shared as aggregate data.

Summary

Thirty-eight participants were recruited from a U.S. Marine Reconnaissance Battalion in the Southwestern United States. They all met the inclusion criteria of deployment to Iraq or Afghanistan. Participants completed the Deployment Risk and Resilience Inventory, the General Well-being Schedule and a demographic questionnaire either online via Survey Monkey or by paper and pencil method. All responses were anonymous and no identifying information was asked on any of the questionnaires. Anonymity of the study participants was maintained. Demographic data was processed using frequency statistics. Multiple regression analysis was used to detect the amount of shared variance and strength of relationships between the variables of interest, perceived deployment stressors and participant well-being.

Findings from previous studies indicate that war-zone exposure can have negative implications for the post deployment adjustment of veterans (Vogt et al., 2005). However, most studies have relied on limited conceptualizations of war-zone exposure. A more complete understanding of the deployment experiences of combat veterans is needed in order to have an adequate understanding of the impact of war on veteran health. There is very little empirical evidence to date providing a comprehensive understanding of combat stressors and their relationship to health outcomes for present day combat situations. This study provides a more comprehensive understanding of stressors experienced by Iraq and Afghanistan veterans. The findings will lead to appropriate post deployment assessments and health care that is tailored to meet the health and wellness needs of our returning war fighters.

CHAPTER IV

RESULTS

Introduction

The purpose of this study was to identify the perceived deployment stressors of a group of U.S. Marines and Sailors who deployed to Iraq or Afghanistan, and determine if there was a relationship between those perceived stressors and the health and well-being of these war fighters post deployment. The study was conducted with the approval of the commanding officer of a U.S. Marine Reconnaissance Battalion in the Southwestern part of the United States. A total of 38 Marines and Sailors (Navy Corpsman) were enrolled participants that met the inclusion criteria to obtain the data to be analyzed. Data collected were analyzed using multiple regression analysis to determine if a relationship existed between perceived stressors and participant well-being. Pearson correlation coefficients were calculated to examine correlations between well-being and stressors. Descriptive statistics were used to describe the participant demographics.

This chapter begins with an overview of participant demographics, and characteristics of the instruments used in the study. It concludes with a presentation of the data analysis as it relates to the research questions of the study.

Description of the Sample and Military Characteristics

The sample consisted of 38 Marines and Sailors from a Reconnaissance Battalion, of which 92% were Marines and 8% were Navy Corpsman. The sample was comprised

of 97% male participants (n = 37) and 3% female participants (n = 1). Participants ranged in age from 18 to over 40 years of age, with the highest percentage in the 25-29 year old category (46%), followed by 30-39 year olds (35%), 40 and older (13.5%), and in the 18-24 year old category (5.4%). Participants described themselves as either, Caucasian (51.4%), Hispanic/Latinos (43.2%), African American (2.7%) or Native American/Alaskan Native (2.7%). Non-commissioned officers (pay grade E-5-E-6) represented 66.7% of the participants, followed by senior enlisted (pay-grade E-7-E-9) (19.4%), and junior enlisted (E-1-E-4) (13.9%). None of the participants labeled themselves as officers. Participants described themselves as either married (52.8%), single (38.9%) or separated/divorced (8.3%). In regards to education, 59.5% had at least some college, 32.4% were college graduates, and 8.1% were high school graduates. Table 1 displays the socio-demographic characteristics of study participants.

Sixty-two percent of military duty status/deployment roles were combat arms (which refers to being in the front lines of battle), 27% were combat support (which refers to providing direct support to combatants), and 10% were service support (which refers to providing less direct forms of support to combatants). Deployment status was reported as the following; 48.6% had deployed to Operation Enduring Freedom (OEF) once, 29.7% had deployed to Operation Iraqi Freedom (OIF) once, 43.2% had two deployments to Operation Iraqi Freedom, with only one individual deploying twice to Afghanistan (2.7%), and 16.2% deploying three or more times to Iraq. Lastly, the total months deployed for the group ranged anywhere from 2 to 33 months, with a mean of 12.35 months.

Table 1. Socio-Demographic Characteristics of Navy and Marine OIF and OEF War Fighters.

Characteristics	No. of Participants	Percentage
Age (n = 37)		
18-24	2	5.3
25-29	17	44.7
30-39	13	34.2
40 +	5	13.2
Not Reported	1	2.6
Ethnicity (n = 37)		
Caucasian	19	50.0
African American	1	2.6
Hispanic/Latino	16	42.1
Native American	1	2.6
Not Reported	1	2.6
Education (n = 37)		
High School or less	3	7.9
Some College	22	57.9
College Graduate	12	31.6
Not Reported	1	2.6
Marital Status (n = 36)		
Single	14	36.8
Married	19	50.0
Separated or Divorced	3	7.9
Not Reported	2	5.3

Note: OIF = Operation Iraqi Freedom and OEF = Operation Enduring Freedom (Afghanistan)

Table 2 displays the military characteristics of study participants. Explanations of the military duty status/occupational specialties for Table 2 are as follows: combat arms personnel are those on the front lines of battle; combat support personnel are those who directly support the combat service needs of the combatants (e.g., transportation, supply, logistics), and combat service support are those service members who provide less direct forms of support to the fighting force (e.g. medical, food service). In addition, OEF represents Operation Enduring Freedom (war in Afghanistan); and OIF represents Operation Iraqi Freedom (war in Iraq).

Analysis Results

Research Question 1: What do U.S. Marines and Sailors Who Deployed to Iraq and Afghanistan Perceive as Stressors?

In response to research question one the following were analyzed using frequency statistics to determine what service members who deployed to Iraq and Afghanistan perceived as stressors. The Defense Risk and Resilience Inventory (DRRI) was employed to evaluate six potential stressors, including Preparedness/Training, Life Concerns, Unit Support, Deployment Concerns/Perceived Threat, Combat Experiences, and Post-battle Experiences. The construct, Deployment Concerns, consisted of 15 statements and was measured on a 5-point Likert-type scale where 1 = *Strongly Disagree*, 2 = *Somewhat Disagree,* 3 = *Neither Agree nor Disagree,* 4 = *Somewhat Agree*, and 5 = *Strongly Agree*. Question number 2 (I felt safe), and question number 8 (I felt secure that I would be coming home after the war), were reverse coded due to their positive nature, so they would coincide with the other questions of a negative nature such as, (I thought I would never survive). Preparedness/Training originally contained 14 items. However, item number 10 was removed from the analysis since it did not pertain to the overall theme of

Table 2. Military Characteristics of Navy and Marine OIF and OEF War Fighters.

Characteristics	No. of Participants	Percentages
Duty Status/Deployment role (n = 37)		
Combat Arms	23	60.5
Combat Support	10	26.3
Service Support	4	10.5
Not Reported	1	2.6
Rank (n = 36)		
E-1 - E-4 (Junior Enlisted)	5	13.1
E-5 - E-6 (NCO)	24	63.2
E-7 - E-9 (Senior NCO)	7	18.4
Not Reported	2	5.3
Times Deployed OIF (Iraq) (n = 33)		
Once	11	29.7
Twice	16	43.2
3 or more	6	16.2
Times Deployed OEF (Afghanistan) (n = 19)		
Once	18	48.6
Twice	1	2.7

Note: OIF = Operation Iraqi Freedom and OEF = Operation Enduring Freedom (Afghanistan), NCO = Non-Commissioned Officer.
Note: OEF = Operation Enduring Freedom (war in Afghanistan); OIF = Operation Iraqi Freedom (war in Iraq). Military duty status/occupational specialties are as follows: combat arms are service members on the front line of battle; combat support are service members who directly support the combat service needs of the combatants (e.g., transportation, supply, logistics);combat service support are those service members who provide less direct forms of support to the fighting force (e.g. medical, food service).

the construct, which was the level that participants felt prepared for deployment. Preparedness/Training and Unit Support were constructed from 13 and 12 statements respectively and were measured on a similar, yet reversed, 5-point Likert-type scale where 1 = *Strongly Agree*, 2 = *Somewhat Agree,* 3 = *Neither Agree nor Disagree,* 4 = *Somewhat Disagree*, and 5 = *Strongly Disagree.* This was done so all reported scores that were high would be representative of a high stress level. The construct, Life Concerns, consisted of 14 statements and that were measured on a 5-point Likert-type scale where 1 = *Not Applicable*, 2 = *Not at all,* 3 = *A little,* 4 = *Moderately*, and 5 = *A great deal*. Finally, the stressors, Combat Experiences and Post-battle Experiences, were constructed from 15 statements each, and were measured on a dichotomous scale where 1 = *No* and 2 = *Yes*.

