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I GET BY WITH A LITTLE HELP FROM MY FRIENDS: THE BUFFERING EFFECTS OF UNIT-LEVEL MODERATORS ON THE COMBAT EXPOSURE-MENTAL HEALTH RELATIONSHIP

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ABSTRACT

Combat exposure has been linked to various negative outcomes, both physical (e.g., severed limbs, decreased health behaviors, mild traumatic brain injury) and mental (e.g., posttraumatic stress disorder [PTSD], depression, anxiety, substance abuse). Additionally, the military is limited in the ways in which it can protect service members from experiencing negative outcomes of war. The present study examined how the unit-level variables of perceived organizational support, job self-efficacy, and unit morale moderate the relationship between combat exposure and (a) depression and (b) anxiety within the framework of the Soldier Adaptation Model. Soldiers who had previously deployed to Iraq for 15 months were surveyed at two time points (4 months and 10 months following return from deployment). The hypothesized cross-level buffering effects of unit-level perceived organizational support, job self-efficacy, and unit morale were not supported in the current study. However, significant relationships were found with the Time 1 data. A within-level buffering effect of perceived organizational support on the relationship between combat exposure and (a) depression and (b) anxiety outcomes was observed. Additionally, a contextual main effect of unit-level perceived organizational support, job self-efficacy, and unit morale was found such that soldiers in units higher in each variable reported fewer (a) depression and (b) anxiety symptoms. Implications and limitations of the current study are discussed.

DEDICATION

To my husband, James, who has tirelessly supported each and every one of my personal and academic endeavors.

To my grandmother, who taught me the value of education.

Finally, to my mother, who has constantly been my cheerleader and has always had unwavering faith in me. I love you, mom.

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Finally, to all service members, current and past, thank you for your service.

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INTRODUCTION

The United States has been fighting a multi-faceted, international war for over 10 years. This conflict has been characterized by the repeated and extended deployment of troops, resulting in increased exposure to combat (Adler, Huffman, Bliese, & Castro, 2005; Britt, Adler, Bliese, & Moore, 2012; Castro & Adler, 2011; US Joint Health Advisory Team 7 Report, 2011). Combat exposure has been linked to numerous negative health consequences, including physical (e.g., missing limbs, decreased health behaviors, mild traumatic brain injury) and mental (e.g., posttraumatic stress disorder [PTSD], depression, anxiety, substance abuse) outcomes.

In terms of physical outcomes of exposure to combat as of November, 2012, over 49,000 U.S. Military service members have been wounded in action, while 6,498 military personnel involved in Operation Enduring Freedom (OEF) or Operation Iraqi Freedom (OIF) have been killed (Department of Defense, 2012). A study detailing service member battle injuries during the period of 2001-2005 examined a subsample of 1,566 service members with 6,609 documented combat wounds (Owens et al., 2008). Seventy-nine percent of documented injuries occurred via explosion, with IEDs being the most common. Gunshot wounds (19%) and motor vehicle crashes (2%) comprised the remainder of the injuries (Owens et al., 2008).

Service in the Armed Forces constitutes a unique occupational context, as members of the military are essentially employees of the government. Therefore, it can be argued that the injuries sustained as part of one's service are occupational injuries and should be treated as such (Castro & Adler, 2011); that treatment should include trying to

reduce the negative outcomes of occupational stressors. Service members who are currently injured may be on leave or reduced duty, which in turn reduces their performance. Reduced performance can be costly to the government and can also pose problems with ensuring adequate staffing.

Additionally, the military is limited in the ways in which it can protect service members from experiencing negative outcomes of war. Combat exposure, a known and powerful antecedent of negative mental health outcomes for soldiers (Hoge et al., 2004), is practically unavoidable during times of war (Bliese & Castro, 2003). Therefore, the military must explore alternative avenues through which negative outcomes (including mental health) can be alleviated.

Purpose of the current study

The current study examined how unit-level variables may moderate the combat exposure-mental health outcome relationship. The study focused on the ability of the constructs of unit-level perceived organizational support, unit-level job self-efficacy, and unit-level morale to act as moderators of the stressor-strain relationship. A multi-level perspective was taken as it is expected that significant unit-level variability exists in unit perceived organizational support, job self-efficacy, and morale and this variability differentially affects individual-level outcomes and the relationships between combat exposure and individual-level outcomes. This approach responds to the calls by several researchers for more research looking at multi-level studies within an occupational health psychology context (Bliese & Jex, 2002) and within the field of perceived organizational

support (Baran, Shanock, & Miller, 2012). The current study sought to add information to both domains.

The study also includes novel components. Specifically, the multi-level view of morale is a novel contribution, as I know of no other published studies which have examined unit-level morale. Additionally, no other studies have used a multi-level analysis of perceived organizational support as a buffer against negative mental health outcomes. Also, this study adds to the literature on group-level efficacy (specifically, job self-efficacy), as suggested by Chan (1998).

Furthermore, the use of generalized anxiety disorder symptoms as an outcome of combat exposure is an area of research where not much work has been done regarding soldiers and veterans of the current conflict. Many studies looking at adverse outcomes of service members include PTSD, but neglect symptoms of generalized anxiety disorder. The current study will help in rendering a more complete picture of mental health outcomes in active-duty soldiers and characteristics of the environment that may help to ameliorate negative outcomes, the results of which may aid the military in both preventing undesirable outcomes and treating soldiers.

The current paper studied the relationship between combat exposure and mental health outcomes, namely depression and anxiety, in an active duty Army sample. Moreover, the paper examined possible unit-level buffers of this relationship, such as morale, job self-efficacy, and perceived organizational support (POS). These relationships were examined within the context of the Soldier Adaptation Model.

Soldier Adaptation Model

The Soldier Adaptation Model (SAM) is a framework commonly used to unify constructs in the domain of military stress research, including antecedents (stressors), outcomes, and moderators (Bliese & Castro, 2003; see Figure 1 for the model as it is used in the current study). The SAM acts as a meta-theory, allowing those conducting military research to see over-arching relationships and to draw upon similar and embedded theories within the model (i.e., job demands-control model (Karasek, 1979), job demands-resource model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001)). Bliese and Castro (2003) suggested the SAM be used to "test the boundaries" (p. 186) of the theories embedded within the model, which the current study does through examination of an uncommon occupational stressor (combat exposure) and negative mental health related outcomes. The SAM consists of three separate components, stressors, strains, and moderators.

Stressors. Stressors are events occurring in one's environment which necessitate changes, physiological and/or behavioral, in order to accommodate the effects of the event (Selye, 1973). The SAM specifically focuses on military stressors experienced by soldiers. For example, soldiers in garrison may experience stressors similar to those faced by civilians at work, such as work overload, role ambiguity, or work-family conflict (Campbell & Nobel, 2009). Likewise, soldiers deployed in non-combat zones (i.e., peace-keeping missions) may face stressors such as social isolation, lack of privacy, or task (in)significance (Bliese & Castro, 2003). Finally, soldiers deployed in combat zones may experience stressors related to their work (e.g., mission ambiguity), isolation from family,

and those stressors originating from exposure to combat (Bliese & Castro, 2003). In the current study, the primary stressor examined will be combat exposure.

Strain. Strains are the outcomes or products of stressors in the SAM (Bliese & Castro, 2003). The SAM contains three broad categories of possible outcomes: attitudes, performance, and health. Attitude related outcomes focus on how soldiers perceive their work environment and employment relationship. Performance outcomes in the SAM are analogous to performance outcomes measured in Industrial-Organizational psychology (e.g., task performance, non-task related work behaviors). Health related outcomes assessed in military research commonly address issues of general well-being, depression, and physical health symptoms (Bliese & Castro, 2003). The current study will focus on health-related outcomes, particularly mental health, outcomes of combat exposure.

Moderators. Moderators are variables that can intensify or attenuate the relationship between a stressor and a strain. However, the SAM generally focuses on moderators that lessen the effects of a potentially harmful stressor. Moderators represent a key part of the SAM because interventions focusing on moderating variables are often the only tool the military has to protect its members, as soldiers fighting a war cannot be exposed to less combat in the same way office workers can have perceived role overload reduced (Bliese & Castro, 2003). Additionally, the moderators of stressor-strain relationships are known to exist in a multi-level framework (Bliese & Castro, 2003). That is, in addition to individual perceptions of psychological phenomena, the service member's unit may also, as a group, perceive the same phenomena, which can have an influence on how soldiers cope with stressors such as combat.

Individual-level moderators are simply characteristics of service members or factors within their environment, which may act to reduce (or increase) the effect of a stressor. For example, an individual's dispositional optimism may act as a moderator such that those individuals higher in optimism experience fewer negative outcomes (Scheier & Carver, 1987; Thomas, Britt, Odle-Dusseau, & Bliese, 2011). While much of the research in psychology focuses on individual-level analysis, Bliese and Jex (2002) note that relationships studied only at the individual level fail to consider the impact of context on a given outcome. The authors note that context is likely to impact "all aspects of the occupational health process" in that individuals will take cues from the environment not only in appraising how stressful something might be, but also how they respond to the stressor (Bliese & Jex, 2002, p. 267).

Johns (2006) defines context as "situational opportunities and constraints that affect the occurrence and meaning of organizational behavior as well as functional relationships between variables" (p. 386). Johns argues that the effects of context are both "subtle and powerful" (p. 386), meaning that the effects of context can potentially be far reaching. Additionally, Johns points out that researchers often try to "control" for the effects of context or ignore context altogether, even though context is often implicated in explaining counterintuitive or anomalous results. However, Johns makes the case that context should be studied more directly and one suggestion given is to increase the amount of research done on cross-level relationships where context can affect individual-level relationships.

Unit and organizational level moderators allow researchers to take into account the larger context and its effects on individual's behavior. The use of unit-level variables as moderators is particularly beneficial as it allows researchers to see the effect the environment has on an individual-level process, such as the stressor-strain relationship (Bliese & Castro, 2003; Bliese & Jex, 2002). Climate, the shared perceptions of individuals about the policies, procedures and practices within a given organization, is thought to operate through this context (Schneider, Ehrhart, & Macey, 2011).

In understanding how unit-level moderators affect individual stressor-strain relationships, it is necessary to understand how multi-level models are conceptualized. Kozlowski and Klein (2000) described two ways in which multi-level models may be conceptualized: top-down processes and bottom-up processes. Top down processes can be described as organizational contextual processes that can either have a direct effect on lower level "units" or have a moderating effect on relationships at lower levels. For example, organizational culture may moderate a lower-level relationship, such as the relationship between safety beliefs and accidents. The current study will employ a bottom-up framework for the moderator variables. Bottom-up processes occur when lower-level data are combined in order to represent constructs at a higher level (Bliese, 2000; Kozlowski & Klein, 2000). Kozlowski and Klein refer to bottom-up processes as emergence. That is, when lower-level data are combined, a new construct "emerges" which may not have been detectable previously.

Additionally, two types of bottom-up processes are specified by Kozlowski and Klein: compilation and composition. Compilation models aggregate lower-level data, but

the aggregate is expected to be distinct from the lower-level data. For example, aggregating group gender will create a measure of group diversity (see Bliese, 2000). Composition models are based on the idea that the aggregated variable is expected to be isomorphic (i.e., identical) with the lower-level variables. However, Bliese (2000) has suggested that completely isomorphic variables are rare and introduced the idea of "fuzzy composition" models. Fuzzy composition models are based on the idea that bottom-up, aggregated variables are likely to create a higher-level variable that is both similar to and distinct from the original lower-level variables. That is, the aggregated, higher-level variable now contains additional contextual information that is not captured by the lower-level variable. For example, the variable of unit-level job self-efficacy (discussed in greater detail below) begins with questions about individuals' efficacy to do their jobs and when aggregated to the unit-level, provides additional information about the beliefs of the unit's ability to perform a job. Bliese (2000) suggests that a strength of the fuzzy composition model is its ability to detect emergent phenomena in the aggregated variable which was not able to be detected at the individual level.

At the item level, two types of consensus models are relevant to the current study (although Chan proposed five types of composition models; see Chan, 1998): direct consensus and referent-shift consensus. Direct consensus composition models use the individual as the referent (e.g., I am confident in my ability to perform my job). Individual responses are then aggregated to create a higher-level variable. Referent-shift consensus models also use individual responses but the referent for the item is at a higher level (Biemann, Cole, & Voelpel, 2012; van Mierlo, Vermunt, & Rutte, 2009). For

example, in a referent-shift consensus model, individuals might be asked to rate the morale of their unit. The current study uses both direct consensus and referent-shift consensus. The moderators of perceived organizational support and job self-efficacy are direct consensus while unit morale uses referent-shift consensus.

This study will also use a cross-level moderator design, in that an individual-level relationship will be assessed (i.e., combat exposure – depression and anxiety) but the moderator of that relationship will be aggregated to the unit-level. The rationale for grouping those soldiers together who interact most frequently is that small, immediate groups are expected to exert more influence on individual behavior than are larger, less immediate groups (Bliese & Jex, 2002).

As discussed above, the effect of context can significantly impact lower level relationships. Additionally, there are many ways in which context can be specified. The next sections will cover both the lower level variables and the contextual variables in more depth.

COMBAT EXPOSURE AS AN OCCUPATIONAL STRESSOR

While there is no agreed upon definition of what exactly "combat" entails, soldiers deployed to active combat areas report experiencing multiple, possibly traumatic events. Over 2 million service members have deployed roughly 3.3 million times since 9/11 (Tan, 2009). Multiple deployments increase the likelihood of being exposed to combat with combat exposure being linked to various physical and psychological health outcomes, including posttraumatic stress disorder (PTSD), mood and anxiety disorders, and substance abuse problems (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Additionally, exposure to trauma during combat is increasing among both Army soldiers and Marines (US Joint Health Advisory Team 7 Report, 2011). Finally, the number of active-duty soldiers reporting a psychological problem (e.g., PTSD, depression, or anxiety) has increased dramatically from 2005 and since 2009 have remained relatively constant at around 20% of those sampled (US Joint Health Advisory Team 7 Report, 2011).

It should be recognized that although wars have been fought for millennia, researchers are still learning about the changing face of combat. Combat, in and of itself, is not a topic that has been studied in great depth in the field of psychology until the most recent wars in Iraq and Afghanistan (Gifford, 2006). Prior to the research methods used today by the Department of Defense and related organizations to measure the experiences of combat in theater, outcomes and correlates of combat exposure were studied, but in-depth and systematic analyses were not often completed (Gifford, 2006).

Keane et al. (1989) were perhaps the first to create a brief measure of combat exposure and validate its psychometric properties. They developed the scale to predict combat-related PTSD and was to be used by clinical researchers. The scale was validated with a sample of Vietnam veterans who were currently seeking treatment or other services from veteran centers and consisted of seven items. The items asked questions about combat patrols, members of your unit killed/wounded, firing on the enemy, being fired upon, or being in danger of being killed, content which has been retained by many of the more recent combat exposure scales.

Some research has tried to describe the nature of stress within a warzone by categorizing its component parts (along with their relationship to PTSD). Fontana and Rosenheck (1999) used a Vietnam veteran sample to inform their model and found eight categories of warzone stress. The categories consisted of field placement (branch of service along with proximity to fighting), physical conditions of the environment (climate, insects, disease, shelter), insufficiency of the environment (not enough food, water, weapons, supplies, privacy, etc.), fighting (firing on the enemy, being fired upon, going on patrols, etc.), exposure to death and injury of others (seeing the dead bodies of Americans or Vietnamese, knowing Americans who were injured; sight, smell, or sound of dying people, etc.), perceived threat of one's own death or injury (exposure to danger, fear of being killed, feeling that one would not survive, etc.), killing or injuring others (being responsible for the death of another person), and committing atrocities (harassment of civilians, destruction of property, mutilation of enemy bodies). This scale seems quite comprehensive, but by the authors' own admission, contains a lot of

redundancy. Current scales of combat exposure include many of the domains identified by Fontana and Rosenheck.

Hoge et al. (2004) found that soldiers commonly reported combat experiences such as being attacked or ambushed, being shot at, seeing dead bodies or human remains, and/or seeing ill or injured women and children and being unable to help (Hoge, et al., 2004). Many of these experiences can be considered outside the normal range of human experience and may be classified as trauma, explaining the large number of service members reporting a psychological problem.

The items used by Hoge and colleagues in 2004 to measure combat exposure were modified from previous scales (Castro, Bienvenu, Huffman, & Adler, 2000) used to measure the environment of deployed peacekeepers. This measure has become known as the Combat Experiences Scale (CES; see Killgore et al., 2008; Wilk et al., 2010). The CES items fit the categories set forth by Fontana and Rosenheck (see Wilk, et al., 2010). Kilgore and colleagues (2008) found that the 37 items of the CES formed seven factors: violent combat exposure (example: working in areas that were mined or had IEDs), human trauma exposure (example: handling or uncovering human remains), survived a close call (example: had a close call but protective gear saved you), buddy killed/injured (example: knowing someone seriously injured or wounded), killed enemy (example: being directly responsible for the death of an enemy combatant), killed friendly/non-hostiles (example: being directly responsible for the death of US or ally personnel), and pride in mission (example: encountered grateful citizens).

Combat exposure can also affect physical health through psychological pathways. In a sample of older WWII veterans, a negative relationship between combat exposure and physical health was reported (Schnurr & Spiro, 1999). However, a path analysis revealed that the relationship was only explained indirectly through posttraumatic stress disorder (PTSD) symptoms. That is, WWII veterans who experienced exposure to combat were more likely to report symptoms of PTSD; PTSD was then found to predict 90% of the variance in reported physical health. Combat exposure was also found to be related to alcohol problems through the meditational effects of PTSD (Schnurr & Spiro, 1999).

