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HOW DO AFTERMATH OF BATTLE EXPERIENCES AFFECT RETURNING OEF/OIF VETERANS?

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Abstract

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Aftermath of battle experiences, typically defined as non-life threatening situations that a soldier may encounter immediately following a battle, may contribute to adverse mental and physical health outcomes as they are often experienced as distressing. The proposed study examined these experiences and how they affected both general and mental health functioning including PTSD, anxiety, and depression in a sample of 66 Operation Enduring Freedom, Operation Iraqi Freedom, and Operation New Dawn Veterans. Bivariate correlations and a series of hierarchical linear regressions were conducted to investigate if aftermath of battle experiences, while controlling for combat experiences, contributed unique variance to the association with general and mental health functioning. Hierarchical linear regressions were also conducted to examine if aftermath of battle experiences explains unique variance in symptoms of PTSD, depression, and anxiety, beyond the effects of combat experiences. Results showed that aftermath of battle experiences were correlated with worse physical functioning, more role limitations due to emotional problems, less energy/more fatigue, worse emotional well-being, worse social functioning, worse bodily pain, and overall worse general health. Regression analyses found that aftermath of battle experiences were associated with role limitations due to emotional problems, less energy/more fatigue, and possibly experiencing poor social functioning beyond the scope of combat experiences. These findings can be used for screening and prevention of negative health outcomes in veterans.

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How do Aftermath of Battle Experiences Affect Returning OEF/OIF Veterans?

Veterans of the wars in Iraq and Afghanistan have been noted to experience mental health problems subsequent to deployment and combat exposure (Eisen et al., 2012; Lapierre, Schwegler, & Labauve, 2007; McDevitt-Murphy et al., 2010). In a longitudinal study conducted from 2002 to 2008, Seal et al., (2009) found that out of 289,328 Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans, 106,726 were diagnosed with a mental health disorder post-combat in Veterans Affairs (VA) outpatient and inpatient clinics. Of these veterans, 21.8% met full criteria for PTSD and 17.4% for depression. In another national, descriptive study of 249,440 veterans using the VA health care system from 2001 to 2008, 21% met full criteria for PTSD, 18.3% for depression, 11.1% for adjustment disorder, 10.6% for anxiety disorder, 8.4% for substance use disorder, and 7.3% for alcohol use disorder in the 91,596 OEF/OIF veterans who met criteria for a mental health diagnosis in this sample. Existing studies have also demonstrated that veterans with higher PTSD severity also exhibit worse physical and mental health functioning (Castro & McGurk, 2007; Wagner, Wolfe, Rotnitsky, Proctor, & Erickson, 2000).

Numerous studies have documented the link between combat experiences and negative mental health outcomes post-deployment in battles throughout history such as World War II (Sutker, Allain, & Winstead, 1993), the Gulf War (Vogt, Pless, King, & King, 2005), and the Iraq War (Vasterling et al., 2008). Veterans who experienced greater levels of combat exposure tend to have higher levels of PTSD, depression, and anxiety than soldiers reporting moderate to low levels of exposure (Castro & McGurk, 2007; Lee, Goudari, Baldwin, Rosendfield, & Telch, 2011). Cesur, Sabie, and Tekin (2013) followed

a large sample of active duty men and women who were selected from a large epidemiological study to gather information on whether they deployed, if they were in a combat zone, and whether they were exposed to violent combat events such as exposure to enemy fire or seeing the death of a non-combatant or ally, and how they were associated with PTSD symptomatology and depression post-deployment. Some of the most common combat experiences that were linked to PTSD and depression severity included experiencing enemy fire and witnessing deaths of allies or non-combatants (Cesur et al., 2013). Pietzark, Whealin, Stotzer, Goldstein, and Southwick (2011) also found that witnessing a member from the same unit or ally's unit being seriously wounded or killed, being exposed to friendly fire, and being exposed to land mines were significantly associated with greater PTSD severity in a sample of OEF/OIF National Guard veterans.