Polit and Beck (2004) assert that "when missing values are reasonably random and when the problem is not extensive, it may be useful to substitute real data values for missing value codes (pg. 554)". This represents an estimation of the value if it had actually been collected (Polit & Beck, 2004 p. 554). This approach is especially useful when there are missing values for variables that comprise a multiple-item scale, such as a Likert scale, and the missing scale items are small in number (Polit & Beck, 2004, p. 554). The researcher could substitute the most typical responses (based on either the mean, median, or mode, depending on the distribution of scores), so that the scale score on the full number of items for the construct could be calculated (Polit & Beck, 2004, p. 554). Since there were very few missing data, and the missing data values were for variables that comprised a Likert type scale, this approach was used by researcher to address missing data.

Participants answered most questions, and there were very few missing data. There were a total of five missing responses to questions on the DRRI and 3 missing responses to the demographic questionnaire and one participant did not fill out the demographic questionnaire. Missing data for each construct were re-coded by summing the items and calculating the average/mean for each missing item. For example, if the average/mean for item (or question) number one "I thought I would never survive" was 3.25, then the missing score would be entered as a 3. For each stressor, composite mean scores were derived by summing case scores and dividing by the number of items in their respective constructs. The six composite variables were examined in Research Question 1.

Fain (1999) asserts construct validity is the most valuable, yet the most difficult way to assess an instruments validity (pg. 98)." In order to validate an instrument in terms of construct validity it is important to determine what the instrument is really measuring and if it adequately measures the abstract concept of interest (Polit & Beck, 2004, p. 425). According to Huck (2004), "claims of construct validity are more impressive when evidence regarding both convergent and discriminant validity is provided" (p. 92). There are several ways to approach construct validation (Polit & Beck, 2004, p. 425). One approach is the "known groups" technique. This is when the instrument is administered to groups expected to differ in the critical attribute because of some known characteristic. The group scores are expected to differ, but not necessarily a great deal (Polit & Beck, 2004, p. 425).

Support for construct validity for the Defense Risk and Resilience Inventory (DRRI) was illustrated by differences in scores when the DDRI was administered to the

following groups: active duty and reserve and National Guard, and female and male service members who deployed to the Persian Gulf region (King et al., 2006). Furthermore, Vogt, et al. (2008) in their validation of Scales from the DRRI in a sample of Operation Iraqi Freedom veterans, obtained support for discriminate validity as demonstrated by differences between key military subgroups (Vogt et al., 2008). Moreover, Vogt et al. (2004) found evidence for discriminative validity when evaluating in terms of differences in deployment risk and resilience factors based on gender, and deployment role (combat or combat support vs. service-support). Therefore, this evidence of construct validity for the measures should be taken into consideration when evaluating whether or not it can be considered a strong measurement of combat stressors.

To determine whether or not a construct may be considered as a stressor, overall mean values were evaluated. That is, a mean value greater than the construct's scale median value (Preparedness/Training, Life Concerns, Unit Support, and Deployment Concerns/Perceived Threat median = 3, Combat Experiences and Post-battle Experiences median = 1.5). That said, the following stressors had a mean composite score greater than the median value, Deployment Concerns (mean = 3.1), Combat Experience (mean = 1.6) and Post-battle Experience (mean = 1.6). Stressors; those factors that more than half of the war fighters identified as being highly Stressful (Deployment Concerns, Combat Experiences and Post-Battle Experiences) are displayed in Table 3. Non stressors; those factors that more than half of the war fighters identified as being non stressful (Preparedness/Training, Life Concerns and Unit Support) are displayed in Table 3.

Table 3. Deployment Stressors Identified by the Navy and Marine OEF and OIF War Fighters.

Variable	Median	*M*	*SD*	Range
Stressors				
Deployment Concerns	3.0	3.1	0.8	1.6 - 4.7
Combat Experiences	1.5	1.6	0.3	1.1 - 1.9
Post-battle Experiences	1.5	1.6	0.3	1.0 - 2.0
Non-Stressors				
Preparedness/Training	3.0	2.2	0.7	1.0 - 3.6
Life Concerns	3.0	1.8	0.6	1.0 - 3.2
Unit Support	3.0	1.9	0.6	1.0 - 3.3

Note. Stressors; those factors that more than half of the war fighters identified as being highly Stressful. Non stressors; those factors that more than half of the war fighters identified as being Non stressful. A mean value greater than a constructs median value were regarded as stressors; i.e. a mean value greater than a median value of 3 for Preparedness, Life Concerns, Unit Support, and Deployment Concerns were regarded as a stressors and a mean value greater than a median value of 1.5 for Combat Experiences and Post-battle Battle Experiences were regarded as a stressor.

Research Question 2: What Is the Relationship Between Perceived Deployment Stressors and the Well-being of U.S. Marines and Sailors Who Deployed to Iraq and Afghanistan After Returning Home?

For Research Question 2, multiple regression analysis was employed to determine if a relationship existed between a model containing six independent variables (Preparedness/Training, Life Concerns, Unit Support, Deployment Concerns/Perceived Threat, Combat Experiences, and Post-battle Experiences) and participant well-being. To avoid repetition, refer to Research Question One for measurement and scale values of the six independent variables. The criterion or dependent variable for research question two

was participant well-being and was constructed by summing scores from 18 items on the General Well-being Schedule (GWB). Well-being was measured on a 6-point Likert-type scale where high scores reflected positive well-being. Possible scores on the Well-being scale ranged from 0 – 110; participant observed scores ranged from 22 – 96.

The correlation coefficients for model variables are displayed in Table 4, indicating that only two of the six variables (Life Concerns and Deployment Concerns) significantly contributed to the model. Multiple regression analysis was conducted to determine which independent variables (Preparedness, Life Concerns, Unit Support, Deployment Concerns, Combat Experiences, and Post-battle Experiences) were predictors of participant well-being. Entry of these variables into a linear regression showed a non-significant relationship between deployment stressors and well-being ($R = .47$, $R^2 = .22$, $F\ (6, 31) = 1.45$, $p = .23$ (two -tailed). The linear multiple regression model is presented in Table 6.

Pearson correlation coefficients were calculated to examine the relationship between participant well-being scores and the six deployment stressors. Table 4 displays the correlations for the six deployment stressors. Of the six correlations, only two were statistically significant. Life Concerns was significantly correlated with well-being ($r = -0.37$, $p < 0.05$), and Deployment Concerns/Perceived Threat was significantly with well-being. The two variables, Life Concerns and Deployment Concerns were negatively correlated reflecting an inverse relationship between the two variables (Fain, 1999, p. 133).

Table 4. Correlations Between Navy and Marine OEF and OIF War Fighters Stressors and Well-being Scores.

Variables (Stressors)	r	p
Preparedness /Training	-0.24	NS
Life Concerns	-0.37	0.01*
Unit Support	-0.10	NS
Deployment Concerns/ Perceived Threat	-0.32	0.03*
Combat Experiences	0.12	NS
Post-Battle Experiences	0.13	NS

*n = 38 * p < 0.05*

Table 5. Inter-correlations Among Key Study Variables: Deployment Stressors of OIF and OEF War Fighters.

Variables (Stressors)	1	2	3	4	5
1. Combat Experiences	1.00				
2. Post-Battle Experiences	0.31	1.00			
3. Preparedness/Training	0.36*	-0.07	1.00		
4. Unit Support	-0.12	-0.21	0.45*	1.00	
5. Deployment Concerns	0.24	-0.16	0.54*	0.25	1.00
6. Life Concerns	-0.35*	-0.43*	0.27	0.35*	0.26

*n = 38 * p < 0.05*

Table 6. Regression Model Summary of Relationship of Well-being and Stressors.

R	R-Squared	Standard Error	F	Sig.
0.47	0.22	16.77	1.45	0.23

n = 38 *p < 0.05*

By reporting the value of R squared or the percentage equivalent of R squared, "the success of multiple regression analysis is quantified by reporting the proportion or percentage of the variability in the dependent variable that has been accounted for or explained by the study's independent variables" (Huck, 2004, p. 434). The coefficient of determination (R-squared) was 0.22, indicating that the independent variables (deployment stressors) explained 22 percent of the variance in the total well-being scores (Huck, 2004, p. 434). This means that 22 percent of the variance in well-being can be explained by independent variables. Table 7 displays the regression coefficients for model variables.

Table 7. Regression Coefficients for Model Variables.