Recent studies have also shown that specific combat experiences are predictive of certain outcomes, such as alcohol misuse (Wilk, et al., 2010). The study found that while all categories of combat exposure (except positive experiences) predicted alcohol misuse, experiences involving harm or the threat of harm or death to one's self explained the most variance in drinking behaviors. Additionally, when a more strict definition of alcohol misuse (e.g., including items about negative behaviors related to alcohol) was included in the model, experiencing combat related atrocities, such as fighting within the local populations and witnessing the mistreatment of non-combatants, was the predictor that explained the most variance. These results show that different reactions may occur based upon the types combat experiences to which one is exposed. However, the current study will employ a measure of total combat as previous studies have shown that even when combat experiences are categorized, every category is still predictive of negative outcomes (Killgore et al., 2010; Wilk et al., 2010).

Although it is clear that physical injury is a possible outcome of exposure to combat, there is concern that the psychological injuries incurred may be disproportionately high relative to physical injuries received (Tanielian et al., 2008). Studies have shown that exposure to combat stress is among the greatest predictor of future behavioral health problems in service members (Fontana & Rosenheck, 1998). Several studies have clearly shown a link between combat experiences and PTSD, depression, and anxiety diagnoses (Hoge, Auchterlonie, & Milliken, 2006; Hoge, et al., 2004; Seal et al., 2009). Therefore, the next section will focus on outcomes (strains) produced by the stressor of combat exposure.

DEPRESSION AND ANXIETY AS OCCUPATIONAL STRAINS

Decades of research have been dedicated to studying PTSD as an outcome of combat exposure and as a mediator of the effects of combat exposure on more distal outcomes (Hoge, et al., 2006; Hoge, et al., 2004; Milliken, Auchterlonie, & Hoge, 2007). PTSD is an anxiety disorder characterized by exposure to a potentially traumatic event with a reaction of intense fear, hopelessness, or horror (American Psychiatric Association, 2000). PTSD is also characterized by a persistent reoccurrence of the traumatic experience, avoidance of things associated with the experience, and increased arousal, with symptoms lasting longer than one month (American Psychiatric Association, 2000). Although PTSD is an important topic when speaking of psychological health of service members, the focus of the current study is on depression and generalized anxiety symptoms as outcomes of combat exposure.

Depression and generalized anxiety disorder are two psychiatric disorders that within the military context are commonly associated with exposure to combat (US Joint Health Advisory Team 7 Report, 2011). It is accepted that many factors contribute to the formation of mental health disorders (Murdock, 2009), and various theories have been used to illuminate a causal path. One such theory to explain the occurrence of depression and anxiety disorders is known as the diathesis-stress model.

The diathesis-stress model posits that psychopathology arises not only from innate predisposition or environmental stressors, but from a combination of the two (McKeever & Huff, 2003; Monroe & Simons, 1991). Previously, it was thought that individuals who developed a psychological disorder had a “constitutional” predisposition toward

psychopathology, which meant they would develop the disorder regardless of environment (Monroe & Simons, 1991). The idea that stress or life events could also cause psychopathology contrasted the diathesis model in that it was later believed that stressors were the main cause of psychopathology (McKeever & Huff, 2003). However, not everyone who experiences a major stressor also experiences a diagnosable psychological disorder. In order to reconcile these facts, researchers proposed a theory that takes into account both predisposition and environmental factors. The diathesis-stress model holds that stress activates a biopsychosocial vulnerability within an individual (Monroe & Simons, 1991). Within the context of the current paper, the diathesis-stress model can be seen as a possible mechanism for the development of both depression and anxiety disorders after exposure to combat situations.

Depression

A diagnosis of depression (i.e., major depressive disorder) requires either depressed mood most of the day, everyday or severely diminished interest or pleasure in almost all activities along with three to four of the following: insomnia or hypersomnia, significant (unintentional) weight loss, psychomotor agitation or retardation, fatigue, feelings of worthlessness or excessive guilt, diminished ability to think/concentrate, or recurrent thoughts of death/suicidal ideation (American Psychiatric Association, 2000).

A recent study using a representative sample of the U.S. population found prevalence rates of major depressive disorder to be roughly 7% (Kessler, Chiu, Demler, & Walters, 2005; National Comorbidity Survey - Replication, 2007). However, it is estimated that 13-14% of soldiers returning from OEF/OIF engagements meet diagnostic

criteria for depression (Seal, et al., 2009; Thomas et al., 2010). The fact that depression occurs almost twice as often in returning service members shows that the deployment environment is a major source of concern.

Soldiers who experience depression are likely to encounter a wide variety of outcomes. Tanielian and colleagues (2008) conducted a review in which they found that soldiers diagnosed with depression (or PTSD) are more likely to have a comorbid psychiatric disorder and to attempt suicide. Additionally, their report revealed that these soldiers were more likely to engage in unhealthy behaviors, miss more days of work, report being less productive at work, and be unemployed. Soldiers with these diagnoses are also at risk of damaging close relationships, including marriages and parenting relationships (Tanielian, et al., 2008). Finally, the authors calculated monetary costs of depression in soldiers and found that the average cost per soldier over the two-year period after the soldier returns home is roughly $15,461 to $25,757, in 2007 dollars. The authors found that the majority of the costs were associated with decreases in productivity (performance).

Anxiety

Anxiety is a term used commonly to describe feelings of excessive worry and apprehension. Generalized anxiety disorder is a psychiatric disorder characterized not only by excessive worry, but also difficulty controlling the feelings of worry, and feelings of restlessness, fatigue, irritability, muscle tension, difficulty concentrating, or sleep disturbances (American Psychiatric Association, 2000).

A representative sample of the United States showed that within a given 12-month period, 2.7% of the population experience generalized anxiety disorder (National Comorbidity Survey - Replication, 2007). A study of Gulf War veterans conducted in 1995 showed that veterans were almost twice as likely as to report symptoms consistent with an anxiety disorder than were non-Gulf war veteran controls (Black et al., 2004). Additionally, of those military personnel in the sample, 5.9% reported symptoms consistent with any anxiety disorder and of those participants, the majority met the diagnostic criteria for generalized anxiety disorder (66%), followed by panic disorder (47%), and PTSD (33%).

In studying the relationship between combat exposure, the social environment (e.g., work conflict, stigma), internalizing symptoms (e.g., physical, depressive, anxiety symptoms), and externalizing behaviors (e.g., alcohol problems, aggression, risky behavior) in OEF/OIF active duty soldiers, Wright, Foran, Wood, Eckford, and McGurk (2012) found that combat exposure is most highly related to internalizing symptoms, as opposed to the social environment or externalizing behaviors. Additionally, generalized anxiety disorder was the strongest loading variable on the factor of internalizing symptoms. However, the study was designed to assess the impact of combat exposure on externalizing behaviors and included internalizing behaviors as a possible mediator. Therefore, no direct relationships between combat and GAD were found.

The Mental Health Advisory Team report, an on-going assessment made in theater during deployment, also includes statistics on anxiety other than PTSD (US Joint Health Advisory Team 7 Report, 2011). The 2010 report showed that soldier reports of

anxiety are currently higher than in the previous years (8.8% in 2010 compared to 6.0% in 2009).

While the literature on anxiety disorders other than PTSD as an outcome of combat exposure may not be voluminous, these studies show that anxiety is an important outcome of wartime experiences. Researchers have even speculated that PTSD may be the primary response to the trauma whereas other anxiety disorders may develop secondarily (Black, et al., 2004).

Research supports the relationship between combat exposure and depression and anxiety outcomes. Additionally, because the current study in interested in establishing a temporally causal link between combat exposure and negative mental health outcomes, a longitudinal design will be utilized. Therefore, it is hypothesized that the current study will replicate previous research using outcomes of depression and anxiety.

Hypothesis 1a: Greater combat exposure at Time 1 will predict a strong, positive relationship with depression at Time 2.

Hypothesis 1b: Greater combat exposure at Time 1 will predict a strong, positive relationship with anxiety at Time 2.

UNIT-LEVEL MODERATORS: PERCEIVED ORGANIZATIONAL SUPPORT, JOB SELF-EFFICACY, AND MORALE

Because combat exposure can have such deleterious effects on military service members both physically and psychologically, one obvious recommendation would be to minimize combat exposure in hopes of reducing the negative outcomes. However, in the military it is not possible to reduce the amount of combat exposure to which a soldier is subject. Therefore, the SAM suggests heavy reliance on moderators of the stressor-strain relationship (Bliese & Castro, 2003). The current study investigates the moderating effects of perceived organizational support, job self-efficacy, and unit morale.

Research on focused process climates provides the justification for aggregating the proposed moderator variables in the current study. Schneider, Ehrhart, and Macey (2013) suggest that "any and all organizational processes might be usefully studied and understood through a climate lens" (p. 367). Each moderator in the current study has roots in organizational processes. Therefore, not only will examining the contextual effects provide additional insight into individual-level relationships, but the current research will extend the literature on possible process climates.

Shared employee perceptions (e.g., specific climates) may be formed through a variety of processes. Zohar and Hofmann (2012) have suggested that employees come to agree through shared environment (i.e., the structuralist view), through interacting with other members of the group (i.e., symbolic interactionism), and through shared leadership. A shared environment, in addition to the physical environment, includes

aspect such as technology available, the rewards structure of the group or organization, and group or organization rules (Zohar & Hofmann, 2012). Symbolic interactionism posits that members of the same group compare their perceptions and realities, modifying them according to others' observations until a shared perception is formed. Zohar and Hofmann noted that group members interact with each other more often than they do members of other groups or organizations and are therefore more likely to come to a shared understanding over time. Finally, leadership is also thought to create group-level shared perceptions. Leaders are said to "create climate" (Lewin, Lippit, & White, 1939). Social learning, that is, group members observing which behaviors the leader values, is thought to be the mechanism responsible for leadership leading to shared perceptions (Zohar & Hofmann, 2012).

Additionally, emotional contagion may also play a part in creating shared, group-level perceptions, particularly in the case of affectively charged constructs such as morale examined in the present study. Emotional contagion is an automatic process where the emotions of a given individual are transferred to the group or the emotion of the group is transferred to a given individual (Kelly & Barsade, 2001). Further, emotional contagion has been shown to operate within organizational settings (Barsade, 2002), suggesting that it is also likely to operate within the military organizational setting.

Finally, it is well recognized that group-level phenomena are able to affect individual-level relationships (see Bliese & Castro, 2003; Tucker, Sinclair, & Thomas, 2005). Tucker et al. (2005) argued that cross-level effects (i.e., group-level constructs that

moderate the individual-level stressor-strain relationship) act in a similar manner to other moderators of stressor-strain relationships.

Perceived Organizational Support

Perceived organizational support (POS) is a possible moderator of the combat exposure-strain relationship. POS is based on the idea that the organization values employee contributions and is concerned with employee well-being (Eisenberger, Huntington, Hutchison, & Sowa, 1986; Rhoades & Eisenberger, 2002). Rhoades and Eisenberger (2002) called attention to the idea that the employment relationship consists of exchanging "effort and loyalty for tangible benefits and social rewards" (p. 698). Rewards can include pay, information, and promotions, as well as the help and resources to complete job tasks or even assistance in stressful situations (Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001; Rhoades & Eisenberger, 2002).

In order for the employee to decide if the organization will in fact reward increased effort, Rhoades and Eisenberger (2002) suggested that the employee must first develop an overarching view of how valued they are by the organization; this belief is POS. POS is proposed to operate through the norm of reciprocity, a dimension of social exchange theory (Eisenberger, et al., 2001). The reciprocity norm holds that when benefits are given from one entity to another, the receiver is obliged to return a benefit in kind (Cropanzano & Mitchell, 2005; Eisenberger, et al., 2001). More broadly, POS can be regarded as the quality of the social exchange relationship which occurs distinctly between an employee and an employer (Cropanzano & Mitchell, 2005). Eisenberger and colleagues posited that the social exchange relationship, specifically the norm of

reciprocity, allows employees and organizations to resolve their differences in expectations (i.e., employers expect loyalty and performance while employees expect rewards and benefits) and strengthen their relationship (Eisenberger, et al., 2001; Rhoades & Eisenberger, 2002).

The construct of POS is supported by the theory of organizational support. Organizational Support Theory (OST) holds that POS is formed through employees' inclinations to anthropomorphize the organization for which they work (Eisenberger, et al., 1986; Rhoades & Eisenberger, 2002). Levinson (1965) was one of the first to note that this assigning of human characteristics to the organization came about as a result of attributing actions and intentions of individuals (i.e., managers) to the organization itself. Managers and supervisors regularly act as agents of the organization, and therefore, are likely to have an influence on POS. For example, if a manager rewards an employee for exemplary job performance, the employee is likely to attribute the actions of the manager as being representative of how much the organization cares about employee contributions. Additionally, the perceived value of the resource or reward received is likely to influence POS (Gouldner, 1960; Rhoades & Eisenberger, 2002). Rewards are perceived as more valuable when they are discretionary and under the control of the giver, as opposed to rewards that may be mandatory or obligatory in nature. For example, rewards will be more likely to contribute to POS when the organization gives them voluntarily as opposed to giving the reward due to contractual agreements (Rhoades & Eisenberger, 2002).

Finally, OST proposes a mechanism by which POS influences outcomes (Eisenberger, et al., 2001; Rhoades & Eisenberger, 2002). First, the norm of reciprocity creates "felt obligation" on the part of the employee to care about how the organization is doing and to aid in reaching the goals of the organization. Next, POS is thought to fulfill employee socioemotional needs through the perceptions of caring on the part of the organization which should cause employees to further identify with their organizational membership and may aid the employee in dealing with stressors (Baran, et al., 2012). Finally, OST predicts that POS will reinforce employee beliefs that the organization does in fact reward increased effort.

In a meta-analysis of the POS literature, Rhoades and Eisenberger (2002) analyzed three general organizational antecedents of POS along with individual characteristics which might also serve as antecedents of POS. Fairness, supervisor support, and organizational rewards and job conditions (which include recognition, pay, job security, autonomy, and training) were all found to strongly predict POS. Path analysis revealed that when all three were entered together (controlling for shared variance), fairness was found to be the strongest predictor, followed by supervisor support and organizational rewards and job conditions, respectively. These results coincide with predictions made by Organizational Support Theory on the formation of POS. The results of the meta-analysis also showed that individual characteristics have an effect on POS, particularly dispositional negative and positive affect. Dispositional negative affect was shown to have a moderate, negative relationship with POS while positive affect was shown to have a positive (but slightly weaker), moderate relationship

with POS. Other demographic characteristics (e.g., age, tenure, gender) showed statistically significant but rather small relationships with POS. These results show that not only does the organization affect POS, but individuals themselves also contribute to these perceptions.

POS has been found to be related to a variety of organizational and personal outcomes including job attitudes, performance, and well-being. Job attitudes such as organizational commitment and job satisfaction have been shown to have strong relationships to POS (Rhoades & Eisenberger, 2002). Eisenberger et al. (2001) have shown that POS is positively related to felt obligations on the part of the employee to aid the organization in reaching its goals. Similarly, Shore and Tetrick (1991) found POS was strongly related to scores of affective organizational commitment. The same study also found POS to be non-significantly, negatively related to continuance organizational commitment (i.e., feeling as if you must remain with your organization). These results have been replicated in other studies (although with larger samples the negative relationship between POS and continuance commitment is significant; see O'Driscoll & Randall, 1999; Rhoades & Eisenberger, 2002). In addition, POS has been shown to have a positive relationship with employee job satisfaction (Masterson, Lewis, Goldman, & Taylor, 2000; Rhoades & Eisenberger, 2002).

Important to the organization, POS has been shown to predict employee performance. Studies have focused on both in-role (i.e., those tasks prescribed by one's job description) and extra-role (i.e., contextual performance, including OCBs) performance when examining POS. It is thought that POS affects performance through

the norm of reciprocity and felt obligations to the organization so that employees will go above and beyond to help the company meet its goals (Eisenberger, et al., 2001).

Also highly related to the current study is that POS has been shown to influence employee well-being. Recent research has suggested that the positive effects of POS on well-being are due to the employment relationship fulfilling the socioemotional needs (including emotional support) of employees, which can serve to increase positive views about one's self (Baran, et al., 2012). Studies have revealed POS to be negatively related to job-related tension and burnout (Armstrong-Stassen, 1997), anger (O'Neill, Vandenberg, DeJoy, & Wilson, 2009), and fatigue (Cropanzano, Howes, Grandey, & Toth, 1997). Rhoades and Eisenberger (2002) showed that POS was significantly negatively related to strains or "aversive psychological and psychosomatic reactions" (p. 702). In a similar vein, a study of active-duty soldiers has shown that POS is negatively related to reported PTSD symptoms (Kelley, 2010).

Recent work has also been done on the buffering effects POS may have on the stressor-strain relationship. Byrne and Hochwarter (2006) showed that POS acted as a buffer of the adverse effects of chronic pain on performance. Individuals who reported high levels of chronic pain and high levels of POS were found to have higher performance scores than those individuals low in POS who reported high levels of pain. Also related to task performance outcomes, POS was found to lessen the negative effects of family-to-work conflict on job performance such that for individuals reporting high POS, the relationship between family-to-work conflict and decreased job performance was weaker than for those who reported lower levels of POS (Witt & Carlson, 2006).

While not acting as a buffer, high POS has also been associated with stronger, positive relationships between challenge stressors and performance (Wallace, Edwards, Arnold, Frazier, & Finch, 2009). Interestingly, in the same study, POS did not moderate the relationship between hindrance stressors and performance, indicating that POS may not act as a buffer under all circumstances.