The conceptualization and definition of health functioning has widely been discussed in the literature. According to the International Classification of Functioning Disability and Health, health functioning is a generic term that includes body functions and structures, activities in daily life, and participation in those activities (World Health Organization, 1980). Health functioning generally is measured in terms of Basic Activities in Daily Living (ADL) which include rudimentary self-care activities such as bathing, eating, bowel control, etc. and Instrumental Activities in Daily Living (IADL) which include more complex tasks such as shopping for groceries, preparing meals, taking medication, etc. (Salvador-Carulla & Gasca, 2010). However, these observational measures are time consuming for both patient and physician and too subjective to use in data analysis. Self-report measures such as the Short-Form 36 (SF-36) were created in

order to measure health functioning more efficiently and to attain valid psychometric standards in order to compare groups and is the most commonly used generic health-status measure (Ware et al., 2000). This instrument is considered generic as opposed to population-specific in order to compare general to specific populations and represents multiple operational indicators of health such as behavioral function/dysfunction, distress and well-being, and favorable/unfavorable self-evaluations of general health status (Ware et al., 2000). In other words, the SF-36 allows the researcher to understand how individuals' health status affects other aspects of living such as social limitations and emotional distress.

Prior studies have suggested that PTSD plays a salient role following traumatic experiences in physical health functioning (Vasterling et al., 2008; Wagner et al., 2000). For instance, in a study of patients at an anxiety clinic in a rural medical center, SF-36 scores were used to measure health functioning in patients with PTSD. Patients suffering from PTSD were at greater risk for impaired physical health functioning and at increased risk of medical conditions relative to persons without PTSD who experienced the same index trauma (Zayfert, Dums, Ferguson, & Hegel, 2002). Wolfe, Schnurr, Brown, & Furey (1994) were the first to examine the independent effects of combat exposure and PTSD on physical health in a sample of Vietnam veterans. To assess objective health status (e.g., dermatological, gastrointestinal, cardiovascular, hepatological, or gynecological), four measures were derived: current health, change in health during Vietnam, change in health after Vietnam, and number of specific health problems. Each item was scored on a 5-point Likert scale from 1 to 5 (current health), -4 to +4 (change in during/after Vietnam), and 0 to 9 (number of problems). Using a series of hierarchical

regression analyses, the authors determined that the relation between combat exposure and health outcomes was apparently mediated by PTSD symptoms (Wolfe et al., 1994). Friedman and Schnurr (1995) found similar results such that PTSD indirectly accounted for 56% of the total effect when performing path analyses to predict self-reported current health status. However, the question of whether combat experiences have a unique impact on health functioning post-deployment still remained unanswered. Vanderploeg and colleagues (2012) posited that higher scores on the Deployment Risk and Resiliency Inventory subscale of combat experiences which included items such as seeing others wounded in battle, seeing the death of a buddy in battle, and experiencing a loss of a leader were significantly associated with back pain, irritability, and indigestion. Health functioning was assessed using several different measures, including the 12-item Short-Form Healthy Survey (a briefer version of the SF-36), the Post-Deployment Health Assessment (which measured physical symptoms), and the 22 –item Neurobehavioral Symptom Inventory. The authors found that deployed OEF/OIF National Guard members had significantly poorer physical health functioning than non-deployed OEF/OIF National Guard members (Vanderploeg et al., 2012). Combat experiences have played an essential role in later physical health functioning status of veterans post-deployment.

Although the role of combat experiences in the development of psychopathology has been explored in prior research, there has been less attention paid to a set of experiences referred to as "aftermath of battle." This phrase denotes experiences that are typically non-life threatening situations that a soldier may encounter immediately following a battle. These experiences may contribute to adverse mental and physical health outcomes as they are often experienced as distressing. To date, only one study has

investigated the role of aftermath of battle experiences in mental health outcomes. Vogt, Pless, King, & King (2005) studied the effect of war zone exposures on post-deployment adjustment in a sample of Gulf War veterans selected from the Defense Manpower Data Center and the VA Gulf War Health Registry. Aftermath of battle was defined as exposure to consequences of combat (Vogt et al., 2005). These situations included observing or handling human remains, seeing devastated communities, and dealing with prisoners of war. Aftermath of battle experiences were significantly associated with PTSD and depression in this sample. However, Vogt et al. (2005) did not control for combat experiences within this sample, which may contribute to these findings. The impact of aftermath of battle experiences has not been examined among veterans of OEF/OIF/OND.