Variables	*B*	*Beta*	*t*	*Sig*
Preparedness	-4.014	-0.160	-0.696	0.492
Life Concerns *	-8.395	-0.281	-1.389	0.175
Unit Support	4.417	0.141	0.735	0.468
Deployment Concerns *	-5.455	-0.247	-1.274	0.212
Combat Experiences	12.087	0.176	0.841	0.407
Post-Battle Experiences	-3.276	-0.065	-0.359	0.722

n = 38 ** p < 0.05*

Summary of Findings

The sample size consisted of 38 U.S. Marines and Sailors. There were a total of 35 Marines and 3 Navy Corpsman from the Marine Battalion that deployed either to Iraq, Afghanistan or both. The age range was 18 to over 40 years of age. The Marines and Sailors described themselves as enlisted, with the exception of two participants who did not answer the demographic question on military rank. The percentage of married participants were 52.8%, while 8.3% were separated or divorced, and 38.9% were single. Those that deployed to Iraq and/or Afghanistan were either in combat arms (62%); combat support (27%) or service support (10.8%). The percentage of participants that deployed two or more times to Iraq were 59.4%, with only one individual deploying more than once to Afghanistan. The mean months deployed to either Iraq or Afghanistan was 12.35.

The participants identified three out of the six deployment stressors as stressful. Deployment Concerns/Perceived Threat, Combat Experiences, and Post-battle Experiences were perceived by the group as the most stressful. No significant relationship ($p < .05$), was found between perceived deployment stressors and health and well-being of Marines and Sailors deployed to Iraq and Afghanistan. However, two of the deployment stressors, Life Concerns and Deployment Concerns had significant negative correlations with participant well-being scores. Furthermore, as presented in Table 5 inter-correlations between some of the independent variables (deployment stressors) were low-moderately correlated (Fain, 1999, pg. 133).

CHAPTER V

SUMMARY, CONCLUSIONS, DISCUSSION AND RECOMMENDATIONS

Introduction

The purpose of this study was to identify the perceived deployment stressors of a group of U.S. Marines and Sailors who deployed to Iraq and Afghanistan, and determine if there was a relationship between the perceived stressors and the health and well-being of these war fighters post deployment. The study was conducted with the approval of the commanding officer of a U.S. Marine Reconnaissance Battalion in the Southwestern part of the United States. A total of 38 Marines and Sailors (Navy Corpsman) were enrolled participants that met the inclusion criteria to obtain the data to be analyzed. Data collected were analyzed using correlations and a multiple regression analysis to determine if a relationship existed between perceived stressors and participants' well-being. Descriptive statistics were used to describe the participant demographics.

Chapter V begins with an explanation of the primary purpose for this study along with a description of the demographics of the study participants. The findings of the study and their interpretations are then addressed. Lastly, limitations of the study are discussed and recommendations are made for future research.

Purpose of the Study

As suggested by the literature, a relationship exists between deployment to a combat environment and the development of posttraumatic stress disorder (PTSD) and

other mental health problems (Baker et al., 1997; Hoge et al., 2007; Quershi et al., 2009). Research from other military conflicts has identified a link between serving in a combat zone and poor physical health later in life (Bramsen et al., 2007; Elder et al., 1997; Lee et al., 1995). In addition, some research from prior military conflicts has revealed that deployment stressors and combat exposure can result in a higher risk of developing mental health problems such as depression, and posttraumatic stress disorder and substance abuse (Ferrier-Auerbach et al., 2010; Kilgore et al., 2008; Prigerson et al., 2002). Hoge and colleagues (2004) estimate that one in six returning Operation Iraqi Freedom (OIF) combat veterans have reported symptoms of anxiety, depression, or posttraumatic stress disorder (PTSD).

When considering the full psychosocial effect of combat on veterans of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF), it is important to note that not only are these wars fought differently than previous Wars, but they are fought by warriors of an all volunteer force (Hoge et al., 2004). Given that it often takes time for the full effect of war-zone exposure to be realized, it may be anticipated that the number of Iraq War veterans reporting negative mental health issues will increase over time (La Bash et al., 2009). A significant gap does exist in the literature in regards to what combat veterans perceive as stressful when deployed to combat zones in Iraq and Afghanistan. No published studies to date were found that identified the stressors of deployment to a combat environment and or their relationship to the health and well-being of veterans of Iraqi and Afghanistan. It is the hope of this researcher that the contents of this study will provide military and civilian nurses and health care providers with a better understanding of the stressors experienced by deployed combat veterans. In addition, it is felt that this

study will provide valuable information about combat stressors that can be used to inform policy with regard to the optimal delivery of health care for returning war fighters. The following research questions guided the study: 1) What do U.S. Marines and Sailors who deployed to Iraq and Afghanistan perceive as stressors? 2) What is the relationship between perceived deployment stressors and the health and well-being of U.S. Marines and Sailors who deployed to Iraq and Afghanistan after returning home?

Demographics

There were 38 participants in this study, of whom 35 were Marines and 3 were Navy corpsman. The majority of the group identified with either Caucasian or Hispanic/Latino ethnicity. There was a small number (2) that identified with African American and American Indian/Alaskan Native ethnicity. The age of the participants varied somewhat, 18-40+ years, with the largest percentage in the 25-29 year category. This is fairly representative of the reserve population, where the majority tends to be older when compared to their active duty counterparts. In addition, many service members join the reserve forces after years on active duty, so they are senior in rank when they join the reserve. The majority were married with a smaller percentage single or separated. Also representative of the reserve population, a large percentage reported their education level as some college or as having a college degree. In addition to serving their country, many reservists join the military to complete their education.

An overwhelming majority described their role as combat arms (62.2%), which was not surprising since most had been deployed while assigned to a Reconnaissance Battalion. The majority of participants had either deployed to Operation Enduring Freedom once (48.6%) or had two deployments to Operation Iraqi Freedom (43.2%). A

much smaller percentage had deployed three or more times to Iraq (16.2%) and only one individual had deployed twice to Afghanistan. Lastly, the total months deployed for the group ranged anywhere from two to thirty-three months, with a mean of 12.35 months. Table 1 displays the socio-demographic characteristics of study participants and Table 2 displays their military characteristics.

Research has found that certain external and internal factors, such as strong unit and family support, may exert a positive effect (Armfield, 1994, Bicknell, 2005, Sharkansky, et al., 2000). Furthermore, the literature suggests that when strong unit support exists, combat veterans are more successful at coping with the stressful event and less likely to develop posttraumatic stress disorder or other mental health problems, after returning home from deployment (Armfield, 1994, Bicknell, 2005, Sharkansky et al., 2000). The Marines and Sailors of this study did not perceive there was a lack of unit or family support while deployed, and in fact perceived the support from unit leadership and their peers to be high.

Identifying Stressors of Serving in Combat Zones in Iraq and Afghanistan

The first aim of this study was to explore what a group of U.S. Marines and Sailors perceived as stressful when deployed to combat zones in Iraq and Afghanistan. La Bash et al. (2009) assert that "an adequate understanding of the impact of war requires knowledge regarding the deployment experiences of returning veterans (p. 232)." The Marines and Sailors that participated in this study were asked to identify what they perceived as stressful from six constructs (stressors) from the Deployment Risk and Resilience Inventory (DRRI); Preparedness and Training; Life Concerns (Concerns about

life and family relationships disruptions); Level of Unit Support; Deployment Concerns (perceived threat); Combat Experiences (stereotypical warfare experiences); and finally, Post-Battle Experiences (aftermath of battle).

La Bash et al. (2009) reviewed mainstream media reports of the Iraq War from March 2003 to March 2005 and found that combinations of stressors were associated with traditional combat, insurgency warfare, and peacekeeping operations. The U.S. Marines and Sailors that participated in this study perceived the following combat/deployment variables as most stressful; Deployment Concerns (Perceived Threat), Combat Experiences and Aftermath of Battle experiences. This was consistent with other published literature that identified stressors experienced by other combat veterans of Iraq and Afghanistan and Gulf War I (Grieger et al., 2007; King et al., 2008; La Bash et al., 2009). Although other stressors were identified in the literature, Preparedness and training, lack of deployment social support and poor unit cohesion, and concerns about life and family disruptions (Ferrier-Auerbach et al., 2010; King et al., 2006; La Bash et al., 2009; Reeves, 2007), they were not perceived as a stressor by participants of this study.