Ladebo (2009) studied the moderating effects of POS and found that POS did moderate the relationship between emotional exhaustion and organizational citizenship behaviors directed toward coworkers (OCB-I). Analyses revealed that higher levels of POS weaken the negative effects of emotional exhaustion on OCB-I. Perceived organizational support has even been shown to buffer the effects of work stressors on job attitudes. Stamper and Johlke (2003) found POS to moderate the relationships between role ambiguity and job satisfaction and between role conflict and intent to remain with the organization. Employees who perceived high levels of POS experienced an attenuated decline in job satisfaction under high levels of role ambiguity and were more likely to endorse an intent to stay with the organization under high levels of role conflict. Also related to job attitudes, POS was found to moderate the relationship between family interfering with work (a form of work-family conflict) and continuance commitment (Casper, Martin, Buffardi, & Erdwins, 2002). For example, the study found that when work interfering with family was high, those individuals who perceived high organizational support were less likely to report high continuance commitment even when family interfering with work was high.

Most related to the current study, POS has also been shown to act as buffer of the negative relationship between stressors and well-being outcomes. It has been shown that organizational support (not specifically measured with the SPOS) buffered the relationship between exposure to workplace violence and employee well-being so that employees who feel that the organization strongly supports them report less worry, anxiety, and fear (Leather, Lawrence, Beale, Cox, & Dickson, 1998). Ilies, Dimotakis, and De Pater (2010) showed that the relationship between high workload and high blood pressure was weakened for those individuals who reported high POS. POS was also revealed to moderate the relationship between emotional labor and strain outcomes, such that individuals reporting high levels of POS were found have stronger, positive relationships between deep acting and mental well-being (i.e., contentment, resilience, peace of mind; Nixon, Yang, Spector, & Zhang, 2011). In another study that looked at POS as a possible buffer of the relationship between stressors and an aspect of psychological well-being, Jawahar, Stone, and Kisamore (2007) found that POS ameliorated the relationship between perceived role conflict and emotional exhaustion. The study found that for those individuals with high levels of POS, the relationship between role conflict and emotional exhaustion was significantly weakened. Finally, a multi-level analysis looked at the contextual, moderating effects of support on psychological strain within an Army sample (Bliese & Castro, 2000). The study found a three-way interaction between work overload, role clarity, and support such that the relationship between work overload and psychological strain was reduced by increased role clarity, but only when support was high. This study is important to note as it uses a

multi-level framework of support along with a psychological well-being outcome. However, the Bliese and Castro (2000) did not use an actual measure of perceived organizational support, but opted to assess leader social support, a related but distinctly different concept from POS. To my knowledge, no studies have been published that look at POS as a multi-level moderator of the relationship between stressors and psychological well-being.

Perceived organizational support has recently been studied in a multi-level context outside of the well-being literature. However, while the following studies have used multi-level analyses to analyze the data, they do not aggregate POS to the unit-level. Much of the recent literature deals with understanding the relationships between supervisors and subordinates and how POS may affect subordinate outcomes (Baran, et al., 2012). Shanock and Eisenberger (2006) assessed the impact of supervisor POS on employee POS and performance outcomes. Results revealed that employee perceived supervisor support mediated the relationships between supervisor POS and employee performance and supervisor POS and employee POS, indicating that supervisors' felt obligation to the organization results in "paying forward" support to their subordinates. Erdogan and Enders (2007) tested a cross-level moderation model looking at how supervisor POS affected the relationship between subordinate perceptions of leader-member exchange (LMX) and subordinate job satisfaction and performance. Analyses revealed that high supervisor support enhanced the relationships between LMX and job satisfaction and job performance, respectively. The authors argued that supervisors who feel more supported by their organizations have more support and other resources to give

to their subordinates, which in turn helps to increase subordinates' perceptions of organizational support (Erdogan & Enders, 2007).

Perceived organizational support is a reliable buffer of many stressor-strain relationships, including the strains of health and well-being. Mental health outcomes, including depression and anxiety, are an important aspect of employee well-being, especially in military situations where trauma is likely to occur. Additionally, research has shown that leadership is a known antecedent of POS (Rhodes & Eisenberger, 2002), with groups of employees often sharing the same leader, who is acting as an agent of the organization. Therefore, groups of individuals working under the same leader may be similarly influenced in their perceptions of organizational support. Furthermore, emotional contagion in known to operate within organizations (Barsade, 2002); consequently, employees' negative or positive feelings about how much the organizational values them can be spread to an entire workgroup, or conversely, the perceptions of the workgroup may be spread to the individual. Therefore, it is hypothesized that unit-level POS will act as a buffer of the stressor-strain relationship (see Figure 2).

Hypothesis 2a: POS aggregated to the unit-level will moderate the relationship between combat exposure and depression outcomes such that those units high in POS will experience a buffering effect.

Hypothesis 2b: POS aggregated to the unit-level will moderate the relationship between combat exposure and anxiety outcomes such that those units high in POS will experience a buffering effect.

Job Self-Efficacy

Self-efficacy is a belief about one's capabilities and competence to behave in a particular manner (Bandura, 1977). Self-efficacy answers the question "Can I do it?". Bandura (1997) has suggested that specific self-efficacy be used instead of the more general, personality trait measures of self-efficacy in order to increase the predictive ability of the measure. Job self-efficacy is used in the current study to denote a more specific efficacy, one's beliefs about their ability to perform their job (Schaubroeck, Lam, & Xie, 2000). Job self-efficacy has previously been shown to be related to organizational outcomes such as organizational citizenship behaviors (Todd & Kent, 2006) and proactive behaviors (Morrison & Phelps, 1999).

In a cross-cultural comparison of the roles of job self-efficacy and collective efficacy (the confidence one has in their work group) in Karasek's (1979) job demand-control model, Schaubroeck and colleagues (2000) hypothesized that the two constructs would show different patterns based upon the cultural identity of the participants. The authors suggested that the American (idiocentric) sample would show a three-way interaction of job demands-control-job self-efficacy and the Asian (allocentric) sample would show a three-way interaction of job demands-control-collective efficacy. The hypotheses were supported and for the negative health outcomes of depression and anxiety, Americans with high job self-efficacy reported less depression and anxiety when job control was high, even as job demands increased. Additionally, the Asian sample showed that when collective efficacy was high, less depression and anxiety was reported when job control was high, even as job demands increased. Interestingly, the three-way

interaction involving job self-efficacy was not significant for the Asian sample, nor was the three-way interaction involving collective efficacy significant for the American sample. This study shows that not only are cultural issues important in the study of efficacy, but that job self-efficacy and collective efficacy act differentially in their buffering effects.

In a study of the negative health outcomes of job insecurity, Schreurs, van Emmerik, Notelaers, and De Witte (2010) posited that job self-efficacy would act as a buffer to the relationship. The results revealed that although job self-efficacy was negatively related to both impaired health and need to recover, job self-efficacy did not buffer the relationship between job insecurity and general health or recovery need when the interaction between job insecurity and job control was controlled for. The authors propose that job self-efficacy did not act as a buffer because the demands in the study (job insecurity) were too specific and the stressors and resources had a poor match. If job insecurity was too narrow a stressor, then perhaps the current study's use of combat exposure will provide a better match.

As self-efficacy is a self-belief, it is commonly studied at the individual-level of analysis. However, it has been proposed that efficacy beliefs can be applied to groups and measure individual's confidence in their work group and the group's ability to perform necessary tasks (Jex & Bliese, 1999). The rationale to use self-efficacy at the group level, as argued by Jex and Bliese (1999), is that it is thought to play an important role in buffering the effects of stress in the workplace. The following studies used multi-level analyses to control for the nested nature of their data, but did not aggregate job self-

efficacy to the unit-level. Jex and Bliese conducted a study in which they asked active duty soldiers about both their job self-efficacy and their collective efficacy in relation to work related outcomes and psychological strain. Results revealed that job self-efficacy moderated the relationships between *work hours and psychological strain*, such that those high in job self-efficacy did not experience an increase in psychological strain as work hours increased, *work overload and psychological strain*, such that those high in job self-efficacy did not experience an increase in psychological strain as work overload increased, and *task significance and psychological strain*, such that those high in job self-efficacy experienced less of a change in psychological strain even as task significance decreased. Additionally, collective efficacy acted as a significant moderator of the work overload-job satisfaction relationship and the task significance-organizational commitment relationship.

However, the study did not find support for collective efficacy moderating the relationship between individual work-stressors and psychological strain (Jex & Bliese, 1999). This study adds to the evidence that job self-efficacy acts as a buffer to the relationship between work stressors and psychological outcomes. Additionally, the fact that collective efficacy did not moderate the work stressor-psychological strain relationship provides additional evidence to measure job self-efficacy with the individual as the referent (as opposed to the group as the referent in collective efficacy).

In a follow-up study, Jex and colleagues sought to explain the mechanism through which self-efficacy moderated the stressor-strain relationship (Jex, Bliese, Buzzell, & Primeau, 2001). Active duty soldiers in garrison were surveyed about job self-efficacy,

coping style, work stressors, and psychological strain. The study authors proposed that soldier's coping style acted as a moderator of the effects of job self-efficacy. The research identified two possible coping mechanisms: problem-focused coping, characterized by an individual attempting to do something about the problem or reduce the effects of the problem, and emotion-focused coping, characterized by denial of the problem or disengagement from the situation (Carver, Scheier, & Weintraub, 1989). Results revealed three-way interactions that showed that job self-efficacy attenuated the stressor-strain relationship when active coping was high. Additionally, self-efficacy moderated the stressor-strain relationship when avoidance-coping was low, such that those soldiers low in avoidance coping experienced less psychological strain when job self-efficacy was high, even as work overload increased (Jex, et al., 2001). These results show a possible mechanism through which job self-efficacy operates.

Jex and Bliese (1999) did not aggregate their job self-efficacy measure (which included the individual as the referent) to the unit-level, as the current study proposes. However, it is expected that similar results will be found for the moderating effect of job self-efficacy when job self-efficacy is aggregated to the unit-level due to the effects of emotional contagion and leadership. Employees' feelings about how confident they are in their ability to perform their jobs may be spread to the group through emotional contagion at work (Barsade, 2002), as members of the groups are more likely to frequently interact with one another. Additionally, leadership may also influence group-level perceptions of job self-efficacy. Sy, Côté, and Saavedra (2005) have shown that leaders, who are often shared by group members, can affect the overall mood of the

group, which in turn can have an effect on group processes such as group coordination, effort, and task strategy. Therefore, leaders can ultimately have an impact on how employees perceive their ability to perform their jobs.

In keeping with the found buffering effects of individual job self-efficacy on the stressor strain relationship, the following is hypothesized:

Hypothesis 3a: Job self-efficacy aggregated to the unit-level will moderate the relationship between combat exposure and depression outcomes such that those units high in job self-efficacy will experience an attenuated combat exposure-depression relationship.

Hypothesis 3b: Job self-efficacy aggregated to the unit-level will moderate the relationship between combat exposure and anxiety outcomes such that those units high in job self-efficacy will experience an attenuated combat exposure-anxiety relationship.

Morale

Morale is a construct often used in military psychology research to denote a psychological characteristic which enables service members to continue a mission even during times of extreme stress (Britt, Dickinson, Moore, Castro, & Adler, 2007). However, over the years people have defined the construct in many ways and a commonly agreed upon definition is not readily found. Some choose a more inclusive view of morale, favoring a complex description with multiple dimensions, such as unit cohesion (Motowidlo & Borman, 1978). Others have defined morale more as a psychological "state of mind" based on feelings of confidence (Ingraham & Manning,

1981). And still other definitions of morale, especially those in the work place, can be so broad as to be defined by positive feelings about one's work environment (McKnight, Ahmad, & Schroeder, 2001).

In a review of military morale, Britt and Dickinson (2006) define morale as "a service member's level of motivation and enthusiasm for achieving mission success" (p. 162). The authors define morale as a motivational force characterized by energy to motivate others and lessen the impact of stressors by acting as a psychological resource (Britt, et al., 2007; Britt et al., 2013). This definition is similar to previous research findings that soldiers' descriptions of morale focused on characterizations of motivation and energy as opposed to emotion (Britt, 1997). However, in a review of the literature linking morale and unit cohesion to psychological resilience, Britt and Oliver (2013) conceptualize morale as a form of positive affect, similar to vigor, which combines energy and enthusiasm for completing tasks.

Britt and Dickinson (2006) have proposed a model of morale during military operations which includes mission-relevant factors (mission has clear purpose, mission includes achievable objectives, incremental success can be seen, public support for the operation exists), characteristics of leadership (leadership clarifies objectives, instills high efficacy and trust in soldiers to accomplish mission, emphasis on positive outcomes, recognition of soldier performance), unit factors (collective efficacy), and individual factors (optimism, hardiness, self-efficacy, commitment to a military identity). In the model, these factors are thought to indirectly influence morale through optimism, confidence, and purpose. Finally, morale is then thought to have an effect on both

psychological and performance related outcomes. The authors suggest that high morale would be positively related to both task performance and contextual performance (i.e., organizational citizenship behaviors [OCBs]). Britt and Dickinson posit that service members high in morale should experience greater well-being, positive psychological benefits (e.g., more likely to endorse the idea that they benefited from being involved in the mission), and increases in positive job attitudes such as organizational commitment.

In a study examining the relationship between depression and morale, Britt and colleagues (2007) found that morale was predicted by engagement in meaningful work and confidence in leadership and unit functioning. Interestingly, these relationships were stronger than the relationship between negative experiences while deployed and morale, indicating that negative experiences while deployed may not affect morale as much as more positive engagement and confidence. Additionally, the authors hypothesized that individuals high in morale would experience increased benefit finding from their deployment. The results did not support the hypothesis when antecedents of morale (and depression) were included in a full structural model, but when the antecedents were left out of the model the hypothesis was supported. The authors contend that these results occurred due to shared explanatory variance with engagement in meaningful work.

As morale is thought to buffer the effects of stressful conditions, one study examined the effects of morale as a positive affect and a resource to deal with combat exposure (Britt et al., 2013). The study found that morale was negatively related to PTSD symptoms. Additionally, morale moderated the relationship between both combat exposure frequency and combat stressfulness and PTSD, even when controlling for unit

support. The study found that individuals with high morale were less likely to report PTSD symptoms when combat exposure or stressfulness was high (Britt et al., 2013). The interaction was significant at both Time 1 and Time 2, indicating a continued effect over time. These results show that morale at the individual level can ameliorate the relationship between combat exposure and psychological strain.

In a cross national comparison of unit morale and cohesion with U.S. Army and Israeli Defense Forces, Gal and Manning (1987) found that for both samples, morale tends to be seen with regard to one's group, the individual, and leadership. Importantly, the authors also found that morale and cohesion items were highly inter-correlated; so much so that both sets of items loaded on to the same factor in a factor analysis. The authors suggest that it is possible that both morale and cohesion are two factors of a higher order construct.

In their overview of military morale, Britt and Dickinson (2006) call attention to the fact that the level of analysis of morale is in question. Most research has focused on analysis at the level of the individual instead of the unit. Britt and Dickinson (2006) view morale as "an individual-level phenomenon that takes place in the context of the group" (p. 162). Some research (viz. Britt et al., 2007) has even found that morale has little unit-level variability. However, morale continues to be used in relation to the group (e.g., sports teams, schools, and organizations). Peterson, Park, and Sweeney (2008) even refer to morale as the "collective will" (p. 21) of a nation. Additionally, the model of morale during military operations proposed by Britt and Dickinson (2006) includes both leadership and unit factors as antecedents of morale, both of which can have an impact on

unit-level perceptions, possibly through allowing group members a multitude of opportunities to interact with others in the group and influence the emotional states of other members. Therefore, it is hypothesized that unit-morale aggregated to the group-level will function similarly to individual level morale and act as a buffer.

Hypothesis 4a: Unit morale (a single item measure with the unit as the referent) will moderate the relationship between combat exposure and depression outcomes such that those units high in morale will experience an attenuated stressor-strain relationship.

Hypothesis 4b: Unit morale (a single item measure with the unit as the referent) will moderate the relationship between combat exposure and anxiety outcomes such that those units high in morale will experience an attenuated stressor-strain relationship.

It may also be important to understand the relative contributions of the three moderators in order to understand if one construct may have more influence than another, which may be practically important in allocating resources. Therefore, analyses will be conducted to determine which of the three moderators (job self-efficacy, morale, perceived organizational support) has the largest impact on diminishing the combat exposure-mental health outcome relationship.

Research question 1: Which moderator has the strongest effect on the stressor-strain relationship?

A related question is whether or not each moderator exerts unique influence in the combat exposure-mental health outcome relationship. It is possible that all three

moderators work through the same path and will account for no unique variance. However, it is also possible that each moderator works through a different mechanism (see Figure 1). In this case, each moderator would account for unique variance.

Research question 2: How much unique variance does each moderator account for in the relationship between combat exposure and mental health outcomes?

SUMMARY OF HYPOTHESES

The present study seeks to better understand the role of unit-level variables in potentially moderating the relationship between combat stressors and negative mental health outcomes in active duty soldiers (see Figure 2). Therefore, the following hypotheses are proposed:

Hypothesis 1a: Greater combat exposure at Time 1 will predict a strong, positive relationship with depression at Time 2.

Hypothesis 1b: Greater combat exposure at Time 1 will predict a strong, positive relationship with anxiety at Time 2.

Hypothesis 2a: POS aggregated to the unit-level will moderate the relationship between combat exposure and depression outcomes such that those units high in POS will experience a buffering effect.

Hypothesis 2b: POS aggregated to the unit-level will moderate the relationship between combat exposure and anxiety outcomes such that those units high in POS will experience a buffering effect.

Hypothesis 3a: Job self-efficacy aggregated to the unit-level will moderate the relationship between combat exposure and depression outcomes such that those units high in job self-efficacy will experience an attenuated combat exposure-depression relationship.