The purpose of the present study was to examine the effect of aftermath of battle experiences on the mental and physical health functioning of soldiers post-deployment. In order to examine the unique effect of aftermath of battle experiences, we controlled for combat experiences for all regressions conducted within the sample. We first hypothesized that aftermath of battle experiences would be negatively correlated with mental and physical health functioning outcomes, as assessed by the SF-36 which included physical functioning, role limitations due to physical health and emotional problems, energy and fatigue, emotional well-being, social functioning, bodily pain, and general health. The second hypothesis was that aftermath of battle experiences would be positively correlated with PTSD severity post-deployment, such that greater endorsement of aftermath of battle experiences would be associated with a higher level of PTSD symptomatology and severity. We also hypothesized that aftermath of battle experiences

would be associated with worse mental and physical health functioning measured by the SF-36 post-deployment, such that a greater degree of aftermath of battle experiences would be associated with worse negative mental health outcomes and worse physical functioning, even after controlling for the effect of combat experiences. Some secondary hypotheses were examined in order to understand these experiences in association with depression and anxiety.

We hypothesized that aftermath of battle experiences would be positively associated with depression severity post-deployment, such that higher aftermath of battle experiences would be associated with more severe depression. Finally, we hypothesized that aftermath of battle experiences will be positively associated with post-deployment anxiety severity, such that higher aftermath of battle experiences result in higher anxiety severity.

Method

Participants

Sixty-six participants seeking medical services were recruited from the Veterans Affairs Medical Center (VAMC) who presented to a variety of clinics at the VAMC for their initial appointment. The sample was primarily male (n = 54; 81.8%) with ages ranging from 21 to 66 years old (M = 35.59, SD = 10.66). The sample was ethnically diverse, with 47% identifying as African American (n = 31), 42.4% as Caucasian (n = 28), and the remainder identifying as Asian, (1.5%, n = 1), Native American (1.5%, n = 1), and (6.1%, n = 4) multiethnic. The sample also represented a diverse population of branch members, with 53.2 % in the United States Army (n = 33), 14.5% in the United States Marine Corps (n = 9), 11.3% in the United States Air Force (n = 7), 12.9 % in the

National Guard (n = 8), 4.8% in the Navy (n = 3), and 3.2% in the Air National Guard (n = 2). The average number of months deployed to a combat zone was 18.30 months (SD = 11.90). The average time passed since deployment was 49.05 months (SD = 34.10) or 4.09 years (SD = 2.84). Thirty-one (47%) veterans met CAPS criteria for PTSD using the F1/I2 scoring rule which designates symptoms as "present" when rated with a frequency score of at least 1 and an intensity score of at least 2 and assigns a diagnosis of PTSD if present symptoms meet the DSM-IV criteria.

Procedure

The Institutional Review Boards of The University of Memphis and the Memphis Veterans Affairs Medical Center (VAMC) approved all procedures. The data for these analyses originated from a larger study that examined readjustment and coping in veterans returning from OEF and OIF combat deployments. Participants were recruited from waiting areas in a large, urban VA Medical Center, and invited to participate in a two-day assessment study. Most measures were administered on the first day and some participants failed to make the second appointment in which they were given self-report measures for depression and anxiety. We have included these participants for the secondary analyses so the sample size varies between measures by 12 participants.

Measures

Posttraumatic Stress Disorder. The Clinician-Administered PTSD Scale (CAPS; Blake et al., 1990) was used to measure PTSD symptoms based on DSM-IV criteria. PTSD was rated by a trained interviewer on the intensity and frequency of the 17 symptoms, each of which are rated on a 5-point Likert scale ranging from 0 (*the symptom does not occur or does not cause distress)* to 4 (*the symptom occurs every day or causes*

extreme distress). The CAPS is considered the gold standard for assessing PTSD and has demonstrated strong internal consistency (α = .94) and reliability (r > .77 to r > .96) in a sample of veterans (Blake et al., 1995). This measure exhibited excellent internal consistency in the present sample (α = .96).