The severity of combat exposure is becoming of increasing importance when considering the effects of combat on veteran health and well-being (Renshaw, Rodrigues, & Jones, 2009). Recent research has linked the severity of combat exposure to higher levels of posttraumatic stress disorder (PTSD), depression, and substance abuse (Hoge et al., 2004; Prigerson et al., 2002; Renshaw et al., 2009). Several studies were found that investigated the extent of combat exposure in Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) combat veterans. Renshaw and colleagues (2009)

investigated the extent of combat exposure in 50 National Guard soldiers who served a 12 month deployment in Iraq from 2005-2006. Study results indicated that 40% of the National Guard Soldiers reported that they had fired rounds at the enemy. Furthermore, other findings indicated that combat exposure and post-deployment posttraumatic stress symptoms in their sample were greater than those of National Guard veterans of past military operations, but similar to those of full-time active duty soldiers in current operations (Renshaw et al., 2009). Another study by Hoge et al. (2004) that also researched severity of combat exposure, found that 27% of U.S. Army soldiers in Operation Enduring Freedom (OEF), 77% of U.S. Army soldiers in Operation Iraqi Freedom (OIF), and 87% of U.S. Marines in Iraq reported firing on the enemy. In contrast, 81% of U. S. Marines from this study reported that they had fired on the enemy and a high percentage (57%) said they killed or think they killed someone in combat.

In regards to enemy fire, Renshaw and colleagues (2009) reported that 84% of their Operation Iraqi Freedom National Guard veterans admitted to coming under fire, which was similar to the Hoge et al., (2004) study reporting 97% of U.S. Army Iraq veterans, 97% of U.S. Marine Iraq veterans, and 84% of U.S. Army Afghanistan veterans coming under enemy fire. In contrast, 92% of the U.S. Marines in this study reported receiving hostile incoming fire from small arms, artillery, rockets, mortars, or bombs. Indeed, it is important to point out that the levels of combat experience of the Marines in this study were equal to or greater that those reported by U.S. Army and U.S. Marine veterans of the Hoge et al. (2004) study and those reported by the National Guard veterans from the Renshaw et al. (2009) study. Previous research suggests that higher levels of combat exposure may put veterans at risk for impaired well-being (Hoge et

al., 2004; Prigerson et al., 2002; Renshaw et al., 2009). Thus, it is possible that the Marines and Sailors from this study could still be at risk, given that they did experience high levels of combat exposure.

Several correlations deserve special attention and discussion. The stressor Life Concerns was negatively and significantly correlated with the stressor Combat Experiences, ($r = -0.35$, $p < 0.05$). This may suggest that those participants that had less combat experiences were less concerned about the extent to which their deployment might negatively affect their family or other relationships. Life Concerns was also well correlated with post-battle experiences, ($r = -0.43$, $p < 0.05$), suggesting that those participants with greater concern about family also experienced a high exposure to post-battle experiences. Furthermore, there was a significant, positive correlation between Life Concerns and Unit Support, ($r = 0.35$, $p < 0.05$) which may suggest that participants that had more concerns about life and family, also lacked sufficient unit support from their leadership and unit members.

As for the other variables, Preparedness/Training was positively correlated with Combat Experiences, ($r = 0.36$, $p < 0.05$), indicating a significant linear relationship between the two variables. Unit Support was well correlated positively with preparedness and training, ($r = 0.45$, $p < 0.05$), suggesting that those Marines and Sailors that perceived a low level of unit support also felt they were not well prepared for deployment. Lastly, the variable Deployment Concerns/Perceived threat was moderatly and positively correlated with the variable Preparedness/Training ($r = 0.54$, $p < 0.05$). This might indicate that those Marines and Sailors that had fear for their safety and well-being in a war zone, also felt they were not well prepared for deployment.

Relationship of Stressors to Participant Well-being

The current study sought to demonstrate that a relationship existed between deployment stressors and the well-being of service members deployed to combat zones in Iraq and Afghanistan. Contrary to expectations, no evidence was established showing a relationship between the stressors experienced by U.S. Marines and Sailors deployed to Iraq and Afghanistan and their well-being. Because the Marines and Sailors of this study reported high levels of unit support, a lack of unit support was not a perceived as a stressor. Given that participants perceived high levels of unit support, this may have been a factor in helping the war fighters cope sufficiently with the stress and rigors of combat. This theory is consistent with previous literature that identifies strong unit and leadership support as providing a moderating effect for the stressful experience of serving in a combat zone (Armfield, 1994; Bicknell, 2005; Sharkansky et al., 2000).

A significant correlation was found in regards to participant well-being and two of the stressors, Life Concerns and Deployment Concerns/Perceived Threat. King et al. (2006) found that separation from home and family can be a stressor for deployed service members and consequently put them at risk for impaired emotional functioning (Hoge et al. 2006, Mulligan et al., 2012). Moreover, regular contact with family and friends can be considered a resilience factor that may mitigate the effects of stressors during deployment (Ferrier-Auerbach et al., 2010; Gray et al., 2004). In contrast, little or unpleasant contact with home can be a predictor of combat zone emotional distress (Ferrier-Auerbach et al., 2010). Perceived threat of bodily harm in the war zone and self-reported or repeated exposures to environmental hazards may play a critical role in

the health and well-being of deployed veterans and a predictive factor in determining the development of posttraumatic stress disorder (Grieger et al., 2007; Riddle et al., 2003).

Some of the stressors of modern warfare identified in the literature are; being in danger of injury or loss of life, seeing destroyed villages and refuges, and being exposed to the sights, sounds, and smells of human death (Reeves, 2007). King et al. (2008) found that perceived threat of bodily harm in the war zone and self-reported or repeated exposures to environmental hazards may play a critical role in the health and well-being of deployed veterans. A study by Grieger et al. (2007) found that for health care personnel returning from a combat/warfare environment, threat of personal harm may be the most predictive factor in determining those that develop posttraumatic stress disorder (PTSD). Other research done with Persian Gulf War veterans reviewed the impact of the perceived threat of chemical warfare attacks and it can have negative consequences on veteran health (Riddle et al., 2003; Ursano et al., 2003).

Another factor that may have influenced participant self-reporting of well-being, is that for a military population, admitting to psychological distress is often discouraged and may even be viewed as a weakness (Renshaw, Rodrigues, & Jones, 2009). In fact, the stigma that is associated with seeking mental health care in the military often prevents service members from seeking care for mental health issues (Hoge et al., 2004). Hoge et al. (2004) and the "Rand Study (2008), Invisible Wounds of War", identified several common themes in their research on the stigma associated with seeking care for mental health issues in the military. The most frequently endorsed were institutional and cultural in origin and are as follows: members of my unit might have less confidence in me, my unit leadership might treat me differently, there would be difficulty getting time off from

work for treatment, it would harm my career, it would be too embarrassing, it would be seen as weak. Conversely, stigma could have influenced the self-reporting of participant well-being in this study.

Using Lazarus and Folkman's (1984) theory of stress, appraisal and coping, deployment to a combat zone was identified as a stressful environment in which stressors were identified. Participant appraisal of the threat and resources available to cope with the threat followed, which necessitated some form of coping effort to maintain general well-being. The outcome of effective coping would result in adaptation, and positive well-being. On the other hand, ineffective coping would most likely result in maladaptation, and negatively impact well-being. Given that, it is possible that the majority of combat veterans in this study had adapted well upon return home from deployment, and did not exhibit symptoms of impaired well-being.

Conclusions

The deployment/combat stressors identified in this study were consistent with the literature. Although there were no statistically significant findings related to deployment stressors and participant well-being, the literature points out that deployment to a combat environment does put those service members at greater risk for developing mental health problems such as depression, posttraumatic stress disorder, alcohol abuse, and risky behaviors that may lead to ill health and/or injury (Fontana & Rosenheck, 2008; Fuller, 2004; Milliken et al., 2004; Quershi et al., 2009; Reeves et al., 2005). The U.S. Marines and Sailors in this study did identify certain deployment stressors associated with combat that could put them at risk for impaired well-being. Indeed this knowledge will help nurses and other health care providers have a better understanding of the psycho-social

and physical health care needs of combat veterans of Iraq and Afghanistan, leading to the design of more holistic treatment programs for our returning war fighters.

Implications for Nursing

As the wars in Iraq and Afghanistan differ in important ways from previous wars, so do the characteristics and demographics of veterans of these wars. As a result, the newest veterans may differ in important ways from those of other wars that the Department of Veterans Affairs (VA) has been treating. Some researchers suggest that because of these dissimilarities there is also a need for different treatment regimens (Fontana & Rosenheck, 2008).