Hypothesis 3b: Job self-efficacy aggregated to the unit-level will moderate the relationship between combat exposure and anxiety outcomes such that those units

high in job self-efficacy will experience an attenuated combat exposure-anxiety relationship.

Hypothesis 4a: Unit morale (a single item measure with the unit as the referent) will moderate the relationship between combat exposure and depression outcomes such that those units high in morale will experience an attenuated stressor-strain relationship.

Hypothesis 4b: Unit morale (a single item measure with the unit as the referent) will moderate the relationship between combat exposure and anxiety outcomes such that those units high in morale will experience an attenuated stressor-strain relationship.

Research question 1: Which moderator has the strongest effect on the stressor-strain relationship?

Research question 2: How much unique variance does each moderator account for in the relationship between combat exposure and mental health outcomes?

METHOD

Participants and Procedure

An archival longitudinal data set from the Walter Reed Army Institute of Research (WRAIR) was used. Participants were 1,451 active-duty soldiers in one Brigade Combat Team (BCT) returning from a 15-month deployment to Iraq. Participants in this study were assessed 4 months (Time 1) after their return from deployment and again 6 months (Time 2) later. Six hundred sixty-four (664) soldiers completed both Time 1 and Time 2 assessments. Surveys were administered at U.S. Army posts in Germany. The Time 1 assessment took place in a classroom setting while the Time 2 assessment took place in a movie theater. All participants gave informed consent in order to have their responses included in the study. Demographic information including age, sex, ethnicity, rank, and information about unit membership was collected. The demographic information for those participants who completed both the Time 1 and Time 2 assessments is included in Table 1. The demographic profiles of the Time 1 only and the Time 1 and 2 matched samples were found to be very similar. Both the Time 1 only and the matched samples contain a majority of soldiers who were between the ages of 20-24 (50.1% vs. 56.8%), male (95.5% vs. 95.9%), white (63.9% vs. 64.5%), junior enlisted (61.5% vs. 63.6%), and members of combat arms units (73.2% vs. 75.9%). One difference between the two samples is that those soldiers who took part only in the Time 1 assessment have an average tenure of 5.1 years (SD = 4.28) while those soldiers who took part in both the Time 1 and Time 2 assessments have an average tenure of 4.75 years (SD = 4.12). Soldiers who completed the Time 1 and Time 2 assessments were nested within platoons

that on average included 6 soldiers per platoon and ranged from 1 to 27 members who participated. Soldiers who completed the Time 1 assessment only were nested within platoons that on average included 12 soldiers per platoon and ranged from four to 50 members who participated. Demographic information for those soldiers who completed Time 1 only is included in Table 2. Measurement information in the following measures section is provided for the longitudinal sample. The measures used for analyses in the current study were part of a larger study focused on transition experiences post-deployment.

Measures

Combat exposure. During the Time 1 administration of the survey, soldiers completed a 34-item dichotomous measure of combat experiences during their most recent deployment. The scale is a modification of the scale used by Hoge et al. (2004). Original items of a positive nature (e.g., "encountered grateful civilians") were not included in the present study. Sample items include "Being attacked or ambushed", or "Handling or recovering human remains". Participants were asked to check "yes" or "no" regarding whether or not they experienced these events on their most recent deployment. Participant scores ranged from 0-34, with higher scores indicating increased exposure to combat. Previous research using a modified version of the 2004 scale has found internal consistency reliability estimates of .92 (Wright, et al., 2012) while a recent factor analysis of the scale revealed seven subscales: violent combat exposure, human trauma exposure, survived close call, buddy killed/injured, killed enemy, killed friendly/non-hostiles, and

pride in mission (Killgore, et al., 2008). (See Appendix A). The current study found internal consistency reliability of α = .95.

Morale. Unit morale was assessed at both Time 1 and Time 2 by a single item measure asking soldiers to "Rate the morale in your unit". A 1-item measure, while not ideal, has previously been used with morale (Bliese & Britt, 2001). (See Appendix B).

Depression and Anxiety. The Patient Health Questionnaire (PHQ; Spitzer, Kroenke, & Williams, 1999) was used to measure depression and generalized anxiety disorder symptoms at both the Time 1 and Time 2 administrations. The scale asks participants to rate how often they have experienced a symptom over the past 4 weeks using a 4-point scale from "Not at all" to "Nearly everyday". The depression scale includes 8 items. Sample items from the depression scale include "little interest or pleasure in doing things". The anxiety scale includes 4 items. Sample items from the anxiety scale include "becoming easily annoyed or irritable". A clinical cutoff to indicate caseness was not used in the current study in order to maintain variability within the measures and not dichotomize the outcomes. Previous research has found a Cronbach's alpha of .89 and .91 respectively for the depression and anxiety subscales (Wright, et al., 2012), while the current study found α = .90 (depression) and α = .82 (anxiety). (See Appendix C).

Job self-efficacy. Efficacy as related to the ability to perform one's job was measured using a 3-item measure where participants were asked to rate their agreement on the items using a 5-point Likert-type scale. Sample items include "Based on my

experiences, I am confident I will be able to successfully perform my military tasks". α = .87 (See Appendix D).

Perceived organizational support. POS was assessed using an 8-item modified version of the Eisenberger et al. (1986) Survey of Perceived Organizational Support (SPOS). The modifications include replacing the word "organization" with "unit" as necessary. Participants responded using a 5-point "Strongly Disagree" to "Strongly Agree" Likert-type scale. These modifications have been used in previous research where a Cronbach's alpha of .90 has been found (Britt et al., 2013; Kelley, 2010). α = .91 (See Appendix E).

Analysis Strategy

The data were analyzed using hierarchical linear modeling (also called multi-level modeling or random coefficients modeling). The mixed-model analysis function of SPSS was used. Multi-level modeling is the most appropriate statistical test of the current data due the fact that the data is nested within groups (i.e., Army platoons). Data that is nested has a higher incidence of correlated errors which, if not properly controlled for, increase the Type I error rate (Tabachnick & Fidell, 2007). Multi-level modeling analyses do not have the assumption of independence of errors and correct for this potential issue by allowing both intercepts and slopes to vary across groups, thereby simultaneously accounting for both within and between group variability (Atkins, 2005).

In order to determine if moderation analyses should be carried out, it was first determined if significant variation exists in the slopes of the individual level relationship. Before hypothesis testing begins, it must first be determined that multi-level techniques

and aggregation techniques are appropriate. The variables used as buffers of the stressor-strain relationship in this study (i.e., POS, job self-efficacy, morale) were each measured at the individual level (Level 1), but needed to be aggregated to the group level (Level 2) in order to be used appropriately as a measure of a unit-level variable. For each variable aggregated to Level 2, certain criteria were met. First, ICC(1) were calculated for all variables to assess the variance at Level 2. ICC(1) scores informed us as to the degree to which the data is dependent on the grouping variable, or how much of the variance can be explained by group membership (Bliese, 2000). The ICC(2) and r_{wg} were also calculated for all moderator variables (i.e., those aggregated to Level 2). ICC(2) provides information about how reliable the group means are within a sample (Bliese, 2000; Klein & Kozlowski, 2000), or the between-group variance. ICC(2) has no formal cut-off, but it is treated similarly to other measures of reliability (e.g., Cronbach's alpha) and ideally should be .7 or higher in order to aggregate to Level 2. Finally, within-group agreement must also be calculated in order to determine in aggregation is appropriate. A commonly used measure of within-group agreement is $r_{wg,}$ which informs us of the degree to which raters are interchangeable (Bliese, 2000). An r_{wg} value of .7 or greater is desirable in determining if aggregation is appropriate (Klein & Kozlowski, 2000).

In order to deal with issues of multicollinearity, all predictors were mean-centered. Multicollinearity can arise as an issue when predictors are highly correlated with one another, causing the regression coefficient to become unreliable and have a large standard error (Cohen, Cohen, West, & Aiken, 2003). Multicollinearity is a particularly large problem concerning cross-level interactions in multi-level models (Tabachnick & Fidell,

2007). In order to combat this problem, all predictors were mean centered. Additionally, within multi-level modeling, there is a choice to center predictors according to the group mean or the grand mean. Level 2 variables are usually grand mean centered, meaning the interpretation of the intercept changes from zero (non-centered) to the average of the variable (centered) (Tabachnick & Fidell, 2007). Grand mean centering thereby increases the ability to interpret regression relationships for variables where the intercept is not meaningful. However, grand mean centered variables still include both within and between group variability (Kahn, 2011). Level 1 variables can be either grand or group mean centered and instances exist in which one form is preferred over the other. According to Enders and Tofighi (2007), in the case of a cross-level interaction, such as the present study, Level 1 variables should be group mean centered. Group mean centering removes all between group variability in the variable. If a Level 1 variable in a cross-level interaction is misspecified and centered at the group mean, analyses may find a significant interaction effect, when none exists within the population (Type I error; Enders & Tofighi, 2007). The grand mean centered version of the Level 1 variable combat-exposure was added to the model in addition to the group mean centered version of the variable to control for any group variability which would otherwise act as a confound (Hofmann & Gavin, 1998). Therefore, within the present study of the cross-level interaction, the Level 1 variable of combat exposure was group mean centered and the Level 2 moderating variables of POS, job self-efficacy, and morale was grand mean centered.

Additionally, less conservative tests of the hypotheses were conducted using hierarchical multiple regression analyses with the longitudinal, matched sample, which did not take group membership in to account. For these analyses, a measure of combat exposure at Time 1 was used as the predictor and measures of perceived organizational support, job self-efficacy, morale, and anxiety and depression at Time 2 were used. Because it was not known how long soldiers had been members of their current units at either time period (although it was known that they belonged to the same unit at both time periods), measures of the moderators at Time 2 were used in the hierarchical regression analyses in order to ensure soldiers had a minimum of six months within their unit.

RESULTS

Descriptive Statistics

Descriptive statistics for the data are presented in Table 3. Statistics presented include means, standard deviations, bivariate correlations, and alpha values for each scale. Combat exposure at Time 1 was positively related to both anxiety (r =.30, p < .01) and depression (r = .29, p < .01) at Time 2, providing initial support for Hypothesis 1a and 1b, such that as combat exposure scores increase, so do depression and anxiety scores. Additionally, the moderator variables were each negatively related to depression (unit morale r = -.27, p < .01; POS r = -.30, p < .01; job self-efficacy r = -.22, p < .01) and anxiety outcomes (unit morale r = -.26, p < .01; POS r = -.29, p < .01; job self-efficacy r = -.15, p < .01). However, combat exposure was found to not be significantly related to the moderator variables.

Intra-class correlation statistics were also calculated in order to determine the amount of nesting which occurs for each of the variables and estimates of reliability were obtained. Table 4 contains the ICC(1), ICC(2), and r_{wg} calculations for each study variable from the matched Time 1 and Time 2 dataset. ICC(1) values were relatively small for measures of depression (.02), anxiety (.02), and job self-efficacy (.02), indicating that roughly 2% of the variance in each variable can be explained by platoon membership. Larger ICC(1) values were found for combat exposure (.46), POS (.13), and unit morale (.16), indicating larger amounts of between-group variability. In order to justify aggregating the moderator variables (POS, unit morale, and job self-efficacy) to Level 2, ICC(1) values should be greater than zero and ICC(2) and r_{wg} values should be approximately .7 (Klein & Kozlowski, 2000). According to these standards, the ICC(1)

values for job self-efficacy and low ICC(2) for all moderator variables values fail to meet the criteria for aggregation in the matched Time 1 and Time 2 sample. Given that more platoons participated in the Time 1 only sample, ICC(1), ICC(2), and r_{wg} information was recalculated in order to decide if the Time 1 data was a better fit for multi-level modeling techniques. Table 5 contains ICC(1), ICC(2), and r_{wg} values for the unmatched Time 1 sample. Table 5 shows that the ICC(1), ICC(2), and r_{wg} values still fail to meet criteria for aggregation. However, because a small amount of the variance for each variable is dependent on unit membership, a conservative test of the cross-level hypotheses (2a-4b) was conducted with unmatched Time 1 data due to the larger sample sizes at both Level 1 and Level 2. Consistent with suggested practices (Enders & Tofighi, 2007), for all multi-level models, Level 1 combat exposure was group mean centered while Level 2 POS, job self-efficacy, and unit morale were aggregated and grand mean centered.

All hypotheses were tested using a series of linear regressions and multi-level models.

Linear Regression

Combat exposure. Hypotheses 1a and 1b were tested using linear regression. Supporting Hypothesis 1a, regression results show combat exposure to have a significant, positive relationship with depression, $R^2 = .08$, $F(1,657) = 59.90$, $p < .001$. Combat exposure at Time 1 accounts for 8% of the variance in depression outcomes at Time 2 for soldiers. A summary of the regression model for depression outcomes is presented in Table 6 and a graph of the results is presented in Figure 3.

Supporting Hypothesis 1b, regression results show combat exposure to also have a positive, significant relationship with anxiety at Time 2, $R^2 = .08$, $F(1, 657) = 60.18$, $p < .001$. Combat exposure accounts for 8% of the variance in anxiety. A summary of the regression model for anxiety is presented in Table 7 and a graph of the results is presented in Figure 4.

Multi-level Models

A series of multi-level models were conducted in order to test Hypotheses 2a-4b.

Perceived organization support and depression. The first model tested the cross-level moderating effects of perceived organizational support on the individual-level relationship between combat exposure and depression at Time 1. A model with and without random effects was run and a model including random slopes of combat exposure fit the data significantly better than a model without random effects, $\Delta\chi^2 (2) = 129.74$, $p < .001$. Combat exposure was entered as a random variable. However, when group-level perceived organizational support was added to the model, combat exposure was removed from the random effects and POS was added as a random effect. First, level 1 combat exposure was positively related to depression, $B = .03$, $S.E. = .003$, $p < .05$. Next, individual-level perceived organizational support was added to the model and was found to negatively predict depression symptoms, $B = -.18$, $S.E. = .01$, $p < .05$. Unit-level perceived organizational support was then added to the model and was found to negatively predict depression symptoms above and beyond individual-level POS, $B = -.15$, $S.E. = .04$, $p < .05$. The L2 group mean of combat exposure was also included so as not to confound the between group effects for the interaction term. A within-level

interaction between combat exposure and perceived organizational support was also added to the model and was found to be significant, $B = -.01$, $S.E. = .002$, $p < .05$. Simple slopes were calculated for the within-level interaction and show that the slopes of the relationship between combat exposure and depression were significant at high ($B = .02$, $S.E. = .003$, $t = 5.52$, $p < .05$), medium ($B = .02$, $S.E. = .002$, $t = 9.94$, $p < .05$), and low ($B = .03$, $S.E. = .004$, $t = 8.66$, $p < .05$) levels of perceived organizational support. The results of the individual-level interaction show that, controlling for unit differences in combat exposure and POS, the individual-level relationship between combat exposure and depression is lessened for those individuals higher in POS (Figure 5). Finally, the cross-level interaction between combat exposure and unit-level POS was entered in to the model (see Table 8 for parameter estimates). The interaction was found to be non-significant ($B = -.01$, $S.E. = .01$, n.s.) and Hypothesis 2a was not supported. However, the interaction was found to be in the expected direction, meaning that units higher in perceived organization support had a weaker relationship between combat exposure and depression outcomes.

Perceived organizational support and anxiety. The second model tested provided a test of the moderating effects of unit-level perceived organizational support on the relationship between combat exposure and reported generalized anxiety disorder symptoms. First, a model with and without random effect was run and a model including random slopes of combat exposure fit the data significantly better than a model without random effects, $\Delta\chi^2 (2) = 152.86$, $p < .001$. However, when group-level perceived organizational support was added to the model, combat exposure was removed from the

random effects and POS was added as a random effect. Level 1 combat exposure was positively related to anxiety symptoms, $B = .04$, $S.E. = .003$, $p < .05$. Next, individual-level perceived organizational support was added to the model and was found to negatively predict anxiety symptoms, $B = -.20$, $S.E. = .02$, $p < .05$. Unit-level perceived organizational support was added to the model and was found to negatively predict anxiety symptoms beyond individual-level POS, $B = -.22$, $S.E. = .05$, $p < .05$. The group means of combat exposure were also included so as not to confound the between group effects for the interaction term. A within-level interaction between combat exposure and perceived organizational support was also added to the model and was found to be significant, $B = -.01$, $S.E. = .002$, $p < .05$. Simple slopes were calculated for the within-level interaction and show that the slopes of the relationship between combat exposure and anxiety were significant at high ($B = .03$, $S.E. = .004$, $t = 6.50$, $p < .05$), medium ($B = .03$, $S.E. = .003$, $t = 11.16$, $p < .05$), and low ($B = .04$, $S.E. = .004$, $t = 9.46$, $p < .05$) levels of perceived organizational support. The results of the individual-level interaction show that, controlling for unit differences in combat exposure and POS, the individual-level relationship between combat exposure and anxiety is lessened for those individuals high in POS (Figure 6). Finally, the cross-level interaction between combat exposure and unit-level POS were entered in to the model (see Table 9 for parameter estimates). The interaction was found to be non-significant ($B = -.01$, $S.E. = .01$, n.s.) and Hypothesis 2b was not supported. However, the interaction was found to be in the expected direction, meaning that units higher in perceived organization support had a weaker relationship between combat exposure and anxiety symptoms.

Job self-efficacy and depression. A model testing the moderating effects of unit-level job self-efficacy on the relationship between combat exposure and depression was conducted. A model with and without random effects was tested and a model including random slopes of combat exposure fit the data significantly better than a model without random effects, $\Delta\chi^2$ (2) = 129.74, $p < .001$. Combat exposure was entered as a random variable. However, when group-level job self-efficacy was added to the model, combat exposure was removed from the random effects and job self-efficacy was added to the random effects. Level 1 combat exposure was positively related to depression, $B = .03$, $S.E. = .003$, $p < .05$.