Along with the CAPS, the Posttraumatic Checklist-5 (PCL-5; Weathers et al., 2013) was used to measure self-reported PTSD symptomatology, using DSM-5 criteria. The PCL-5 includes 20-items, each of which are rated on a 5-point Likert scale ranging from (0) *not at all* to (4) *extremely*. These items reflect the new criteria for PTSD as assessed by the DSM-5 which include new items such as negative cognitions about the self, world, and others, and an exaggerated sense of self-blame for the traumatic event. Recent literature assessing DSM-5 PTSD symptomatology in a sample from the National Health and Resilience in Veterans Study found an overall Cronbach's α of .95 (Pietrzak et al., 2015). Additionally, Cronbach's alphas ranged from .70 to .90 on subscales of intrusive memories, negative affect, loss of interest, externalizing behaviors, and hyperarousal**.** This measure exhibited excellent internal consistency in the present sample (α = .97).

Anxiety. The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) is a 21-item self-report measure used to assess the severity of anxiety. The BAI includes 21 items, each of which are rated on a 4-point Likert scale ranging from (0) *not at all* to (3) *severely, I could barely stand it* that represents symptoms of anxiety such as shakiness, nervousness, and excess worry. Extant research has shown to maintain high internal consistency with a Cronbach's alpha of .92 and a test-retest reliability of .75

(Beck et al., 1988). This measure exhibited excellent internal consistency in the present sample (α = .95).

Depression. The Beck Depression Inventory, Revised was used to assess the severity of depression (BDI; Beck et al., 1996). The BDI contains 21 self-report items measured on a 4-point scale ranging from 0 to 3 that represent symptoms of depression such as loss of interest, sadness, excessive guilt, and suicidal ideation. For example, *I do not feel particularly guilty* (0) to *I feel guilty all the time* (3). The BDI-II has shown to have high internal consistency with a Cronbach's alpha ranging from .79 to .88 in a sample of OEF/OIF veterans who experienced multiple injuries during deployment (Palmer et al., 2014). In the present sample, internal consistency was excellent at .96.

Deployment Experiences. The Deployment Risk and Resilience Inventory (DRRI; King, King, Vogt, Knight, & Samper, 2006) was used to measure combat and post-combat experiences in this sample. The DRRI is a 201-item self-report measure that assesses veterans' experiences prior, during, and following combat (e.g., deployment social support, aftermath of battle experiences). The Combat Experiences section is a 15-item, dichotomous (0 = *No*, 1 = *Yes)* scale that assesses experiences during combat. Items include "*While deployed, my unit engaged in battle which it suffered casualties*", "*While deployed, I went on combat patrols or missions*". This measure exhibited excellent internal consistency (α = .89). The Aftermath of Battle section is also a 15-item, dichotomous (0 = *No*, 1 = *Yes)* scale that assesses situations a veteran may experience directly after battle. Sample items include "*I saw refugees who had lost their homes and belongings as a result of battle*", "*I was exposed to the sight, sounds, or smell of dying men and women*." The DRRI has exhibited high internal consistency (α > .80) and high

internal consistency reliability among different veteran populations (Vogt, Proctor, King, King, & Vasterling, 2008). This measure exhibited excellent internal consistency in the present sample (α = .92).

Health Functioning. The Short-Form Health Survey (SF-36; Ware et al., 2000) was used to measure mental and physical health functioning. The SF-36 consists of 36 self-report items that assesses Physical Functioning, Role Limitations due to Physical Health and Emotional Problems, Energy and Fatigue, Emotional Well-being, Social Functioning, Bodily Pain, and General Health. Items include "*Does your health limit you to lift groceries, climb one flight of stairs, bend or kneel?", "In the past week, have you had to cut down on the amount of time you spent on work, accomplish less, did work or other activities less carefully than usual due to any emotional problems."* These items are rated on a 0 (*None of the time)* to 4 (*All of the time*) Likert scale. The SF-36 exhibited good internal consistency with alpha values ranging from .85 to .92 in a sample of OEF/OIF veterans (McDevitt-Murphy et al., 2010). This measure exhibited internal consistency in the present sample of alphas ranging from .83 to .94.