Research

In order to begin to understand the full breath of the combat experiences of Iraq and Afghanistan veterans, it is imperative that nurse researchers design and carry out research projects that will add to this body of knowledge. Further research is needed that will identify and describe the deployment stressors experienced by this cohort. Future research should be focused on the health and psychological and social well-being of veterans as well as other health problems resulting from deployment. Recommendations for future research are presented in detail in the Recommendation for Future Studies section.

Policy

Several factors must be considered in regards to informing policy. In the military admitting to psychological distress is often discouraged and may even be viewed as a weakness (Renshaw, Rodrigues, & Jones, 2009; Visco, 2008). Hoge et al. (2004) studied 4 U.S. combat infantry units (3 Army and 1 Marine Corps unit) before and after return

from deployment to Iraq and Afghanistan. They found those service members whose responses were positive for mental health problems were twice as likely as those whose responses were negative to report concern about possible stigmatization and other barriers to seeking mental health care. Several common themes emerge in the literature regarding stigma in the military. Service members often express concern that it might harm their military career, or they would be considered weak by their peers or leadership if they were to seek mental health care (Hoge et al., 2004). Consequently, there are some veterans who may be experiencing mental health problems who have not sought help because of stigma.

The reluctance to seek care due to stigma can have public health implications. The military and the Veterans Administration should consider putting in place more readily available outreach programs. Ensuring that the military leadership is better informed regarding stigma and its consequences, may pave the way to healthier attitudes towards seeking mental health care among military members. Secondly, the current models of health care delivery, in the military may need to be changed in order to provide available mental health care along with primary care clinics (Hoge et al., 2004). Furthermore, confidential counseling services should made available for veterans, that include counseling services provided by combat veterans certified in mental health counseling.

"Perhaps the real patient is not the individual with the mental health problem, but instead the military culture itself" (Langston, Gould, & Greenburg, 2007, p. 934). The "culture" of the military often prevents those who in need of help for mental health problems to not ask for help. It is often a culture that sends the message "deal with it".

The culture of the military may sometimes contribute to the barriers to care, and to stigma. Long term anti stigma programs which take into account military culture need to address how to reduce organizational barriers so that service members will feel more comfortable seeking help outside of their immediate community of peers (Langston, Gould, & Greenburg, 2007). Furthermore, there is a need for organizational policies and programs aimed at supporting service members in getting mental health care. These policies and programs should be acceptable to military leadership as well as mental health professionals treating service members (Langston et al., 2007).

Education

Veterans who have deployed to a combat zone and are exposed to traumatic events are a vulnerable population. Although other vulnerable populations are included in nursing courses/curricula that study this cohort, the unique wellness and health care needs of this vulnerable population often are ignored. If we consider this from a public health prospective, it would be important to include in the curriculum how the health promotion role of the nurse should be defined with regards to the combat veteran. In addition nurses need to be taught how to how assess the health risks and wellness needs of combat veterans.

From a community nursing standpoint, there is a need for public health nurses in both the military and civilian sectors to conduct wellness needs assessments with veteran focus groups that will help to inform program planning. The data from the veterans' focus groups will in turn help community health nurses to identify and define the unique health care needs of this population, leading to more specifically tailored healing and wellness programs. More programs should be available that are specifically designed to

assist combat veterans in their healing process. Examples of such programs are: "Combat Paper" a program where wounded warriors can turn combat fatigues into paper and an art form, which is used as a means to express their feelings regarding their combat experiences and assist them in the healing process. Another successful program, "Birds of a Feather," is a work therapy program where homeless veterans and birds that have been abused mend their wounds while veterans develop skills and earn a salary. The Serenity Parrot Sanctuary is on the grounds of the Veterans Affairs Hospital in Los Angeles, the first bird rescue on government property in the U.S.

Practice

This study focused on identifying stressors of deployment to a combat environment and how these stressors were related to well-being. The importance of identifying these stressors cannot be minimized. This study identified several perceived stressors of combat using the Defense Risk and Resilience Inventory. These preliminary findings suggest that nurses could use the Defense Risk and Resilience Inventory as a screening and interventional tool with other veteran populations to identify those veterans at risk for experiencing a more stressful transition upon return home. Moreover, study findings regarding stressors can be useful for enhancing nurses and other clinicians understanding of how one stressor may impact another, and put the combat veteran at risk for poor adjustment or maladaptation post deployment.

Family members are intricately involved with the healing process of traumatized veterans (Reeves, Parker, & Konkle-Parker, 2005). For this reason, both family members and veterans themselves can benefit from family counseling, workshops, and education. It is of upmost importance that nurses and other clinicians caring for these combat

veterans include families in the treatment and healing process. Lastly, it should be taken into consideration that reservists that have experienced combat will seek care in the civilian health care system. Consequently, it is imperative that civilian nurses and other civilian health care providers are cognizant of the risk and resilience factors that may impact veteran health and well-being.

Study Limitations

There were limitations to the current study that should be considered when interpreting the results. The study had several limitations in regards to the sample and sampling technique. The sample only included service members from two branches of the armed forces and from one geographic area of the United States, thus limiting the generalizability of the findings. Furthermore, targeting U.S. Marines and Sailors from only one Marine Division may have resulted in sampling bias, as those selected may not have been representative of all U.S. Marines and Sailors. In addition, the study findings are representative of Marines and Sailors at highest risk for combat exposure and not generalizable to the Marine population at large or to the population of all Marines and Sailors who have deployed. Another limitation of the sample is that it only included a very small percentage of women veterans (3%).

It should also be noted that because personal experiences during deployment are diverse, generalization of these findings to other deployed veteran cohorts may be limited. There could also be a risk for distortion of deployment experiences and perceptions due to recall bias, since it may have been many years since some of the Marines and Sailors deployed to Iraq or Afghanistan. The small sample size (n=38) may have caused a Type II error to occur, consequently with no rejection of the Null

Hypothesis. A larger sample size may have resulted in statistically significant findings related to well-being and deployment stressors.

The study had a poor response rate (12 participants out of 460) for the online participation through Survey Monkey, leading the researcher to explore possible reasons. One possibility is that the questionnaires for the deployment and combat stressors were lengthy and took most participants on the average 30-40 minutes to complete. It may have been more helpful if the researcher would have limited the constructs to several such as, unit support, family concerns, and combat experiences instead of having six constructs for participants to identify stressors. Another concern which may have contributed to the poor response rate is the fact that deployed service members (both active duty and reserve) are required to complete both pre and post deployment surveys. Consequently, they may be less likely to fill out questionnaires about deployment experiences when they are not mandatory.

Another possible explanation for the poor response rate may have been due to the fact that the U.S. Marines and Sailors did not have an opportunity to meet with the researcher prior to participating in the study, as did the Marines and Sailors who did a paper and pencil version of the questionnaires (n=26). In addition, the instruments asked questions about actual combat experiences which may have been uncomfortable for some combat veterans, and they may have opted not to participate in the study for that reason. It is also noteworthy to mention that the U.S. Marine battalion that the study sample was drawn from had lost many of its Iraq and Afghanistan veterans through attrition. Thus, leaving few Marines and Sailors in the two local Reconnaissance companies that met the inclusion criteria and thus eligible to participate in the study. Lastly, it should be

considered that the reliance on self-report measures can be problematic for a military population, where admitting to psychological distress is frequently discouraged (stigma).

Recommendations for Future Studies

Serving in a combat environment is extremely stressful and forces participants to face possible injury, loss and death. Service members serving in a combat zone must use extreme violence to accomplish mission objectives. Often they find themselves a target of extreme violence and in an act of self-preservation, use extreme violence. Although most military personnel do not develop mental health disorders as a result of combat zones stressors, they can still experience emotional distress that could lead to the development of psychological disorders later on.

When examining the literature, this is one of the first that identifies deployment/combat stressors and examines the relationship of the stressors to veteran health and well-being. It can be considered a pilot study that can be replicated with the following recommendations.

1. Use of a probability sampling method for future studies is recommended. Furthermore, units deploying to a combat environment in the future could be randomly selected from other units know to deploy to a combat environment. These measures would decrease the risk of selection bias inherent in this study.
2. Replication of the study using a larger sample size may decrease the risk of type II error occurring (Pyrczak, 2004). Thus, using a larger sample might result in the rejection of the Null hypothesis and statistically significant findings.