Next, individual-level job self-efficacy was added to the model and was found to negatively predict depression symptoms, $B = -.19$, $S.E. = .03$, $p < .05$. Unit-level job self-efficacy was also added to the model and was found to negatively predict depression symptoms beyond individual-level job self-efficacy, B -.24, $S.E. = .07$, $p < .05$. The group means of combat exposure was also included so as not to confound the between group effects for the interaction term. A within-level interaction between combat exposure and job self-efficacy was also added to the model and was found to be non-significant, $B = -.01$, $S.E. = .004$, n.s. Finally, the cross-level interaction between combat exposure and unit-level job self-efficacy was entered in to the model (see Table 10 for parameter estimates). The interaction was found to be non-significant ($B = -.01$, $S.E. = .01$, n.s.) and Hypothesis 3a was not supported. However, the interaction was found to be in the expected direction, meaning that units higher in job self-efficacy had a weaker relationship between combat exposure and depression outcomes.

Job self-efficacy and anxiety. The fourth model tested the moderating effects of unit-level job self-efficacy on the relationship between combat exposure and anxiety. First, a model with and without random effect was tested and a model including random slopes of combat exposure fit the data significantly better than a model without random effects, $\Delta\chi^2$ (2) = 152.86, $p < .001$. Therefore, all subsequent models retained the random effect of combat exposure. Level 1 combat exposure was positively related to anxiety symptoms, $B = .04$, $S.E. = .003$, $p < .05$. Next, individual-level job self-efficacy was added to the model and was found to negatively predict anxiety symptoms, $B = -.13$, $S.E. = .03$, $p < .05$. Unit-level job self-efficacy was then added to the model and was found to negatively predict anxiety symptoms beyond individual job self-efficacy, $B = -.26$, $S.E. = .09$, $p < .05$. The group means of combat exposure were also included so as not to confound the between group effects for the interaction term. A within-level interaction between combat exposure and job self-efficacy was also added to the model and was found to be non-significant, $B = -.002$, $S.E. = .004$, n.s. Finally, the cross-level interaction between combat exposure and unit-level job self-efficacy were entered in to the model (see Table 11 for parameter estimates). The interaction was found to be non-significant ($B = -.002$, $S.E. = .01$, n.s.) and Hypothesis 3b was not supported. However, the cross-level interaction was found to be in the expected negative direction even though it did not reduce any additional slope variance.

Unit morale and depression. This model tested the cross-level moderating effects of unit morale on the individual-level relationship between combat exposure and depression at Time 1. A model with and without random effects was run and a model

including random slopes of combat exposure fit the data significantly better than a model without random effects, $\Delta\chi^2$ (2) = 129.74, $p < .001$. Combat exposure was entered as a random variable. However, when group-level morale was added to the model, combat exposure was removed from the random effects and unit morale was added to the random effects. Level 1 combat exposure was positively related to depression, $B = .03$, $S.E. = .003$, $p < .05$.

Next, individual-level perceptions of unit morale were added to the model and were found to negatively predict depression symptoms, $B = -.16$, $S.E. = .02$, $p < .05$. Unit-level morale was added to the model and was found to negatively predict depression symptoms beyond individual-level perceptions of unit morale, $B = -.19$, $S.E. = .05$, $p < .05$. The group means of combat exposure were also included so as not to confound the between group effects for the interaction term. A within-level interaction between combat exposure and individual-level perceptions of unit morale was also added to the model and was found to be non-significant, $B = .002$, $S.E. = .003$, n.s. Finally, the cross-level interaction between combat exposure and unit-level morale were entered in to the model (see Table 12 for parameter estimates). The interaction was found to be non-significant ($B = -.01$, $S.E. = .01$, n.s.) and Hypothesis 4a was not supported. However, the interaction was found to be in the expected negative direction, meaning that it is possible units higher in morale experience a weaker relationship between combat exposure and depression outcomes.

Unit moral and anxiety. Hypothesis 3b concerned the moderating effects of unit-level morale on the relationship between combat exposure and anxiety. First, a model

with and without random effect was run and a model including random slopes of combat exposure fit the data significantly better than a model without random effects, $\Delta\chi^2$ (2) = 152.86, $p < .001$. However, when individual-level perceptions of unit morale were added to the model, no slope variance remained and neither combat exposure nor unit morale could be entered as random effects. Level 1 combat exposure was positively related to anxiety symptoms, $B = .04$, $S.E. = .003$, $p < .001$.

Next, individual-level perceptions of unit morale were added to the model and were found to negatively predict anxiety symptoms, $B = -.20$, $S.E. = 02$, $p < .05$. Unit-level morale was added to the model and was found to negatively predict anxiety symptoms beyond individual-level perceptions of unit morale, $B = -.29$, $S.E. = .06$, $p < .05$. The group means of combat exposure were also included so as not to confound the between group effects for the interaction term. A within-level interaction between combat exposure and individual-level perceptions of unit morale was also added to the model and was found to be non-significant, $B = .002$, $S.E. = .004$, n.s. Finally, the cross-level interaction between combat exposure and unit-level morale were entered in to the model (see Table 13 for parameter estimates). The interaction was found to be non-significant, $B = -.01$, $S.E. = .01$, n.s., and Hypothesis 3b was not supported. However, the cross-level interaction was found to be in the expected negative direction.

Hierarchical Multiple Regression

While multi-level modeling was used as a conservative test of the cross-level relationships between variables, it may also be appropriate to examine the longitudinal relationships between the variables without accounting for group membership (e.g.,

Huang et al., 2013). The values presented in Table 4 support an approach where group membership is not taken in to account, as each of the variables failed to meet all three criteria put forth by Klein and Kozlowski (2002). Therefore, a series of hierarchical multiple regressions were conducted with the matched Time 1 and Time 2 data. All predictor variables were mean centered to address multicollinearity.

Perceived organizational support and depression. A hierarchical multiple regression analysis was conducted in order to determine if perceived organizational support attenuates the relationship between combat exposure and depression outcomes. First, mean centered combat exposure and mean centered POS were entered in to the regression. Both combat exposure, $B = .02$, $S.E. = .003$, $p < .001$, and POS, $B = -.14$, $S.E. = .02$, $p < .001$, were found to significantly predict depression (see Table 13 for model estimates). Next, the interaction term was added to the model. The interaction between combat exposure and POS was not significant, $B = -.001$, $S.E. = .002$, $p = .75$, although the coefficient was in the expected, negative direction.

Perceived organizational support and anxiety. Hierarchical multiple regression was conducted in order to determine if perceived organizational support moderates the relationship between combat exposure and anxiety outcomes. First, mean centered combat exposure and POS were entered in to the model. Both were found to significantly predict anxiety outcomes (combat exposure, $B = .03$, $S.E. = .003$, $p < .001$; POS, $B = -.16$, $S.E. = .02$, $p < .001$). Next, the interaction term was added to the model and was found to be non-significant, $B = -.001$, $S.E. = .002$, $p = .67$ (see Table 14 for model estimates).

Job self-efficacy and depression. Hierarchical multiple regression analysis was conducted in order to determine if job self-efficacy moderates the relationship between combat exposure and depression outcomes. First, mean centered combat exposure and job self-efficacy were entered in to the model. Both combat exposure, $B = .02$, $S.E. = .003$, $p < .001$, and job self-efficacy, $B = -.21$, $S.E. = .03$, $p < .001$, were found to significantly predict depression outcomes. Next, the interaction term was added to the model and was found to be significant, $B = -.01$, $S.E. = .004$, $p < .01$. Simple slopes were calculated for the interaction term and show that the slopes of the relationship between combat exposure and depression were significant at high ($B = .02$, $S.E. = .004$, $t = 4.23$, $p < .05$), medium ($B = .02$, $S.E. = .003$, $t = 8.50$, $p < .05$), and low ($B = .03$, $S.E. = .004$, $t = 7.86$, $p < .05$) levels of job self-efficacy. The significant interaction shows that for soldiers who feel they can effectively do their jobs, the relationship between combat exposure and depression is attenuated compared to soldiers who do not feel capable of doing their jobs. Model estimates are presented in Table 16. A graph of the slopes is presented in Figure 7.

Job self-efficacy and anxiety. A hierarchical multiple regression analysis was conducted in order to determine if job self-efficacy attenuates the relationship between combat exposure and anxiety outcomes. First, mean centered combat exposure and mean centered job self-efficacy were entered in to the regression. Both combat exposure, $B = .03$, $S.E. = .003$, $p < .001$, and job self-efficacy, $B = -.17$, $S.E. = .04$, $p < .001$, were found to significantly predict anxiety (see Table 17 for model estimates). Next, the interaction term was added to the model. The interaction between combat exposure and job self-

efficacy was significant, $B = -.01$, $S.E. = -.08$, $p = .04$. Simple slopes were calculated for the interaction term and show that the slopes of the relationship between combat exposure and anxiety were significant at high ($B = .02$, $S.E. = .005$, $t = 4.59$, $p < .05$), medium ($B = .03$, $S.E. = .003$, $t = 8.27$, $p < .05$), and low ($B = .03$, $S.E. = .005$, $t = 7.03$, $p < .05$) levels of job self-efficacy. The interaction terms show that for individuals higher in unit morale the relationship between combat exposure and anxiety is lessened. A graph of the results is presented in Figure 8.

Unit morale and depression. Hierarchical multiple regression analysis was conducted in order to determine if perceptions of unit morale moderate the relationship between combat exposure and depression outcomes. First, mean centered combat exposure and unit morale were entered into the model. Both combat exposure, $B = .02$, $S.E. = .003$, $p < .001$, and unit morale, $B = -.18$, $S.E. = .03$, $p < .001$, were found significantly predict depression outcomes. Next, the interaction term was added to the model and was found to be significant, $B = -.01$, $S.E. = .004$, $p < .01$. Simple slopes were calculated for the interaction term and show that the slopes of the relationship between combat exposure and depression were significant at high ($B = .01$, $S.E. = .004$, $t = 2.19$, $p < .05$), medium ($B = .02$, $S.E. = .003$, $t = 7.86$, $p < .05$), and low ($B = .03$, $S.E. = .005$, $t = 7.63$, $p < .05$) levels of job self-efficacy. The interaction tells us that for soldiers with higher perceptions of unit morale, the relationship between combat exposure and depression is diminished. Model estimates are presented in Table 18. A graph of the slopes is presented in Figure 9.

Unit morale and anxiety. A hierarchical multiple regression analysis was conducted in order to determine if perceptions of unit morale moderate the relationship between combat exposure and anxiety outcomes. First, mean centered combat exposure and mean centered unit morale were entered in to the regression. Both combat exposure, $B = .03, S.E. = .003, p < .001$, and unit morale, $B = -.20, S.E. = .03, p < .001$, were found to significantly predict anxiety (see Table 19 for model estimates). Next, the interaction term was added to the model. The interaction between combat exposure and unit morale was significant, $B = -.01, S.E. = -.004, p = .009$. Simple slopes were calculated for the interaction term and show that the slopes of the relationship between combat exposure and anxiety were significant at high ($B = .02, S.E. = .01, t = 3.03, p < .05$), medium ($B = .03, S.E. = .003, t = 7.91, p < .05$), and low ($B = .04, S.E. = .005, t = 6.90, p < .05$) levels of job self-efficacy. The interaction terms show that for individuals higher in unit morale the relationship between combat exposure and anxiety is attenuated. A graph of the results is presented in Figure 10.

Research Questions

The current study posed two research questions including, which moderator has the strongest effect on the stressor-strain relationship? And, how much unique variance does each moderator account for in the relationship between combat exposure and mental health outcomes?

From the hierarchical multiple regression analysis where unit morale and job self-efficacy were both found to be significant moderators of the stressor-strain relationship, a comparison of effect sizes, namely, R^2, can help in answering this question. Unit morale

contributes the largest effect size as a moderator ($\Delta R^2 = .02$) and can be considered the have the strongest effect on the stressor-strain relationship. Research question two was formulated on the basis of a multi-level model and as such can not be directly tested without estimates of slope variance. However, from the individual-level interactions tested using multi-level modeling techniques it can be seen that perceived organizational support is the only significant moderator of the cross-sectional stressor-strain relationship.

Summary

The current study proposed both direct relationships between combat exposure and mental health outcomes and several cross-level moderators of the relationship between combat exposure and the mental health outcomes of depression and anxiety. Hypotheses 1a and 1b regarding the direct relationship between (a) combat exposure at Time 1 and depression at Time 2 and (b) combat exposure at Time 1 and anxiety at Time 2, were both supported. As soldiers report being exposed to more combat, scores for depression and generalized anxiety disorder symptoms increase. Hypotheses 2a and 2b regarding the ability of unit-level perceived organizational support to moderate the relationship between individual combat exposure and (a) depression and (b) generalized anxiety disorder symptoms were not supported. The cross-level interaction terms in both analyses were non-significant. Similarly, Hypotheses 3a and 3b regarding the ability of unit-level job self-efficacy to attenuate the relationship between individual combat exposure and (a) depression and (b) generalized anxiety disorder symptoms were not supported. The cross-level interaction terms of combat exposure and unit-level job self-

efficacy were non-significant in each analysis. Lastly, Hypotheses 4a and 4b regarding the ability of unit-level morale to moderate the relationship between individual combat exposure and (a) depression and (b) generalized anxiety disorder symptoms were not supported.

Additional multi-level modeling analyses testing the within-level interactions between combat exposure and the moderator variables found that individual-level perceived organizational support moderates the relationships between combat exposure and depression and anxiety outcomes. The moderators of individual-level job self-efficacy and morale did not act as moderators of the individual relationship between combat exposure and depression and anxiety. Also, using hierarchical multiple regression to examine the capability of individual perceived organizational support, job self-efficacy, and perceptions of unit morale to moderate the individual-level relationship between combat exposure and depression and anxiety yielded supplementary results. While individual perceived organizational support did not moderate either the relationship between combat exposure and depression or combat exposure and anxiety, both job self-efficacy and unit morale did attenuate the relationship between combat exposure and depression and anxiety outcomes.

DISCUSSION

The current study examined the moderating effects of unit-level perceived organizational support, job self-efficacy, and unit morale on the stressor-strain relationship between combat exposure and depression and anxiety outcomes. This study provided a test of the Soldier Adaptation Model (SAM) with regard to specific organizational moderator variables. Additionally, this study provided a replication of the direct relationship between increased combat exposure and increased symptoms of mental health disorders and also found contextual main effects for each of the moderator variables. Two direct relationships were hypothesized and supported while six cross-level interactions were specified and none were found to be significant. The three interaction hypotheses were tested again on within-level relationships and perceived organizational support was found to attenuate the relationship between combat exposure and depression and anxiety symptoms. Each hypothesis is discussed below, including possible explanations for each set of results. Finally, practical implications of the study, limitations, and directions of future study are proposed.

Originally, Hypotheses 2a-4b were proposed with longitudinal data such that each moderator variable aggregated to level 2 would moderate the relationship between combat exposure at Time 1 and mental health outcomes at Time 2. However, it was discovered that the number of soldiers per unit was on average too small to provide much meaningful variation in the slopes of the proposed relationships, with the average platoon size being 6 soldiers with a range of one to 27 platoon members. Therefore, the decision was made to use the Time 1 data to test Hypotheses 2a-4b. The Time 1 data contained

122 platoons with an average of 12 soldiers per unit with a range of four to 50 soldiers per unit.

Discussion of the Findings

Combat exposure. The basis of all models tested within the current study is that there is a strong, positive relationship between combat exposure at Time 1 and reported (a) depression and (b) anxiety at Time 2. The current study aimed to create a temporal link between combat exposure and mental health outcomes, which is why two different time points were used. Hypotheses 1a and 1b are a replication of previous research that has found positive linear relationships between combat experiences and mental health outcomes and this relationship has served as the foundation for many studies showing the various effects of combat (Hoge et al., 2006; Hoge et al., 2004; Seal et al., 2009; US Joint Health Advisory Team 7 Report, 2011). In fact, Fontana and Rosenheck (1998) found combat exposure to be the greatest predictor of future behavioral health problems in soldiers. The Joint Mental Health Advisory Team (2011) has also found that in recent years, soldiers have reported an increase in exposure to combat and an increase in reports of depression and anxiety symptoms.

The results of the current study support previous findings and both Hypothesis 1a and 1b were supported. Combat exposure at Time 1 did have a positive, direct effect on soldier reports of depressions and anxiety symptoms at Time 2, providing additional support for a longitudinal relationship. Soldiers who reported experiencing increased instances of combat exposure at Time 1 also reported increased depression and anxiety symptoms at Time 2. However, it should be noted that combat exposure only accounts for

8% of the variance in its relationship with both depression and anxiety. While much of the military psychology literature does not speculate on the cause of the relationship, one possible explanation is proposed by the diathesis-stress model (Monroe & Simons, 1991). The diathesis-stress model posits that a combination of environmental stressors and personal dispositions is responsible for the development of mental health disorders. This model may provide one reason for the finding that only 8% of the variance in depression and anxiety is accounted for by combat exposure. Another reason may be that moderators and mediators of the relationship buffer the effects of combat exposure.