Data Analysis Plan

Prior to conducting our analyses, all variables were screened by examining the means, standard deviations, skewness, and kurtosis. Assumptions were met for multivariate analysis per recommendations by Tabachnick and Fidell (2007). For the first and second hypotheses, we conducted bivariate correlations to examine the associations between aftermath of battle experiences with health and emotional functioning, PTSD, depression, and anxiety severity. Subsequently, a series of hierarchical linear regressions were conducted for the third hypothesis of aftermath of battle experiences and how these

experiences are associated with worse mental and physical health functioning. We controlled for combat experiences in order to examine the unique contribution of aftermath of battle experiences to health functioning. Hierarchical linear regressions were also conducted to investigate the secondary hypotheses of whether aftermath of battle experiences were associated with depression severity and anxiety severity, while controlling for combat experiences.

Results

The correlations between the Aftermath of Battle Experiences scale and the SF-36, CAPS, PCL, BDI, and BAI, correlations between combat experiences and the SF-36, CAPS, PCL, BDI, and BAI, along with means, and standard deviations among the study variables are given in Table 1. Aftermath of battle experiences and combat experiences were strongly correlated with one another, at .75. As predicted, veterans with higher scores on the Aftermath of Battle Experiences scale reported significantly worse health functioning, including Physical Functioning, Role Limitations due to Emotional Problems, Energy and Fatigue, Well-being, Social Functioning, Pain, and General Health and greater severity of PTSD, depression, and anxiety. These findings are congruent with previous literature that Aftermath of Battle Experiences are associated with negative outcomes post-deployment.

We conducted hierarchical regression analyses to determine the effect of Aftermath of Battle Experiences on mental and physical health functioning, after controlling for Combat Experiences (see Table 2). Aftermath of Battle Experiences significantly predicted Role Limitations due to Emotional Problems beyond the effect of Combat Experiences, b = -0.38, $t(61)$ = -2.27, p = .01 with the overall model explaining a

significant portion of variance, $R^2 = .13$, F (1,61) = 4.55, $p = .03$ such that higher scores on the Aftermath of Battle scale were associated with more role limitations. Aftermath of Battle Experiences significantly predicted Energy and Fatigue, beyond the effect of Combat Experiences, $b = -0.38$, $t(57) = -2.31$, $p = .003$ with the overall model explaining a significant portion of variance, $R^2 = .19$, F (1,57) = 6.59, $p = .03$ such that greater Aftermath of Battle Experiences were associated with less energy/more fatigue. There was a trend that approached significance for Aftermath of Battle Experiences predicting Social Functioning, after controlling for Combat Experiences, $b = -0.31$, $t(61) = -1.92$, $p = .002$ with the overall model explaining a nearly significant portion of variance, $R^2 = .20$, F (1, 61) = 7.28, $p = .06$ such that greater Aftermath of Battle Experiences could potentially be associated with decreased social functioning. The results of these hierarchical regressions indicated that Combat Experiences accounted for a significant amount of variance in Physical Functioning, $R^2 = .35$, F (1,61) = 8.24, $p = .006$, on the SF-36. In the second model, Aftermath of Battle Experiences did not contribute any variance beyond combat, as shown in Table 2. After controlling for Combat Experiences, Aftermath of Battle Experiences did not significantly predict Role limitation due to Physical Health, Emotional Well-being, Pain, or General Health.

We also conducted hierarchical regression analyses to determine the effect of Aftermath of Battle Experiences on PTSD, depression, and anxiety symptoms while controlling for Combat Experiences (see Table 3) [1]. Contrary to our hypothesis, Aftermath

[1] Note. No biased effects were shown on CAPS ratings due to multiple trained interviewers.

of Battle Experiences did not significantly predict severity of PTSD, depression, or anxiety after controlling for Combat Experiences.