3. Replication of this study using only female service members. Research has shown that deployed women service members may perceive stressors differently than their male counterparts (Ritchie, 2001); Vogt et al., 2005). Thus, further research is warranted that explores the deployment stressors experienced by women veterans.
4. To assure study findings are more generalizable to other veteran groups, it is recommended that it be replicated using participants from other U.S. Marine Divisions and other branches of service Army, Army National Guard, Navy, Air Force and Coast Guard to assure more of study findings.
5. Although national guard and reserve military personnel are serving longer deployments and are more integrated into everyday combat and military operations with their active duty counterparts, there is still research to support that there are differences in what they may perceive as stressful while deployed (LaBash et al., 2009; Renshaw, Rodrigues, and Jones, 2009). Therefore, it is recommended that this study be replicated using an active duty U.S. Marine population.
6. This study did not find that perceived deployment stressors significantly affected participant well-being. Nonetheless, many studies have suggested that service members deployed to a combat environment are at greater risk for developing mental and physical health problems upon return from deployment. (Fontana & Rosenheck, 2008; Fuller, 2004; Milliken et al., 2004; Quershi et al., 2009; Reeves et al., 2005). Therefore, it is important that nurses and other health care providers, both civilian and military are better

informed regarding the stressors faced by combat veterans, in order to provide health care that meets the unique needs of our returning war fighters.

7. Focus future research on understanding the effect that the pressure and ambiguity of insurgency warfare may have on health outcomes (La Bash et al., 2009).
8. Deployment length, the number of times deployed, and the time spent at home between deployments (dwell time) may impact veteran health and well-being (Alder et al., 2005; Kline et al., 2010; McGregor et al., 2012). Additional research is needed that focuses on the impact of increasing length and number of deployments and dwell time on the well-being of military personnel.

APPENDICES

Appendix A
Deployment Risk and Resilience Inventory

DRRI

A Survey of Experiences Before, During, and After Military Deployment

This survey contains questions regarding your experiences before, during, and after military deployment. No one has had exactly the same experiences that you have had, so your input is very important. There are no right or wrong answers.

Be sure to answer every statement, and press firmly on the page when circling your responses. If you want to change your response, please place an "X" over your original answer, and then circle the more appropriate response.

The survey was prepared with support from the Department of Defense and the Department of Veterans Affairs (PG Grant DoD-87), Drs. Daniel W. King and Lynda A. King, Co-Principal Investigators, Dr. Dawne Vogt, Project Coordinator. **For inquiries or further information, please contact Dr. Dawne Vogt at NCPTSD, 116B-5, VA Boston, 150 S. Huntington Ave., Boston, MA 02130; Phone: 617-232-9500, ext. 5976; Email: Dawne.Vogt@med.va.gov**

SECTION C: TRAINING AND DEPLOYMENT PREPARATION

Below are several statements about how well prepared you were by the military for your deployment. Please describe how much you agree or disagree with each statement by circling the number that best fits your answer.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1. I had all the supplies and equipment needed to get my job done.	1	2	3	4	5
2. The equipment I was given functioned the way it was supposed to.	1	2	3	4	5
3. I received adequate training on how to use my equipment.	1	2	3	4	5
4. I knew how to treat animal bites, insect stings, or allergic reactions to plants in the region.	1	2	3	4	5
5. I received adequate training on what to do in case of a nuclear, biological, or chemical (NBC) attack.	1	2	3	4	5
6. I had enough gear to protect myself in case of a nuclear, biological, or chemical (NBC) attack.	1	2	3	4	5
7. I received adequate training on how to perform daily life activities while wearing nuclear, biological, or chemical (NBC) protective gear.	1	2	3	4	5
8. I was adequately prepared to deal with the region's climate.	1	2	3	4	5
9. I was accurately informed about what to expect from the enemy.	1	2	3	4	5
10. I saw as much combat as I expected.	1	2	3	4	5
11. I was informed about the role my unit was expected to play in the deployment.	1	2	3	4	5
12. When I was deployed I had a pretty good idea of how long the mission would take to complete.	1	2	3	4	5
13. I was accurately informed of what daily life would be like during my deployment.	1	2	3	4	5
14. I was adequately trained to work the shifts required of me during my deployment.	1	2	3	4	5

SECTION E: LIFE & FAMILY CONCERNS

The following set of statements refers to concerns you may have had related to your life and family back home while you were deployed. These questions do not ask if these events actually occurred, but only how concerned you were that they might happen while you were deployed. Please describe how concerned you were for each item by circling the number that best fits your answer.

While I was deployed, I was concerned about…	Not applicable	Not at all	A little	Moderately	A great deal
1. …missing out on a promotion at my job back home.	0	1	2	3	4
2. …missing out on opportunities to start a career while I was away.	0	1	2	3	4
3. …damaging my career because I was overseas for a long time.	0	1	2	3	4
4. …losing touch with my co-workers or supervisors back home.	0	1	2	3	4
5. …being unable to financially support my family while I was away.	0	1	2	3	4
6. …harming my relationship with my spouse/significant other.	0	1	2	3	4
7. …being left by my spouse/significant other.	0	1	2	3	4
8. …missing out on my children's growth and development while I was away.	0	1	2	3	4
9. …losing touch with my friends.	0	1	2	3	4
10. …missing important events at home such as birthdays, weddings, funerals, graduations, etc.	0	1	2	3	4
11. …the well-being of my family or friends while I was away.	0	1	2	3	4
12. …my inability to help my family or friends if they had some type of problem.	0	1	2	3	4
13. …my inability to directly manage or control family affairs.	0	1	2	3	4
14. …the care that my children were receiving while I was away.	0	1	2	3	4

SECTION F: UNIT SUPPORT

The statements below are about your relationships with other military personnel while you were deployed. Please read each statement and describe how much you agree or disagree by circling the number that best fits your answer.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1. My unit was like family to me.	1	2	3	4	5
2. I felt a sense of camaraderie between myself and other soldiers in my unit.	1	2	3	4	5
3. Members of my unit understood me.	1	2	3	4	5
4. Most people in my unit were trustworthy.	1	2	3	4	5
5. I could go to most people in my unit for help when I had a personal problem.	1	2	3	4	5
6. My commanding officer(s) were interested in what I thought and how I felt about things.	1	2	3	4	5
7. I was impressed by the quality of leadership in my unit.	1	2	3	4	5
8. My superiors made a real attempt to treat me as a person.	1	2	3	4	5
9. The commanding officer(s) in my unit were supportive of my efforts.	1	2	3	4	5
10. I felt like my efforts really counted to the military.	1	2	3	4	5
11. The military appreciated my service.	1	2	3	4	5
12. I was supported by the military.	1	2	3	4	5

SECTION H: DEPLOYMENT CONCERNS

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

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1. I thought I would never survive.	1	2	3	4	5
2. I felt safe.	1	2	3	4	5
3. I was extremely concerned that the enemy would use nuclear, biological, chemical agents (NBCs) against me.	1	2	3	4	5
4. I felt that I was in great danger of being killed or wounded.	1	2	3	4	5
5. I was concerned that my unit would be attacked by the enemy.	1	2	3	4	5
6. I worried about the possibility of accidents (for example, friendly fire or training injuries in my unit).	1	2	3	4	5
7. I was afraid I would encounter a mine or booby trap.	1	2	3	4	5

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
8. I felt secure that I would be coming home after the war.	1	2	3	4	5
9. I thought that vaccinations I received would actually cause me to be sick.	1	2	3	4	5
10. I was concerned that the tablets I took to protect me would make me sick.	1	2	3	4	5
11. I felt that I would become sick from the pesticides or other routinely used chemicals.	1	2	3	4	5
12. I was concerned about the health effects of breathing bad air.	1	2	3	4	5
13. I thought that exposure to depleted uranium would negatively affect my health.	1	2	3	4	5
14. I was afraid that the equipment I was given to protect me from nuclear, biological, chemical agents (NBCs) would not work.	1	2	3	4	5
15. I worried about getting an infectious disease.	1	2	3	4	5

SECTION I: COMBAT EXPERIENCES

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

While deployed:

1. I went on combat patrols or missions.	Yes	No
2. I or members of my unit encountered land or water mines and/or booby traps.	Yes	No
3. I or members of my unit received hostile incoming fire from small arms, artillery, rockets, mortars, or bombs.	Yes	No
4. I or members of my unit received "friendly" incoming fire from small arms, artillery, rockets, mortars, or bombs.	Yes	No
5. I was in a vehicle (for example, a truck, tank, APC, helicopter, plane, or boat) that was under fire.	Yes	No
6. I or members of my unit were attacked by terrorists or civilians.	Yes	No
7. I was part of a land or naval artillery unit that fired on the enemy.	Yes	No
8. I was part of an assault on entrenched or fortified positions.	Yes	No
9. I took part in an invasion that involved naval and/or land forces.	Yes	No
10. My unit engaged in battle in which it suffered casualties.	Yes	No
11. I personally witnessed someone from my unit or an ally unit being seriously wounded or killed.	Yes	No