Perceived organizational support. The first moderator relationship tested was unit-level perceived organizational support. Hypotheses 2a-b posited that unit-level perceived organizational support would attenuate the individual-level relationship between combat exposure and (a) depression and (b) anxiety. Neither Hypothesis 2a nor 2b was supported. As this specific application of POS as a cross-level moderator was novel to the current study, these results neither support nor conflict with past research. However, group-level POS was thought to have the capacity to act as a buffer of the stressor-strain relationship because previous research has shown that individual POS is negatively related to states of job-related tension and burnout (Armstrong-Stassen, 1997), anger (O'Neill et al., 2009), fatigue (Cropanzano et al., 1997), psychological strain (Rhoades & Eisenberger, 2001), and PTSD (Kelley, 2010). Additionally, support has previously been shown to buffer other stressor-strain relationships, including the relationships between workplace violence and employee well-being (Leather et al., 1998), workload and high blood pressure (Ilies et al., 2010), role conflict and emotional

exhaustion (Jawahar et al., 2007), and instances of work overload and psychological strain (Bliese & Castro, 2000). It was expected that the findings of these previous studies could be extended to the buffering effects of POS on the combat exposure-mental health outcome relationship through the contextual, group-level effect of POS. The primary proposed mechanism through which the buffering effects of POS are thought to operate is the organization's fulfillment of employee's socioemotional needs. This fulfillment may help the employee deal with stressors by facilitating a further identification with the organization, which may increase how much the employee felt the organization cared about him/her and his/her contributions. In the current study this would mean that soldiers in units who feel that their unit values them and their contributions would interpret that caring as fulfilling a social or emotional need and would then identify more strongly with that unit. This increased identity would then aid the soldier in dealing with their combat experiences.

One explanation as to why unit-level POS did not moderate the stressor-strain relationship is that the buffering effects are not strong enough to aid with actual mental health outcomes, as opposed to the more general construct of psychological well-being. Perceived organizational support has been studied as a buffer between stressors and job attitudes, job performance, and well-being outcomes. However, literature on the buffering effect of POS on well-being outcomes is much smaller than the literature on the buffering effect of POS on performance outcomes. It is possible that this is because studies examining POS and well-being outcomes are subject to the file drawer effect and have not been published. It may also be possible that the well-being outcomes POS is best

suited to buffer are those such as emotional exhaustion and general psychological well-being, which make up a majority of the literature on POS and well-being outcomes at the current time (see Baran et al., 2012).

However, the group-level main effect of perceived organizational support on both depression and anxiety outcomes was found to be significant beyond individual levels of POS. This incremental effect shows that there is a group-level effect of perceived organizational support, such that on average, units higher in perceived organizational support reported fewer depression and anxiety symptoms, but the relationship is not dependent on levels of combat exposure. That is, the negative relationship observed does not change for units high vs. low in reported combat exposure.

Alternatively, the individual-level interaction between combat exposure and perceived organizational support was also tested. The interaction was found to be significant such that for soldiers who perceived greater organizational support, the relationship between combat exposure and both depression and anxiety outcomes was attenuated. This finding means that while an interaction effect of group was not found in the current study, when individuals believe their unit offers more support, the positive relationship between combat exposure and depression and anxiety outcomes is lessened.

Job self-efficacy. Hypotheses 3a-b aimed to provide evidence of the moderating effects of unit-level job self-efficacy on the relationship between combat exposure and (a) depression and (b) anxiety outcomes. Neither hypothesis was supported. The literature on the moderating effects of job self-efficacy is itself ambiguous, with some research finding job self-efficacy able to moderate the relationship between job stressors and strain (e.g.,

Jex & Bliese, 1999; Schaubroeck et al., 2000) while other studies have not found job self-efficacy to act as a moderator (e.g., Jex & Gudanowski, 1992; Schreurs et al., 2010). Additionally, other studies have not aggregated job self-efficacy when examining group effects and instead have measured group effects with collective efficacy (i.e., individual's perceptions of how capable the group is).

However, unit-level job self-efficacy was found to be significantly, negatively related to both depression and anxiety outcomes, beyond individual job self-efficacy. This finding shows that on average, soldiers in units higher in job self-efficacy have fewer depression and anxiety symptoms but the effect is not dependent on high vs. low levels of combat exposure. That is, the relationship remains negative at all levels of combat exposure.

The individual-level interaction between combat exposure and job self-efficacy was also tested in the current study and found to be non-significant. That is, after controlling for the group-level influence of both combat exposure and job self-efficacy, the individual relationship between combat exposure and the mental health outcomes of depression and anxiety was not dependent on individual perceptions of job self-efficacy.

A possible explanation for the fact that neither the cross-level moderation nor the within-level interaction was found is that the stressors, resources, and strains measured by the current study do not match well enough. The matching hypothesis (de Jonge & Dormann, 2006) states that moderating effects will be more likely to be found if the stressors, resources, and strains being measured are all of the same "type" of variable. In the current study, for example, combat exposure is an emotional stressor and mental

health outcomes are emotional strains while job self-efficacy is a cognitive resource. In a test of the triple match principle, de Jonge and Dormann found that the likelihood of finding a significant interaction was only 16.7% when there was a match between two of the three variable types. Therefore, it is possible that lack of match between the moderator variable job self-efficacy and the stressor and strain variables had an impact on the null findings.

Unit morale. The last moderator variable tested was the effect of unit morale. Hypotheses 4a-b postulated that unit morale would attenuate the individual-level relationship between combat exposure and (a) depression and (b) anxiety. Neither Hypothesis 4a nor 4b was supported. Studies published on the effects of unit morale (i.e., morale aggregated to Level 2) are not common in the literature, but a cross-level effect of morale was expected as the antecedents of morale include factors which may have group-level influence and personal morale has previously been found to act as a buffer in the relationship between combat exposure and PTSD (Britt et al., 2013).

However, a main effect of group-level morale was found to be significant for both depression and anxiety outcomes. This group-level main effect was significant even when controlling for individual perceptions of morale within one's unit. This result means that on average, soldiers in units with higher perceptions of unit morale reported fewer depression and anxiety symptoms, but the effect is not dependent on levels of combat exposure. That is, the slope of the relationship between unit morale and depression and anxiety outcomes does not change for high vs. low levels of combat exposure.

Additionally, the individual-level interaction between combat exposure and individual perceptions of unit morale was also tested and was found to be non-significant. These findings indicate that the relationship between combat exposure and mental health outcomes is not dependent on individual perceptions of morale within one's unit.

The non-significant findings in the current study run counter to much of the literature concerning the buffering effects of morale. However, somewhat small amounts of group variability in unit morale were found in the current study. It is possible that each soldier conceptualizes what constitutes "morale" in a different way, thereby increasing the individual variability (and decreasing group-level variability). The literature may support this assertion, as scholars define morale in many different ways (see Britt & Dickinson, 2006) and it is possible soldiers also think about morale differently.

The fact that even the individual-level interaction was non-significant is inconsistent with previous findings of the ability of morale to buffer the relationship between combat exposure and mental health outcomes. One explanation for the null findings may be that other studies have not controlled for unit-level effects when testing the moderating effects of morale. While the current study (and others; see Britt et al., 2007) has shown little group-level variability in morale, it is possible that unit characteristics are influencing the moderator relationship and the current study has controlled for these effects.

Power. Finally, a possible reason Hypotheses 2a-4b were not supported is that the current study lacked adequate power to find the cross-level buffering effects of each moderator. Multi-level modeling techniques require large sample sizes at all levels

(Tabachnick & Fidell, 2007). Additionally, it has been suggested that in order to have enough power and accurate estimates of random variance, multi-level studies should have at least 100 groups and at least 10 individuals per group (Hox, 2010). The current study contained 122 platoons and on average had 12 participants per platoon, but almost half of the platoons had fewer than 10 participants. Further, all cross-level interactions were in the expected negative direction. While small coefficient values were found, it is possible that the effects themselves are relatively small and would require proper group sizes to find significance. Therefore, it is possible that sufficient power was a factor in the current study.

Exploratory analyses. Additional analyses of the matched, longitudinal data were conducted using multiple regression analyses and while these analyses are far less conservative than the multilevel models conducted on the Time 1 data because they do not account for any variance at the group level, the results give another frame of reference for the data. The ability of perceived organizational support, job self-efficacy, and unit morale to buffer the stressor-strain relationship between combat exposure and mental health outcomes was tested. The pattern of results observed for the individual-level interactions in the multiple regression analyses is opposite to the results observed in the individual-level interactions in the multilevel analyses; Individual levels of perceived organizational support did not moderate the individual-level relationship between combat exposure and mental health outcomes while both individual job self-efficacy and individual perceptions of unit morale did buffer the individual-level relationship between combat exposure and both depression and anxiety.

Two possibilities exist that would explain this pattern of results. First, it is possible that the buffering effect of the moderator variables varies over time. Perhaps the effects of individual perceptions of job self-efficacy and unit morale take longer to be experienced by soldiers and measurements at Time 2 are responsive to this change, while individual feelings of POS are a more effective buffer in the short term. A second reason for the observed pattern of results is that the most appropriate statistical technique for these data is one where the effect of context is taken in to account, which is accomplished with the multilevel models, but not with the multiple regression analysis.

Implications

The results of the current study extend the occupational health psychology literature in several important ways. First, the current study aimed to contextualize the relationship between combat exposure and depression and anxiety outcomes. Although the hypothesized contextual moderating effects were not found, contextual main effects for each of the moderator variable were observed, meaning that units do have an impact beyond the individual level of each variable. These results are still very important, as targeted interventions can be developed to increase feelings of perceived organizational support, job self-efficacy, and unit morale within units, thereby reducing the depression and anxiety symptoms experienced by soldiers, regardless of how much or how little exposure to combat soldiers have experienced.

Additionally, the results of the cross-level interactions are not consistent with previous literature on the individual-level effects of the moderator variables. These findings suggest that unit-level POS, job self-efficacy, and morale may not possess

buffering effects at the unit level and may only operate at the individual level. However, the current study also failed to find support the individual-level moderating effects of job self-efficacy and unit morale when controlling for group-level characteristics. Few, if any, studies have taken this approach with unit morale, but other studies have successfully controlled for group characteristics when examining the individual effects of job self-efficacy (Jex & Bliese, 1999). Therefore, it is possible that the current study population is somehow anomalous from previous study populations.

The current study also added to the literature in examining the group-level effects of both perceived organizational support and unit morale. No previously published studies have examined the ability of the group-level constructs to act as a buffer of the stressor-strain relationship. While no group-level moderating effects were found for either construct, these findings do not preclude either construct from possibly acting as a buffer in another type of stressor-strain relationship.

Additionally, the current study examined the outcome of symptoms associated with generalized anxiety disorder. While caseness of generalized anxiety disorder was not assessed, this study adds to the literature on outcomes of combat exposure other than PTSD. This study also answered the call of Chan (1998) to further examine group-level efficacy and its effects. While no significant group-level effects were found, the results add additional information to the body of knowledge. Finally, the current study adds to the body of knowledge in occupational health psychology concerning the call for additional studies on multi-level studies in OHP (Bliese & Jex, 2002).

Limitations and Future Directions

The results and conclusions of the current study should be viewed in light of some limitations. First, the multi-level analyses were conducted with Time 1, cross-sectional data. Therefore, the relationships observed can not be presumed to be causal in nature. Longitudinal data was available, but the low number of soldiers in each group made the data unsuitable for multi-level analyses. Future studies should aim to recruit adequate numbers of soldiers from platoons or companies in order to provide a better test of the longitudinal relationships. However, the relationships between combat exposure and depression and anxiety were assessed using longitudinal data, a strength of the current study.

Additionally, all data in the current study were obtained through self-report, which may introduce measurement bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In the current study, the most likely sources of this bias would be socially desirable responding and the effect of mood states. Soldiers may not want to admit they are currently experiencing "behavioral health" symptoms and may be less motivated to respond in the affirmative for depression and anxiety symptoms. However, a significant relationship between combat exposure and both depression and anxiety was found, indicating that socially desirable responding may not be a large issue in the current study. However, assessing the variables in the current study is likely best accomplished through self-report data. Some may suggest that the outcome mental health variables be measured using an outside source (e.g., a behavioral health specialist); however, that approach is neither time nor cost effective and recent studies suggest that outside sources utilizing the

same method are just as likely to experience the method variance that was trying to be avoided (Conway & Lance, 2010). Additionally, mood has been shown to influence perceptions of perceived organizational support (Rhoades & Eisenberger, 2002), which is a limitation of the current study as mood or general affectivity was not controlled.

Additionally, unit morale was measured with a single item measure, which may be seen as a limitation because reliability information cannot be calculated. Sackett and Larson (1990) have suggested that a single item may be most appropriate when the construct in question is narrow and unambiguous. The effects of unit morale may have been larger and more reliable if additional items were used to measure the construct. Future research should examine the effectiveness of a single item measure of morale against a multi-item measure.

Finally, sample size was an issue in the current study. Hox (2010) has suggested sample sizes of at least 100 groups with at least 10 participants per group in order for multi-level analyses to be accurate in finding effects. The current study contained enough groups to meet the first criterion, but did not contain adequate numbers of participants per unit. As mentioned above, future studies should aim to recruit participants from large units and ideally be able to track those participants over at least two time points.

Conclusions

This thesis project aimed to examine the pathways through which group characteristics might ameliorate the negative effects of combat exposure on the mental health outcomes of depression and anxiety for service members. The military is limited in the ways in which it can protect service members from combat, especially within the

confines of war, but supportive characteristics of the group are one facet the military can generally affect. While the current study did not show that group-level characteristics impact the individual-level relationship between combat exposure and depression and anxiety, significant main effects of each of proposed moderator were found, suggesting a relationship that is not dependent on combat exposure. It is my hope that continued research on the topic of unit-level buffers can help to discern how resources can best be spent to reduce the negative mental health effects of combat exposure.

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APPENDICES

Appendix A

Measure of Combat Exposure

Instructions: Think about your last deployment. Did any of these happen on your last deployment?

		Yes	No
1.	Being attacked or ambushed	O	O
2.	Seeing destroyed homes and villages	O	O
3.	Receiving small arms fire	O	O
4.	Seeing dead bodies or human remains	O	O
5.	Handling or uncovering human remains	O	O
6.	Witnessing an accident which resulted in serious injury or death	O	O
7.	Witnessing violence within the local population or between ethnic groups	O	O
8.	Seeing dead or seriously injured Americans	O	O
9.	Knowing someone seriously injured or killed	O	O
10.	Witnessing a friendly fire incident	O	O
11.	Working in areas that were mined, had IEDs or VBIEDs	O	O
12.	Having hostile reactions from civilians	O	O
13.	Disarming civilians	O	O
14.	Being in threatening situations where you were unable to respond because of rules of engagement	O	O
15.	Shooting or directing fire at the enemy	O	O
16.	Calling in fire on the enemy	O	O
17.	Engaging in hand-to-hand combat	O	O
18.	Clearing/searching homes or buildings	O	O
19.	Clearing/searching caves or bunkers	O	O
20.	Witnessing brutality/mistreatment toward non-combatants	O	O
21.	Being wounded/injured	O	O
22.	Seeing ill/injured women who you were unable to help	O	O
23.	Seeing ill/injured children who you were unable to help	O	O
24.	Receiving incoming artillery, rocket, or mortar fire	O	O
25.	Being directly responsible for the death of an enemy combatant	O	O
26.	Being directly responsible for the death of a non-combatant	O	O
27.	Being responsible for the death of US or ally personnel	O	O
28.	Successfully engaging the enemy	O	O
29.	Having a member of your own unit become a casualty	O	O

30.	Having a close call, dud landed near you	O	O
31.	Having a close call, was shot or hit but protective gear saved you	O	O
32.	Having a buddy shot or hit who was near you	O	O
33.	Improvising explosive device (IED)/booby trap exploded near you	O	O
34.	Encountering sniper fire	O	O

Appendix B

Measure of Morale

Instructions: Please answer the following questions using the scale provided.

		Very Low	Low	Medium	High	Very High
1.	Rate morale in your unit	O	O	O	O	O

Appendix C

Patient Health Questionnaire (PHQ; Spitzer, et al. (1999)

Instructions: Please rate how often you have experienced each symptoms over the past 4 weeks.

Depression Subscale

		Not At All	Few or Several Days	More than Half the Days	Nearly Everyday
1.	Little interest or pleasure in doing things	O	O	O	O
2.	Feeling down, depressed, or hopeless	O	O	O	O
3.	Trouble falling or staying asleep, or sleeping too much	O	O	O	O
4.	Feeling tired or having little energy	O	O	O	O
5.	Poor appetite or overeating	O	O	O	O
6.	Feeling bad about yourself - or that you are a failure or have let yourself or your family down	O	O	O	O
7.	Trouble concentrating on things such as reading the newspaper or watching television	O	O	O	O
8.	Moving or speaking so slowly that other people could have noticed	O	O	O	O

Anxiety Subscale

		Not At All	Few or Several Days	More than Half the Days	Nearly Everyday
1.	Muscle tensions aches or soreness	O	O	O	O
2.	Becoming easily annoyed or irritable	O	O	O	O
3.	Feeling restless so that it is hard to sit still	O	O	O	O
4.	Feeling nervous, anxious, on edge, or worrying a lot about different things	O	O	O	O

Appendix D

Job Self-Efficacy

Instructions: Please answer the following questions using the scale provided.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	Based on my experiences, I am confident that I will be able to successfully perform my military tasks	O	O	O	O	O
2.	The demands of my military tasks are well within the scope of my abilities	O	O	O	O	O
3.	I have all the technical knowledge I need to perform my military tasks	O	O	O	O	O

Appendix E

Perceived Organizational Support (Eisenberger et al. (1986))

Instructions: Please answer the following questions with regard to your unit.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	My unit strongly considers my goals and values	O	O	O	O	O
2.	My unit really cares about my well-being	O	O	O	O	O
3.	My unit shows little concern for me	O	O	O	O	O
4.	My unit would forgive an honest mistake on my part	O	O	O	O	O
5.	My unit cares about my opinion	O	O	O	O	O
6.	If given the opportunity, my unit would take advantage of me	O	O	O	O	O
7.	Help is available from my unit when I have a problem	O	O	O	O	O
8.	My unit is willing to help me when I need a special favor	O	O	O	O	O

Figure 1. Hypothesized process through which unit level moderators buffer the relationship between combat exposure and depression/anxiety as suggested by the Soldier Adaptation Model (Bliese & Castro, 2003).