Discussion

To our knowledge, this is the first study to examine the unique contribution of aftermath of battle experiences to mental and physical health functioning in a sample of OEF/OIF/OND Veterans. These aftermath of battle experiences may include managing dead bodies, taking prisoners of war, and/or aiding the wounded (King et al., 2006). Initial findings suggested that aftermath of battle experiences, like combat experiences, were correlated with worse physical functioning, more role limitations due to emotional problems, less energy/more fatigue, worse emotional well-being, worse social functioning, worse bodily pain, and overall worse general health. These correlations suggest that both direct combat experiences as well as those warzone experiences classified as "aftermath of battle" situations are associated with similar negative outcomes post-deployment. We understand that aftermath of battle and combat experiences were highly correlated. One explanation for the strong correlation could be that these situations, most times, are experienced together for some military personnel and could potentially be conceptualized as one in the same. Due to this strong correlation, it was important to control for combat experiences in order to fully understand the role of aftermath of battle experiences post-deployment. Importantly, we found that aftermath of battle experiences explained unique variance (after controlling for combat experiences) in role limitations due to emotional problems, and fatigue, beyond the contribution of combat exposure (and the result for social functioning approached significance). This

pattern of findings suggests that aftermath of battle experiences may independently affect the health functioning of military personnel, beyond the impact of combat exposure.

Mental and physical health consequences from combat exposure have been well documented; however, the majority of these studies has focused on combat *per se*, and not on exposure to other distressing experiences occurring in the war-zone aside from direct combat (aftermath of battle experiences). We speculated that aftermath of battle experiences might also take a toll on mental health. Despite the effect of aftermath of battle on health functioning, we did not find aftermath of battle experiences to be independently associated with PTSD, depression, or anxiety in regressions that controlled for combat experience.

Health functioning is a generic term that includes body functions, activities in daily life, and participation in those activities (World Health Organization, 1980). This study found that aftermath of battle experiences were associated positively with role limitations due to emotional problems, associated with less energy/more fatigue, and there was a trend-level effect for poor social functioning. These general negative health outcomes such as lower energy or more fatigue can affect a soldier's quality of life and potentially limit social functioning. Ren, Skinner, Lee, and Kazis (1999) found that military personnel recruited from the Veterans Health Study with poor health, assessed by the SF-36, were more likely to report lower levels of social support than soldiers who reported better health. Ren et al. (1999) findings suggest that poor health may limit a person's ability to participate or maintain social relationships post-deployment. However, we understand that this relationship may be cyclical in a way that social support can influence functional health. Our findings suggest that aftermath of battle experiences

should be conceptualized as a risk factor for negative outcomes post-deployment and that these experiences can impact a person's health-related quality of life incrementally, beyond the effect of combat experiences.

It is important to address some limitations of this research. First, all data was collected at the VA hospital, which may contribute to sampling bias. Many veterans may not seek help from the VA due to location barriers, negative experiences, or lack of transportation. Secondly, we did not have the ability to thoroughly study gender differences within the present sample due to a relatively small sample size. Women are becoming more present in combat roles and studies have shown that women are more exposed to aftermath of battle situations than men. In a study conducted to evaluate the experiences of women deployed to Iraq or Afghanistan, women were more likely to report handling human remains than men (Hoge et al., 2006; Street et al., 2009). Finally, this study was based on cross-sectional, retrospective self-report data. Participants were asked to recall experiences from past deployments. Veterans may have a hard time remembering their experiences or their responding could have been biased based on their current emotional state.

Despite the limitations of our data, the present study provides insight to the severity of aftermath of battle and the negative outcomes associated with witnessing such events. Unlike previous studies which examined the relationship between combat experiences, mental health, and physical health, the present study shed light on the importance of these non-life threatening situations a military member will encounter during deployment and how they have negative mental health outcomes similar to combat experiences. The findings of this study highlight the need for future research aimed at

better elucidating the effect of aftermath of battle experiences on military personnel. Future research within this area needs to be conducted with a relatively equal sample of men and women veterans in order to truly understand the gender specific impact these experiences may have. Existing research has demonstrated that multiple deployments can lead to a higher incidence of PTSD, along with other negative mental health outcomes. According to the Office of the US Army Surgeon General, the risk of mental health problems increases the more times a member is deployed. A large study conducted with US military personnel who served in OEF/OIF found that negative mental health outcomes were reported by 11.9% of those with one deployment, 18.5% with two deployments, and by 27.2% in those that have experienced three or more deployments (Rand Corp, 2008). Future research would benefit to parse out combat experiences and aftermath of battle experiences study if a higher rate of each experience yields similar results.