12. I personally witnessed soldiers from enemy troops being seriously wounded or killed.	Yes	No
13. I was wounded or injured in combat.	Yes	No
14. I fired my weapon at the enemy.	Yes	No
15. I killed or think I killed someone in combat.	Yes	No

SECTION J: POST-BATTLE EXPERIENCES

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

1. I observed homes or villages that had been destroyed.	Yes	No
2. I saw refugees who had lost their homes and belongings as a result of battle.	Yes	No
3. I saw people begging for food.	Yes	No
4. I or my unit took prisoners of war.	Yes	No
5. I interacted with enemy soldiers who were taken as prisoners of war.	Yes	No
6. I was exposed to the sight, sound, or smell of animals that had been wounded or killed from war-related causes.	Yes	No
7. I took care of injured or dying people.	Yes	No
8. I was involved in removing dead bodies after battle.	Yes	No
9. I was exposed to the sight, sound, or smell of dying men and women.	Yes	No
10. I saw enemy soldiers after they had been severely wounded or disfigured in combat.	Yes	No
11. I saw the bodies of dead enemy soldiers.	Yes	No
12. I saw civilians after they had been severely wounded or disfigured.	Yes	No
13. I saw the bodies of dead civilians.	Yes	No
14. I saw Americans or allies after they had been severely wounded or disfigured in combat.	Yes	No
15. I saw the bodies of dead Americans or allies.	Yes	No

Appendix B
Permission to Use Instrument

Dear Sir or Madam:

Thank you for your interest the Deployment Risk and Resilience inventory (DRRI[1]). Enclosed is the complete suite of DRRI scales and the DRRI informational packet[2] (including scoring instructions, a description of the development of the instrument, and its psychometric properties), along with a **brief informational form for you to complete and return at your earliest convenience**. We request that all individuals or groups who receive the DRRI complete this form so that we can keep track of the use of this instrument. Please make sure to provide complete and accurate contact information.

This form can be returned via **EMAIL** to:
Emily.Scheiderer@va.gov

FAX to (857) 364-6520

OR MAIL to Emily Scheiderer, Women's Health Sciences Division (116B-3), National Center for PTSD, VA Boston Healthcare System, 150 S. Huntington Ave., Boston, MA 02130.

The DRRI was developed in a collaborative effort by Drs. Daniel King, Lynda King, and Dawne Vogt. It is a psychometrically sound set of scales assessing predeployment/prewar, deployment/war-zone, and postdeployment/postwar risk and resilience factors for stress-related illnesses. Each DRRI scale may be used on its own; alternatively, you are welcome to use all of the scales together.

Importantly, at this stage, the DRRI is intended primarily for research purposes. While it has not yet been validated as a clinical instrument and there are no established clinical norms, it may be used in the clinical setting to gather information that can assist the clinician in understanding the client's range of deployment experiences and to inform decisions regarding the administration of appropriate diagnostic tools.

If you choose to use a scale or scales from the DRRI for a research study, and your IRB agreement allows, we would appreciate if you would provide us with a computer file containing your participants' *anonymous* item responses on the DRRI scale or scales that you administer. The data will be used *for psychometric purposes only*, to accumulate an integrated database for future norms.

If you have any questions, please feel free to contact Emily Scheiderer, DRRI Project Assistant, by telephone at (857) 364-6293 or by email at Emily.Scheiderer@va.gov.

Thank you.

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[1] The DRRI was prepared with support from the Department of Defense and the Department of Veterans Affairs (PG Grant DoD-87).

[2] King, D. W., King, L. A., & Vogt, D. S. (2003). *Manual for the Deployment Risk and Resilience Inventory (DRRI): A Collection of Measures for Studying Deployment-Related Experiences of Military Veterans*. Boston, MA: National Center for PTSD.

Appendix C
General Well-being Schedule

The General Well-Being Scale

For each question, choose the answer that best describes how you have felt and how things have been going for you during the past month.

1. How have you been feeling in general?
   5____ In excellent spirits
   4____ In very good spirits
   3____ In good spirits mostly
   2____ I've been up and down in spirits a lot
   1____ In low spirits mostly
   0____ In very low spirits

2. Have you been bothered by nervousness or your "nerves"?
   0____ Extremely so-to the point where I could not work or take care of things
   1____ Very much so
   2____ Quite a bit
   3____ Some-enough to bother me
   4____ A little
   5____ Not at all

3. Have you been in firm control of your behavior, thoughts, emotions, or feelings?
   5____ Yes, definitely so
   4____ Yes, for the most part
   3____ Generally so
   2____ Not too well
   1____ No, and I am somewhat disturbed
   0____ No, and I am very disturbed

4. Have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile?
   0____ Extremely so-to the point I have just about given up
   1____ Very much so
   2____ Quite a bit
   3____ Some-enough to bother me
   4____ A little bit
   5____ Not at all

5. Have you been under or felt you were under any strain, stress, or pressure?
   0___ Yes-almost more than I could bear
   1___ Yes-quite a bit of pressure
   2___ Yes-some, more than usual
   3___ Yes-some, but about usual
   4___ Yes- a little
   5___ Not at all

6. How happy, satisfied, or pleased have you been with your personal life?
   5___ Extremely happy-couldn't have been more satisfied or pleased
   4___ Very happy
   3___ Fairly happy
   2___ Satisfied-pleased
   1___ Somewhat dissatisfied
   0___ Very dissatisfied

7. Have you had reason to wonder if you were losing your mind, or losing control over the way you act, talk, feel, or of your memory?
   5___Not at all
   4___ Only a little
   3___ Some, but not enough to be concerned
   2___ Some, and I've been a little concerned
   1___ Some, and I am quite concerned
   0___ Much, and I'm very concerned

8. Have you been anxious, worried, or upset?
   0___Extremely so-to the point of being sick, or almost sick
   1___Very much so
   2___Quite a bit
   3___Some-enough to bother me
   4___A little bit
   5___Not at all

9. Have you been waking up fresh and rested?
   5___Every day
   4___Most every day
   3___ Fairly often
   2___ Less than half the time
   1___Rarely
   0___ None of the time

10. Have you been bothered by illness, bodily disorder, pain, or fears about your health?
   0___ All the time
   1___ Most of the time
   2___ A good bit of the time
   3___ Some of the time
   4___ A little of the time
   5___ None of the time

11. Has your daily life been full of things that are interesting to you?
   5___ All the time
   4___ Most of the time
   3___ A good bit of the time
   2___ Some of the time

1___ A little of the time
0___ None of the time

12. Have you felt downhearted and blue?
0___ All the time
1___ Most of the time
2___ A good bit of the time
3___ Some of the time
4___ A little of the time
5___ None of the time

13. Have you been feeling emotionally stable and sure of yourself?
5___ All the time
4___ Most of the time
3___ A good bit of the time
2___ Some of the time
1___ A little of the time
0___ None of the time

14. Have you felt tired, worn out, used up, or exhausted?
0___ All the time
1___ Most of the time
2___ A good bit of the time
3___ Some of the time
4___ A little of the time
5___ None of the time

15. How concerned or worried about your health have you been?

Not Concerned At all	10	8	6	4	2	0	**Very concerned**

16. How relaxed or tense have you been?

Very Relaxed	10	8	6	4	2	0	**Very tense**

17. How much energy, pep, and vitality have you felt?

No energy At all, listless	0	2	4	6	8	10	**Very energetic, dynamic**

18. How depressed or cheerful have you been?

Very depressed	0	2	4	6	8	10	**Very cheerful**

Scoring
Add up all the points for the answers you have chosen, and find your score in the table below.

81-110	Positive well-being
76-80	Low positive
71-75	Marginal
56-70	Stress problem
41-55	Distress
26-40	Serious
0-25	Severe

Appendix D
IRB Approval

REPORT OF ACTION: EXEMPT/EXPEDITED REVIEW
University of North Dakota Institutional Review Board

Date: 6/16/2010 **Project Number:** IRB-201006-366

Principal Investigator: Fuller, Abigail

Department: Nursing

Project Title: Perceived Deployment Stressors and Well-Being of Veterans of the Iraq War

The above referenced project was reviewed by a designated member for the University's Institutional Review Board on 6/23/2010 and the following action was taken:

☐ Project approved. **Expedited Review** Category No. _____
Next scheduled review must be before: _____

☐ **Copies of the attached consent form with the IRB approval stamp dated _____ must be used in obtaining consent for this study.**

☒ Project approved. **Exempt Review** Category No. 2
This approval is valid until August 28, 2011 as long as approved procedures are followed. No periodic review scheduled unless so stated in the Remarks Section.