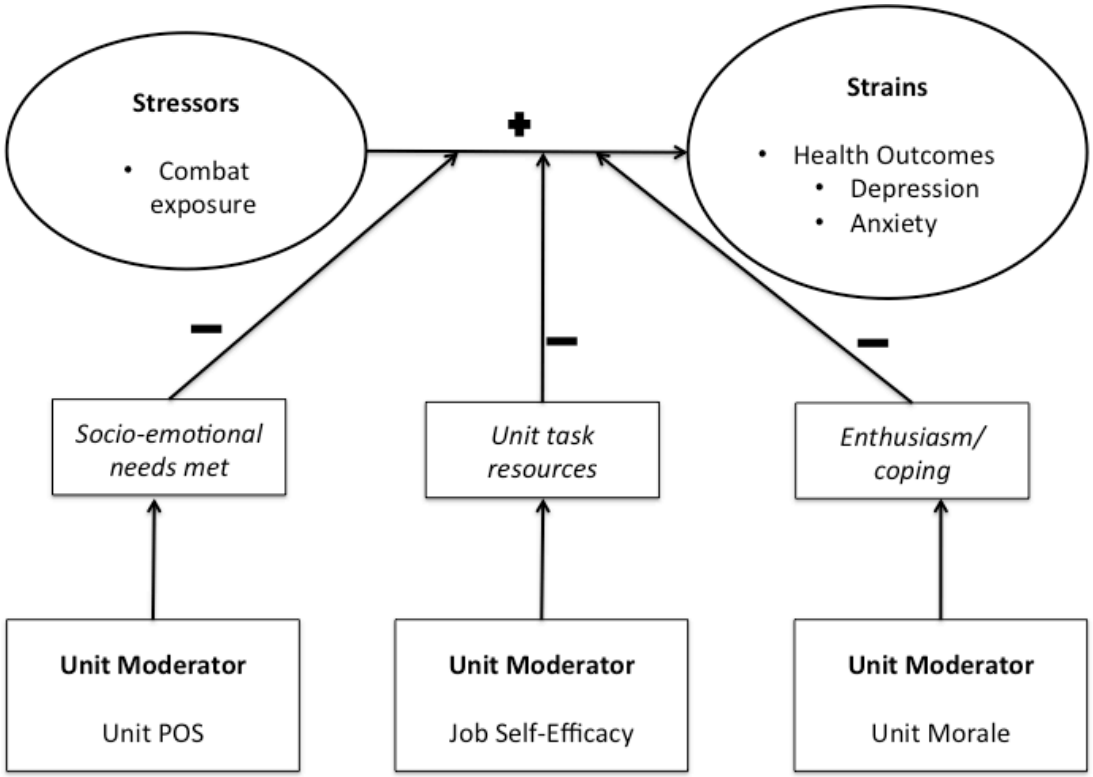

Figure 2. Hypothesized interaction between combat exposure and perceived organizational support predicting depression and anxiety outcomes.

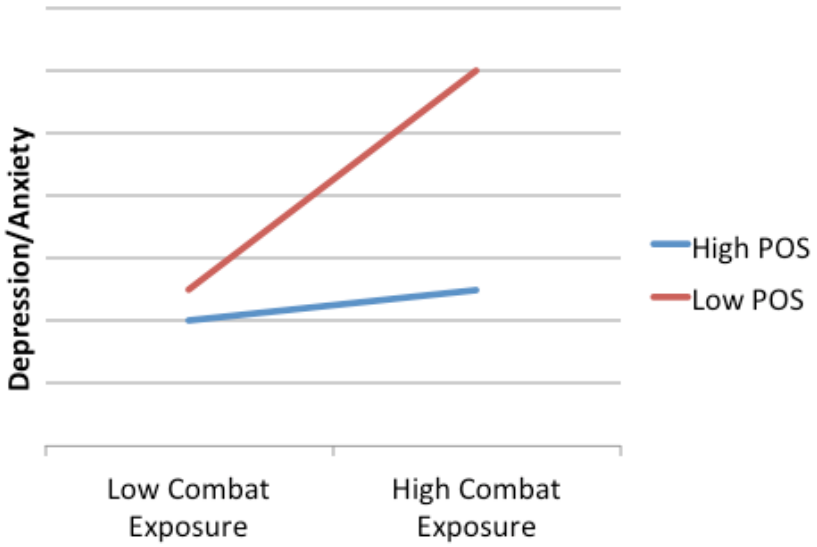

Figure 3. Graph of the relationship between Time 1 combat exposure and depression symptoms at Time 2.

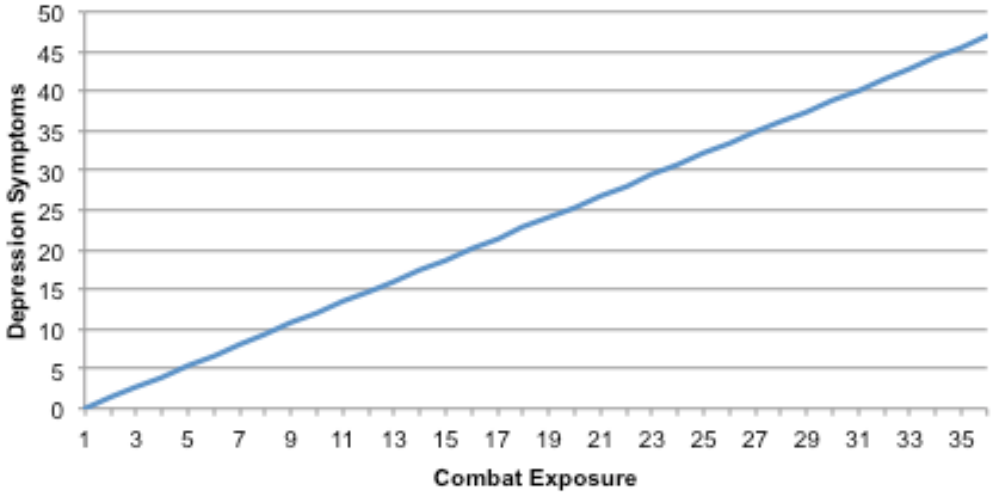

Figure 4. Graph of the relationship between Time 1 combat exposure and anxiety symptoms at Time 2.

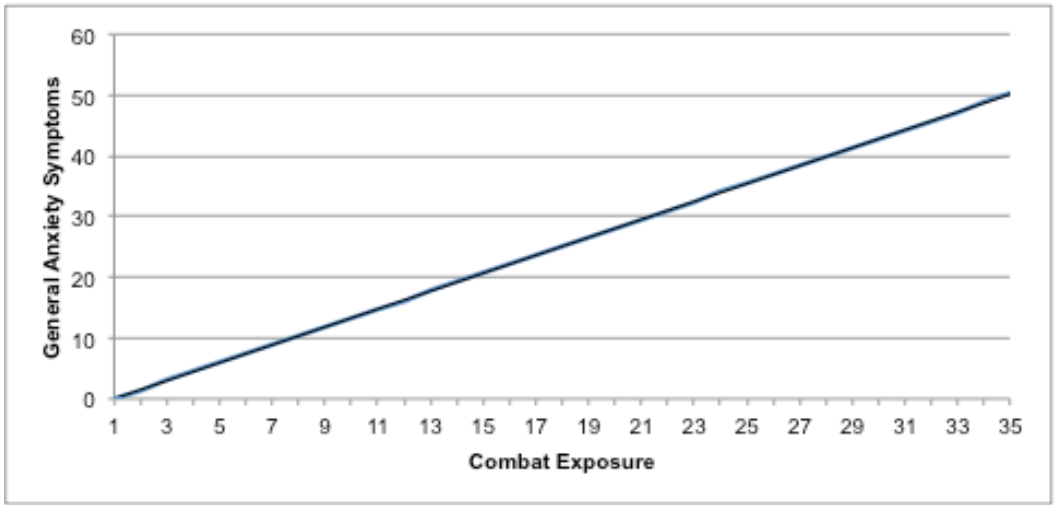

Figure 5. A graph of the slopes of the individual-level relationship between combat exposure at Time 1 and depression at Time 1 at different levels of perceived organizational support.

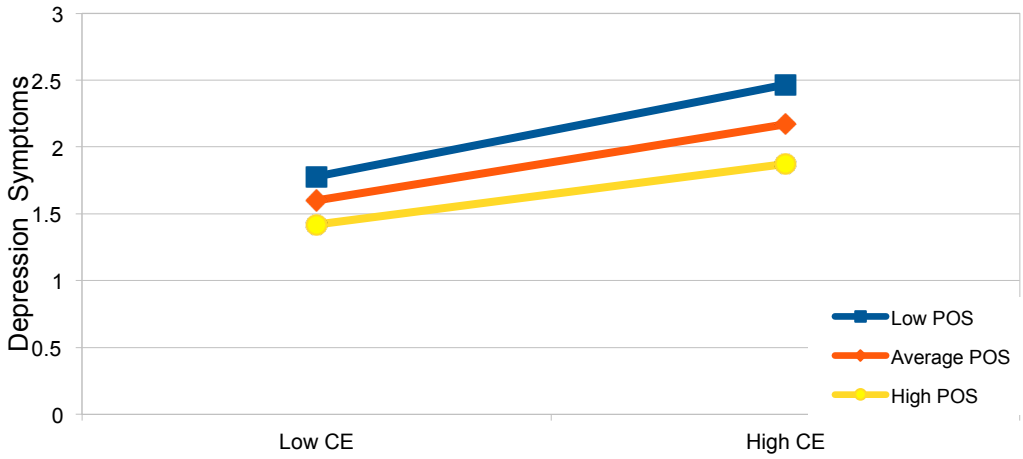

Figure 6. A graph of the slopes of the relationship between combat exposure at Time 1 and anxiety at Time 2 at different levels of perceived organizational support.

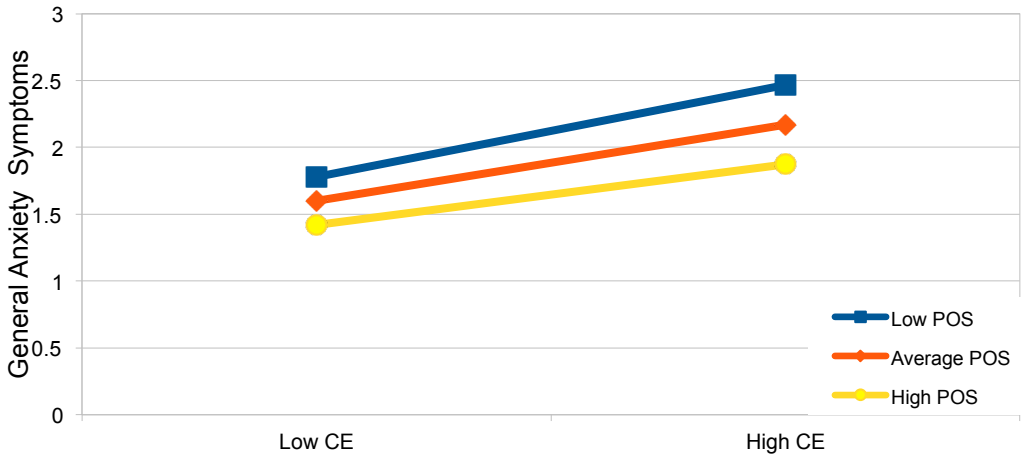

Figure 7. A graph of the slopes of the relationship between combat exposure at Time 1 and depression at Time 2 at different levels of job self-efficacy.

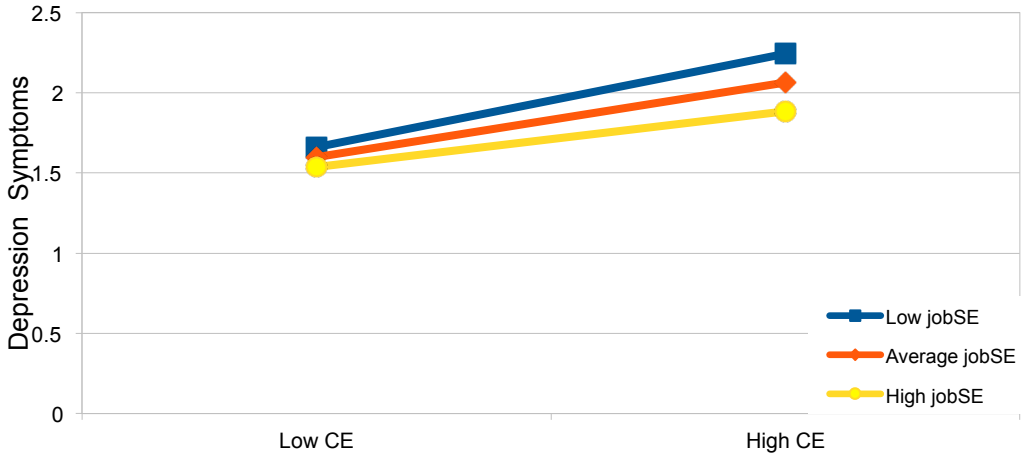

Figure 8. A graph of the slopes of the relationship between combat exposure at Time 1 and anxiety at Time 2 at different levels of job self-efficacy.

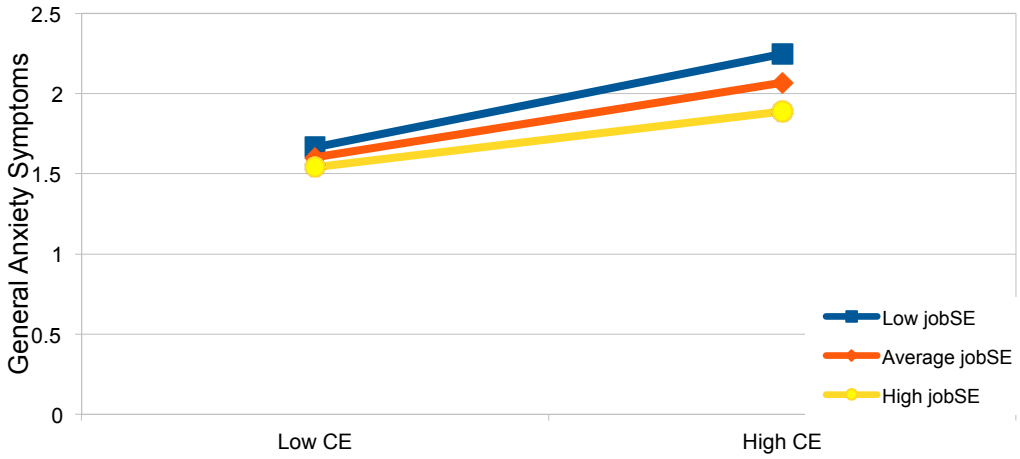

Figure 9. A graph of the slopes of the relationship between combat exposure at Time 1 and depression at Time 2 at different levels of unit morale.

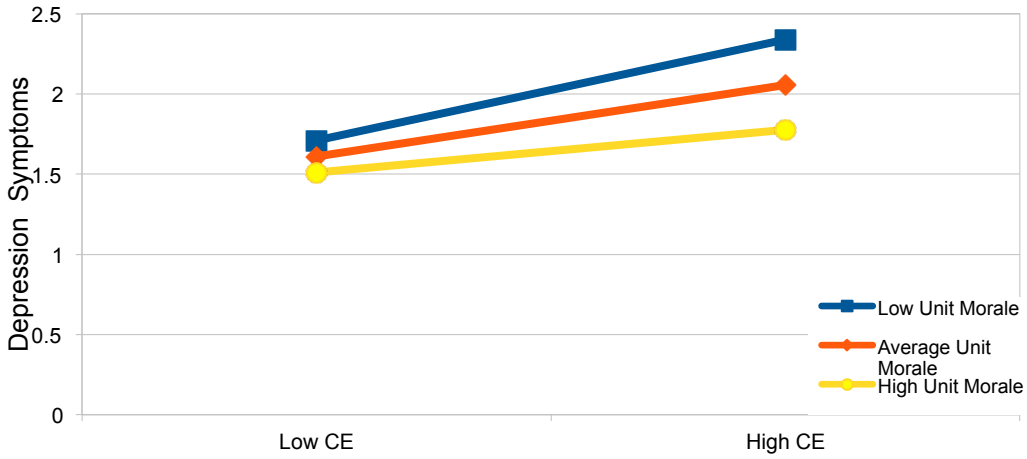

Figure 10. A graph of the slopes of the relationship between combat exposure at Time 1 and anxiety at Time 2 at different levels of unit morale.

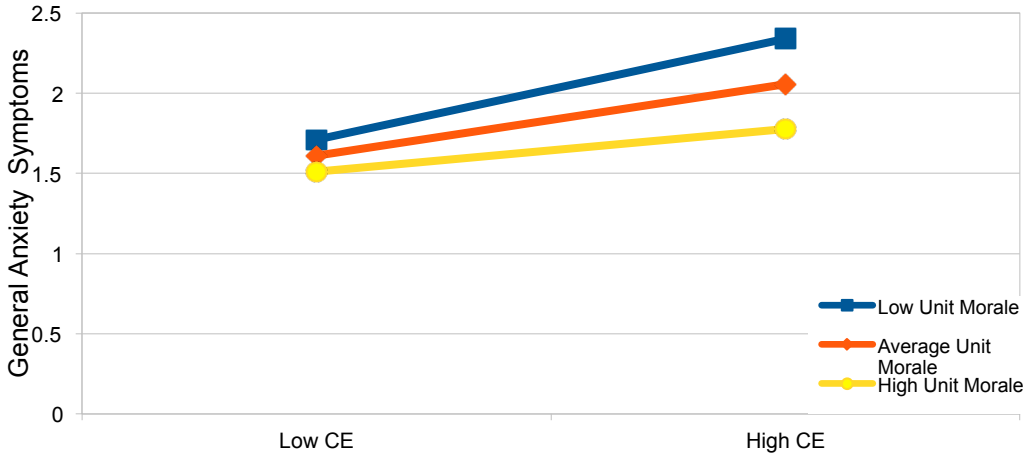

Table 1

Demographic information for the Time 1 and Time 2 matched sample.