References

Beck, A.T., Epstein, N., Brown, G., & Steer, G. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56,* 893-897.

Beck, A. T., Steer, R.A., & Brown, G.K. (1996). Manual for the Beck Depression Inventory (2nd ed.). San Antonio, TX: Psychological Corporation.

Blake, D., Weathers, F., Nagy, L., Kaloupek, D., Klauminzer, G., Charney, D., & Keane, T. (1990). Clinician-administered PTSD scale (CAPS). Boston, MA: National Center for Post-Traumatic Stress Disorder, Behavioral Science Division.

Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Gusman, F. D., Charney, D. S., & Keane, T.M. (1995). The development of a clinician-administered PTSD scale. *Journal of Traumatic Stress*, 8, 75-90.

Castro, C.A., & McGurk, D. (2007). The intensity of combat and behavioral health status. *Traumatology, 13,* 6-23.

Cesur, R., Sabia, J.J., & Tekin, E. (2013). The psychological costs of war: Military combat and mental health. *Journal of Health Economics, 32,* 51-65.

Eisen, S.V., Schultz, M.R., Vogt, D., Glickman, M.E., Elwy, A.R., Drainoni, M.L., & Martin, J. (2012). Mental and physical health status and alcohol and drug use following return from deployment to Iraq or Afghanistan. *American Journal of Public Health, 102,* 66-73.

Friedman, M.J., & Schnurr, R P. (1995). The relationship between trauma, post-traumatic stress disorder, and physical health. In M.J. Friedman, D.S. Charney, & A.Y. Deutch (Eds.), *Neurobiological and clinical consequences of stress: From normal*

adaptation to PTSD (pp. 507-524). Philadelphia: Lippincott-Raven Publishers.

Hoge, C.W., Aucherterlonie, J.L., & Miliken, C.S. (2006). Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. *Journal of the American Medical Association, 295,* 1023-1032.

King, L.A., King, D.W., Bolton, E.E., Knight, J.A., & Vogt, D.S. (2008). Risk factors for mental, physical, and functional health in Gulf War Veterans. *Journal of Rehabilitation Research & Development, 45,* 395-408.

King, L.A., King, D.W., Vogt, D.S., Knight, J., & Samper, R.E. (2006). Deployment risk and resilience inventory: A collection of measures for studying deployment-related experiences of military personnel and veterans. *Military Psychology, 18,* 89-120.

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

Lee, H-J., Goudari, K., Baldwin, B., Rosenfield, D., & Telch, M.J. (2011). The combat experience log: A web-based system for the in theater assessment of war zone stress. *Journal of Anxiety Disorders, 25(8),* 794-800.

McDevitt-Murphy, M.E., Williams, J.L., Bracken, K.L., Fields, J.A., Monahan, C.J., & Murphy, J.G. (2010). PTSD symptoms, hazardous drinking, and health functioning among U.S. OEF and OIF veterans presenting to primary care. *Journal of Traumatic Stress, 23*(1), 108-111.

Palmer, G.A., Happe, M.C., Paxson, J.M., Jurek, B.K., Graca, J.J., & Olson, S.A. (2014).

Psychometric properties of the Beck Depression Inventory-II for OEF/OIF veterans in a polytrauma sample. *Military Medicine, 179,* 879-884.

Pietrzak, R.H., Tsai, T., Armour, C., Mota, N., Harpaz-Rotem, I., & Southwick, S.M. (2015). Functional significance of a novel 7-factor model of DSM-5 PTSD symptoms: Results from the National Health and Resilience in Veterans study. *Journal of Affective Disorders,174,* 522-526.

Pietzark, R.H., Whealin, J.M., Stotzer, R.L., Goldstein, M.B., & Southwick, S.M. (2011). An examination of the relation between combat experiences and combat-related posttraumatic stress disorder in a sample of Connecticut OEF-OIF veterans. *Journal of Psychiatric Research, 45,* 1579-1584.