☐ **Copies of the attached consent form with the IRB approval stamp dated N/A must be used in obtaining consent for this study.**

☐ Minor modifications required. The required corrections/additions must be submitted to RDC for review and approval. **This study may NOT be started UNTIL final IRB approval has been received.**

☐ Project approval **deferred. This study may not be started until final IRB approval has been received.**
(See Remarks Section for further information.)

☐ Disapproved claim of exemption. This project requires Expedited or Full Board review. The Human Subjects Review Form must be filled out and submitted to the IRB for review.

☐ Proposed project is not human subject research and does not require IRB review.
☐ Not Research ☐ Not Human Subject

PLEASE NOTE: Requested revisions for student proposals MUST include adviser's signature. All revisions MUST be highlighted.

☒ Education Requirements Completed. (Project cannot be started until IRB education requirements are met.)

cc: Dr. Glenda Lindseth

Michelle L. Bartholet 6/23/2010
Signature of Designated IRB Member Date
UND's Institutional Review Board

If the proposed project (clinical medical) is to be part of a research activity funded by a Federal Agency, a special assurance statement or a completed 310 Form may be required. Contact RDC to obtain the required documents.

(Revised 10/2006)

Appendix E
Demographic Questionnaire

Demographic Questionnaire

Please do not write your name on this questionnaire. Clearly mark the response that corresponds to your answer for each of the following questions:

I. I am:

__ Female __ Male

II. What is your age group?

__ 18 - 24 yr

__ 25 - 29 yr

__ 30 - 39 yr

__ 40 or older

III. What is your marital status?

__ Single

__ Married

__ Separated or divorced

__ Other

IV. Which of the following group(s) do you identify with?

__ Caucasian

__ African American

__ Hispanic/Latino

__ Native American/Alaskan Native

__ Asian American

__ Other

V. What is your education level?

__ High School Graduate or less

__ Some College

__ College Graduate

VI. What is your military status?

__ E-1 - E-4

__ E-5 – E-6

__ E7 - E-9

__ Officer

VII. What was your duty status/deployment role?

__ Combat Arms

__ Combat Support

__ Service Support

VIII. How many times did you deploy to Iraq?

__ 1

__ 2

__ 3 or more

IX. How many times did you deploy to Afghanistan?

__ 1

__2

__3 or more

X. What is the total number of months that you have been deployed since 2003?

_____

Appendix F
Permission From Commanding Officer Letter

UNITED STATES MARINE CORPS
4th RECONNAISSANCE BATTALION
4TH MARINE DIVISION
W.J. BORDELON NAVAL AND MARINE CORPS RESERVE CENTER
3837 BINZ ENGLEMAN ROAD
SAN ANTONIO, TEXAS 78219-2235

IN REPLY REFER TO:
1000
Admin
07 June 11

From: Commanding Officer
To: Abigail Fuller, CDR, USN (Ret), PhD(c), RN

Subj: 4TH RECONNAISSANCE BATTALION'S RESEARCH SUPPORT FOR MS. ABIGAIL FULLER

1. Ms. Fuller 4th Reconnaissance Battalion will be happy to support your research study, *Perceived Deployment Stressors and Well-being among Veterans of Iraq and Afghanistan.* I believe your study has merit and the findings will lead to a better understanding of the stressors experienced by service members when deployed to a combat environment.

2. 4th Reconnaissance Battalion Marines and Sailors should be advised that if they choose to participate in the research study; the questionnaires should be completed on their own time. In addition, those Marines and Sailors who choose not to participate in the study should be informed that this will not affect their military careers in any way. Please let me know if I can be of further assistance.

R. J. COATES

Appendix G
Letter to Participants

UNIVERSITY OF UND NORTH DAKOTA

COLLEGE OF NURSING
NURSING BUILDING
430 OXFORD STREET STOP 9025
GRAND FORKS ND 58202-9025
(701) 777-4174
FAX (701) 777-4096

INVITATION TO PARTICIPATE IN RESEARCH

Dear Warrior,

You are invited to be in a research study to explore relationships between perceived stressors of deployment and the health and well-being of service members deployed to Iraq and Afghanistan. Significant findings of the study could result in more effective reintegration programs for service members. Consequently, improving health care for the returning warfighter.

My name is Abbey Fuller, and I am a Doctoral student at the University of North Dakota. I am also a Persian Gulf War veteran and a Navy nurse who retired in 2009 after 22 years of service. I would like to ask you to participate in my dissertation research, *Perceived Deployment Stressors and Well-being among Veterans of Iraq and Afghanistan.* Participating in this study should take no more than one hour of your time, and at your request I would be glad to provide you with a summary of the results upon conclusion of the study.

If you decide to take part in the study, you will be asked to complete the following questionnaires: the Deployment Risk and Resilience Inventory, the General Well-being Schedule, and a few demographic questions. Your responses will remain anonymous. There will be no identifying information asked on any surveys. All data will be reported as group data.

Your decision to take part in this study is voluntary. Your decision of whether or not to participate will not affect your military career in any way. If you decide to participate, you are completely free to withdraw at any time without risk of penalty. Completion of the questionnaires on line via Survey Monkey will be considered as your consent to participate in the study. The web link to access the survey/questionnaires is: https://www.surveymonkey.com/s/DeployNavyMarines.

There are no anticipated physical, psychological, social, legal, or other risks for participating in the study. The only inconvenience may be the time required for participating in the study, approximately one hour. The potential benefits of this study should outweigh any possible risks. Participating in a study such as this may help you gain a better understanding about stressors you experienced while deployed and how they may affect your health and well-being.

Due to the sensitive nature of some of the questionnaires (e.g. questions about combat and post battle experiences); it is possible that some of you could feel some emotional discomfort. If this should occur, you have the option of withdrawing from the research study at any time. Contact information for mental health assistance will be provided for you on the survey website.

If you should have any questions concerning this study, please contact Ms. Abbey Fuller, Primary Researcher, at 210-215-3557; Dr. Glenda Lindseth, Chair of Advisory Committee at 701-777-4174; or the University of North Dakota's Institutional Review Board at 701-777-4279.

Thank you for your assistance.

Sincerely,

Abigail Fuller, MSN, RN
CDR, NC, USN (Ret)

Appendix H
Approval Email From Research Department Wilford Hall Medical Center

From: CALCOTE, ROCKY D GS-14 USAF AETC 59 CRD/SGVUL [rocky.calcote.1@us.af.mil]
Sent: Monday, July 09, 2012 5:32 PM
To: WILSON, CANDY S LtCol USAF AETC 59 CRD/SGVUS
Cc: Fuller, Abigail
Subject: RE: UND student research

LtCol Wilson, Candy, the IRB of Record would be the Univ. of North Dakota IRB which granted Dr. Fuller's expedited approval for her study. They would have regulatory oversight for her study until it is completed. The UND IRB would be responsible to ensure human subject protection for her study. Hope this answers your question. Take care!!

ROCKY D. CALCOTE, PhD, USAF, Col(Ret)
Clinical Research Administrator
59th CSPG/SGVUS
2200 Bergquist Drive, Bldg 4430
Lackland AFB, TX 78236
Office: (210) 292-5203 DSN: [554]
FAX: (210) 292-7121

----Original Message----
From: WILSON, CANDY S LtCol USAF AETC 59 CRD/SGVUS
Sent: Monday, July 02, 2012 2:15 PM
To: CALCOTE, ROCKY D GS-14 USAF AETC 59 CRD/SGVUL
Cc: abigail.fuller@my.und.edu
Subject: UND student research

Greetings Dr. Calcote,

Would you respond to this e-mail regarding Dr. Abigail Fuller's research when she was a student at Univ of North Dakota about IRB oversight?

If you recall, She received expedited approval from Univ of North Dakota since she was a student there. Then she received approval from the leadership when she collected survey data. The reason for a written response is for her dissertation committee to ensure human subject protection was assured.

Thank you for your time,

Candy Wilson, Lt Col, USAF, NC
PhD, APRN, WHNP-BC
59 Clinical Research Division Support Branch Chief
59 MDW Senior Nursing Research Scientist
59 CSPG/SGVUS
2200 Bergquist Dr.
Lackland AFB, TX 78236
comm (210) 292-7363
DSN 554-7363
(210) 292-6053 fax
https://kx.afms.mil/nurseresearch

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