		Percent
Age		
	18 - 19	2
	20 - 24	56.8
	25 - 29	23.2
	30 - 39	16.7
	40 or older	1.2
Gender		
	Female	3.9
	Male	95.9
Ethnicity		
	White	64.5
	African American	12.7
	Hispanic	11.9
	Asian/Pacific Islander	4.4
	Other	4.8
Rank		
	E1-E4	63.6
	E5-E6	27.4
	E7-E9	3.6
	O1-O3	4.4
	O4-O9	0.3
	WO1-WO5	0.5
Unit Type		
	Combat arms	75.9
	Combat support	16
	Combat service support	6.3
	Division or Higher HQ	0.2
Years in Military	$M = 4.75$ ($SD = 4.12$)	

Table 2

Demographic information for the Time 1 only sample.

		Percent
Age		
	18 - 19	1.4
	20 - 24	50.1
	25 - 29	27.4
	30 - 39	19
	40 or older	2.1
Gender		
	Female	4.4
	Male	95.5
Ethnicity		
	White	63.9
	African American	13.3
	Hispanic	12.3
	Asian/Pacific Islander	4.1
	Other	4.5
Rank		
	E1-E4	61.5
	E5-E6	31.3
	E7-E9	3.6
	O1-O3	3
	O4-O9	0.1
	WO1-WO5	0.3
Unit Type		
	Combat arms	73.2
	Combat support	16.9
	Combat service support	8.5
	Division or Higher HQ	0.3
Years in Military	M = 5.1 (SD = 4.28)	

Table 3

Descriptive Statistics, Alpha Coefficients, and Correlations.

Variable	*M*	*SD*	1	2	3	4	5	6
1. Combat exposure	13.68	8.58	(.95)					
2. Unit morale	2.50	.96	-.03	-				
3. POS	3.83	1.31	-.05	.59**	(.91)			
4. Job self-efficacy	4.02	.78	.05	-.22**	.23**	(.87)		
5. Depression	1.65	.67	.29**	-.27**	-.30**	-.22**	(.90)	
6. Anxiety	1.84	.79	.30**	-.26**	-.29**	-.15**	.82**	(.82)

Note. ** $p < .01$. Values on the diagonal are Cronbach's alpha values for each scale. Unit morale was a 1-item measure and alpha values could not be calculated. Sample sizes ranged from 654 to 662. Combat exposure was measured at Time 1; all other variables were measured at Time 2. POS = Perceived Organizational Support.

Table 4

ICC(1), ICC (2), and r_{wg} calculations for matched Time 1 and Time 2 sample.

	ICC(1)	ICC(2)	r_{wg}
Combat exposure	0.46	0.91	0.57
Depression	0.02	0.06	0.64
Anxiety	0.02	0.43	0.52
POS	0.13	0.44	0.27
Unit morale	0.16	0.49	0.62
Job self-efficacy	0.02	0.1	0.72

Table 5

ICC(1), ICC (2), and r_{wg} calculations for unmatched Time 1 only sample.

	ICC(1)	ICC(2)	r_{wg}
Combat exposure	0.46	0.91	0.60
Depression	0.05	0.35	0.67
Anxiety	0.06	0.44	0.54
POS	0.06	0.42	0.61
Unit morale	0.11	0.60	0.63
Job self-efficacy	0.02	0.26	0.72

Table 6

Parameter estimates for combat exposure predicting depression.

Parameter	B	Std. Error	β	t-value	p-value	R^2
Intercept	1.34	.05	-	28.21	< .001	-
Combat exposure	.02	.003	.29	7.74	< .001	.08

Note. DV = Depression at Time 2

Table 7

Parameter estimates for combat exposure predicting anxiety.

Parameter	B	Std. Error	β	t-value	p-value	R^2
Intercept	1.47	.06	-	26.63	< .001	-
Combat exposure	.03	.003	.29	7.76	< .001	.08

Note. DV = Anxiety at Time 2

Table 8
Parameter estimates of the cross-level interaction between combat exposure and POS predicting depression outcomes.

Effect	Parameter Estimate	*SE*	*t*	R^2	95% Confidence Interval	
					Lower	Upper
Intercept	1.68	0.02	76.2*	-	1.63	1.72
L1 Combat Exposure	0.03	0.003	8.49*	0.12	0.02	0.04
L2 Combat Exposure	0.01	0.003	4.75*	0.33	0.008	0.02
L1 POS	-.18	.01	-12.50*	.12	-.21	-.15
L2 POS	-.15	.04	-3.89*	.20	-.22	-.07
L1 Combat exposure * L1 POS	-.01	.002	-2.54*	.06	-.01	-.001
L1 Combat exposure * L2 POS	-.01	.01	-1.80	-	-.02	-.001

Note. DV = depression at Time 1. POS = perceived organizational support at Time 1. R^2 is the HLM version of the reduction in variance. The cross-level interaction did not reduce additional variance. *$p < .05$

Table 9

Parameter estimates of the cross-level interaction between combat exposure and POS predicting anxiety outcomes.

Effect	Parameter Estimate	*SE*	*t*	R^2	95% Confidence Interval	
					Lower	Upper
Intercept	1.88	0.03	67.80*	-	1.83	1.94
L1 Combat Exposure	0.04	0.003	10.61*	0.13	0.03	0.04
L2 Combat Exposure	0.02	0.004	5.43*	0.39	0.01	0.03
L1 POS	-.20	.02	-12.05*	.12	-.23	-.17
L2 POS	-.22	.05	-4.75*	.40	-.31	-.13
L1 Combat exposure * L1 POS	-.01	.002	-2.42*	.003	-.01	-.001
L1 Combat exposure * L2 POS	-.01	.01	-1.49	-	-.02	.003

Note. DV = anxiety at Time 1. POS = perceived organizational support at Time 1. R^2 is the HLM version of the reduction in variance. The cross-level interaction did not reduce additional variance. *$p < .05$

Table 10

Parameter estimates of the cross-level interaction between combat exposure and job self-efficacy predicting depression outcomes.

Effect	Parameter Estimate	*SE*	*t*	R^2	95% Confidence Interval	
					Lower	Upper
Intercept	1.68	0.02	76.20*	-	1.63	1.72
L1 Combat Exposure	0.03	0.003	8.50*	0.12	0.02	0.04
L2 Combat Exposure	0.01	0.003	4.75*	0.33	0.01	0.02
L1 JSE	-.19	.03	-7.54*	.05	-.24	-.14
L2 JSE	-.24	.07	-3.39*	.23	-.38	-.10
L1 Combat exposure * L1 JSE	-.01	.004	-1.40	-	-.01	.002
L1 Combat exposure * L2 JSE	-.01	.01	-1.03	-	-.03	.01

Note. DV = depression at Time 1. JSE = job self-efficacy at Time 1. R^2 is the HLM version of the reduction in variance. The within-level interaction did not reduce additional variance. The cross-level interaction did not reduce additional variance. *$p < .05$

Table 11

Parameter estimates of the cross-level interaction between combat exposure and job self-efficacy predicting anxiety outcomes.

					95% Confidence Interval	
Effect	Parameter Estimate	*SE*	*t*	R^2	Lower	Upper
Intercept	1.88	0.03	67.80*	-	1.83	1.94
L1 Combat Exposure	0.04	0.003	10.61*	0.12	0.03	0.04
L2 Combat Exposure	0.02	0.004	5.43*	0.39	0.01	0.03
L1 JSE	-.13	.03	-4.20*	.05	-.20	-.07
L2 JSE	-.26	.09	-3.10*	.15	-.43	-.10
L1 Combat Exposure * L1 JSE	-.002	.004	-.51	-	-.01	.01
L1 Combat exposure * L2 JSE	-.002	.01	-.19	-	-.03	.02

Note. DV = anxiety at Time 1. JSE = job self-efficacy at Time 1. R^2 is the HLM version of the reduction in variance. The within-level interaction did not reduce additional variance. The cross-level interaction did not reduce additional variance.
*$p < .05$.

Table 12

Parameter estimates of the cross-level interaction between combat exposure and unit morale predicting depression outcomes.

					95% Confidence Interval	
Effect	Parameter Estimate	*SE*	*t*	R^2	Lower	Upper
Intercept	1.68	0.02	76.20*	-	1.63	1.72
L1 Combat Exposure	0.03	0.003	8.50*	0.12	0.02	0.04
L2 Combat Exposure	0.01	0.003	4.75*	0.33	0.01	0.02
L1 Unit morale	-.16	.02	-6.60*	.08	-.21	-.11
L2 Unit morale	-.19	.05	-4.13*	.28	-.28	-.10
L1 Combat exposure * L1 unit morale	.002	.003	.76	-	-.004	.01
L1 Combat exposure * L2 Unit morale	-.01	.01	-.81	-	-.02	.01

Note. DV = depression at Time 1. Unit morale at Time 1. R^2 is the HLM version of the reduction in variance. The within-level interaction did not reduce additional variance. The cross-level interaction did not reduce additional variance. *$p < .05$

Table 13
Parameter estimates of the cross-level interaction between combat exposure and unit morale predicting anxiety outcomes.

					95% Confidence Interval	
Effect	Parameter Estimate	*SE*	*t*	R^2	Lower	Upper
Intercept	1.88	0.03	67.80*	-	1.83	1.94
L1 Combat Exposure	0.04	0.003	10.61*	0.12	0.03	0.04
L2 Combat Exposure	0.02	0.004	5.43*	0.39	0.01	0.03
L1 Unit Morale	-.20	.02	-9.01*	.03	-.25	-.16
L2 Unit morale	-.29	.06	-5.20*	.52	-.40	-.18
L1 Combat exposure * L1 Unit Morale	.002	.004	.70	-	-.005	.01
L1 Combat exposure * L2 Unit morale	-.005	.01	-.61	-	-.02	.01

Note. DV = anxiety at Time 1. Unit morale at Time 1. R^2 is the HLM version of the reduction in variance. The within-level interaction did not reduce additional variance. The cross-level interaction did not reduce additional variance. *$p <$ .05

Table 14

Model summary and parameter estimates predicting Time 2 depression.

					Change Statistics				
Model	*R*	R^2	Adj. R^2	Std. Error	ΔR^2	ΔF	df1	df2	Δ Sig. *F*
1	.40	.16	.16	.62	.16	63.01	2	654	< .001
2	.40	.16	.16	.62	.00	.10	1	653	.75

Note. Predictors model 1 = combat exposure at Time 1, perceived organization support at Time 2; Predictors model 2 = combat exposure at Time 1, perceived organization support at Time 2, combat exposure*perceived organization support. DV = depression at Time 2

Parameter estimates for combat exposure and POS predicting depression.

Model	Parameter	B	Std. Error	β	*t*-value	*p*-value
1						
	Intercept	1.65	.02	-	68253	< .001
	Combat exposure	.02	.003	.27	7.57	< .001
	POS	-.14	.02	-.28	-7.86	< .001
2	Intercept	1.65	.02	-	68.36	< .001
	Combat exposure	.02	.003	.27	7.56	< .001
	POS	-.14	.02	-.28	-7.81	< .001
	Combat exposure * POS	-.001	.002	-.01	-.32	.75

Note. POS = perceived organizational support

Table 15

Model summary and parameter estimates predicting Time 2 anxiety.

					Change Statistics				
Model	*R*	R^2	Adj. R^2	Std. Error	ΔR^2	ΔF	df1	df2	Δ Sig. *F*
1	0.4	0.16	0.16	0.72	0.16	61.56	2	654	< .001
2	0.4	0.16	0.16	0.72	-	0.187	1	653	0.67

Note. Predictors model 1 = combat exposure at Time 1, perceived organization support at Time 2; Predictors model 2 = combat exposure at Time 1, perceived organization support at Time 2, combat exposure*perceived organization support. DV = anxiety at Time 2

Parameter estimates for combat exposure and POS predicting anxiety.

Model	Parameter	B	Std. Error	β	*t*-value	*p*-value
1	Intercept	1.84	0.03	-	65.34	< .001
	Combat exposure	0.03	0.003	0.27	7.58	< .001
	POS	-0.16	0.02	-0.28	-7.67	< .001
2	Intercept	1.84	0.03	-	65.18	< .001
	Combat exposure	0.03	0.003	0.28	7.56	< .001
	POS	-0.16	0.02	-0.27	-7.6	< .001
	Combat exposure * POS	-0.001	0.002	-0.02	-0.43	0.67

Note. POS = perceived organizational support

Table 16

Model summary and parameter estimates predicting Time 2 depression.

					Change Statistics				
Model	*R*	R^2	Adj. R^2	Std. Error	ΔR^2	ΔF	df1	df2	Δ Sig. *F*
1	0.37	0.14	0.14	0.62	0.14	52.66	2	653	< .001
2	0.37	0.15	0.15	0.62	0.01	8.21	1	652	0.004

Note. Predictors model 1 = combat exposure at Time 1, job self-efficacy at Time 2; Predictors model 2 = combat exposure at Time 1, job self-efficacy at Time 2, combat exposure*job self-efficacy. DV = depression at Time 2

Parameter estimates for combat exposure and job self-efficacy predicting depression.

Model	Parameter	B	Std. Error	β	*t*-value	*p*-value
1	Intercept	1.65	0.02	-	67.9	< .001
	Combat exposure	0.02	0.003	0.3	8.22	< .001
	JSE	-0.21	0.03	-0.24	-6.6	< .001
2	Intercept	1.65	0.02	-	68.33	< .001
	Combat exposure	0.02	0.003	0.3	8.36	< .001
	JSE	-0.2	0.03	-0.23	-6.18	< .001
	Combat exposure * JSE	-0.01	0.004	-0.11	-2.87	0.004

Note. JSE = Job self-efficacy

Table 17

Model summary and parameter estimates predicting Time 2 anxiety.

					Change Statistics				
Model	*R*	R^2	Adj. R^2	Std. Error	ΔR^2	ΔF	df1	df2	Δ Sig. *F*
1	0.33	0.11	0.11	0.73	0.11	41.05	2	653	< .001
2	0.34	0.12	0.11	0.73	0.01	4.14	1	652	0.004

Note. Predictors model 1 = combat exposure at Time 1, job self-efficacy at Time 2; Predictors model 2 = combat exposure at Time 1, job self-efficacy at Time 2, combat exposure*job self-efficacy. DV = anxiety at Time 2

Parameter estimates for combat exposure and job self-efficacy predicting anxiety.

Model	Parameter	B	Std. Error	β	*t*-value	*p*-value
1	Intercept	1.83	0.03	-	63.94	< .001
	Combat exposure	0.03	0.003	0.3	8.11	< .001
	JSE	-0.17	0.04	-0.17	-4.5	< .001
2	Intercept	1.83	0.03	-	64.11	< .001
	Combat exposure	0.03	0.003	0.3	8.19	< .001
	JSE	-0.16	0.04	-0.16	-4.18	< .001
	Combat exposure * JSE	-0.01	0.004	-0.08	-2.03	0.04

Note. JSE = job self-efficacy

Table 18

Model summary and parameter estimates predicting Time 2 depression.

					Change Statistics				
Model	*R*	R^2	Adj. R^2	Std. Error	ΔR^2	ΔF	df1	df2	Δ Sig. *F*
1	0.39	0.15	0.15	0.62	0.15	56.47	2	649	< .001
2	0.41	0.17	0.16	0.61	0.02	13.92	1	648	< .001

Note. Predictors model 1 = combat exposure at Time 1, unit morale at Time 2; Predictors model 2 = combat exposure at Time 1, unit morale at Time 2, combat exposure*unit morale. DV = depression at Time 2

Parameter estimates for combat exposure and unit morale predicting depression.

Model	Parameter	B	Std. Error	β	*t*-value	*p*-value
1	Intercept	1.64	0.02	-	67.96	< .001
	Combat exposure	0.02	0.003	0.28	7.78	< .001
	Unit morale	-0.18	0.03	-0.25	-6.95	< .001
2	Intercept	1.65	0.02	-	68.73	< .001
	Combat exposure	0.02	0.003	0.29	8.01	< .001
	Unit morale	-0.17	0.03	-0.25	-6.98	< .001
	Combat exposure * unit morale	-0.01	0.004	-0.13	-3.73	< .001

Table 19

Model summary and parameter estimates predicting Time 2 anxiety.

					Change Statistics				
Model	*R*	R^2	Adj. R^2	Std. Error	ΔR^2	ΔF	df1	df2	Δ Sig. *F*
1	0.38	0.15	0.14	0.72	0.15	55.51	2	649	< .001
2	0.39	0.16	0.15	0.72	0.01	6.93	1	648	< .001

Note. Predictors model 1 = combat exposure at Time 1, unit morale at Time 2; Predictors model 2 = combat exposure at Time 1, unit morale at Time 2, combat exposure*unit morale. DV = anxiety at Time 2

Parameter estimates for combat exposure and unit morale predicting anxiety.

Model	Parameter	B	Std. Error	β	*t*-value	*p*-value
1	Intercept	1.83	0.03	-	64.86	< .001
	Combat exposure	0.03	0.003	0.28	7.83	< .001
	Unit morale	-0.2	0.03	-0.25	-6.76	< .001
2	Intercept	1.83	0.03	-	65.2	< .001
	Combat exposure	0.03	0.003	0.29	7.97	< .001
	Unit morale	-0.2	0.03	-0.26	-6.77	< .001
	Combat exposure * unit morale	-0.01	0.004	-0.1	-2.63	0.009