Rand Corp, Center for Military Health Policy Research. Invisible wounds of war: psychological and cognitive injuries, their consequences, and services to assist recovery. 2008. Available at: http://www.rand.org/pubs/monographs/MG720.

Ren, X.S., Skinner, K., Lee, A., & Kazis, L. (1999). Social support, social selection and self-assessed health status: Results from the veterans health study in the United States. *Social Science & Medicine, 48,* 1721- 1734.

Salvador-Carulla, L., & Gasca, V.I. (2010). Defining disability, functioning, autonomy and dependency in person-centered medicine and integrated care. *International Journal of Integrated Care, 10.* Available at: *http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2834916/?tool=pubmed*

Seal, K.H., Metzler, T.J., Gima, K.S, Bertenthal, D., Maguen, S., & Marmar, C.R. (2009). Trends and risks factors for mental health diagnoses among Iraq and Afghanistan veterans using Departmental of Veterans Affairs health care, 2002-2008.

American Journal of Public Health, 99, 1651-1658.

Street, A.E., Vogt, D., & Dutra, L. (2009). A new generation of women veterans: Stressors faced by women deployed to Iraq and Afghanistan. *Clinical Psychology Review, 29,* 685-694.

Sutker, P.B., Allain, A.N., & Winstead D.K. (1993). Psychopathology and psychiatric diagnoses of World War II Pacific theater prisoner of war survivors and combat veterans. *The American Journal of Psychiatry, 150.2,* 240-245.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed). Boston, MA: Allyn & Bacon.

Vanderploeg, R.D., Belanger, H.G., Horner, R.D., Spehar, A.M., Powell-Cope, G., Luther, S.L., & Scott, S.G. (2012). Health outcomes associated with military deployment: Mild traumatic brain injury, blast, trauma, and combat associations in the Florida National Guard. *Archive of Physical and Medical Rehabilitation, 93,* 1887-1895.

Vasterling, J. J., Schumm, J., Proctor, S.P., Gentry, E., King, D.W., & King, L.A. (2008). Posttraumatic stress disorder and health functioning in a non-treatment seeking sample of Iraq war veterans: A prospective analysis. *Journal of Rehabilitation Research & Development, 45,* 347-358.

Vogt, D.S., Pless, A.P., King, L.A., & King, D.W. (2005). Deployment stressors, gender, and mental health outcomes among Gulf War I veterans. *Journal of Traumatic Stress, 18,* 115-127.

Vogt, D.S., Proctor, S.P., King, D.W., King, L.A., & Vasterling, J.J. (2008). Validation of scales from the deployment risk and resilience inventory in a sample Operation Iraqi Freedom Veterans. *Assessment, 15,* 391-403.

Wagner, A.W., Wolfe, J., Rotnitsky, A., Proctor, A.P., & Erickson, D.J. (2000). An investigation of the impact of posttraumatic stress disorder on physical health. *Journal of Traumatic Stress, 13,* 41-54.

Ware, J.E., Kosinski, M., & Dewey, J.E. (2000). *How to score version 2 of the SF-36 health survey.* Lincoln, RI: QualityMetric Incorporated, 2000.

Weathers, F.W., Litz, B.T., Keane, T.M., Palmieri, P.A., Marx, B.P., & Schnurr, P.P. (2013). *The PTSD Checklist for DSM-5 (PCL-5).* Scale available from the National Center for PTSD at www.ptsd.va.gov.

Wolfe, J., Schnurr, P.P., Brown, P.J., & Furey, J. (1994). War-zone exposure and PTSD as correlates of perceived health in female Vietnam veterans. *Journal of Consulting and Clinical Psychology, 62,* 1235–1240.

Zayfert, C., Dums, A.R., Ferguson, R.J., & Hegel, M.T. (2002). Health functioning impairments associated with posttraumatic stress disorder, anxiety disorders, and depression. *The Journal of Nervous and Mental Disease, 190,* 233-240.

APPENDIX A

Table 1

Correlations between SF-36, CAPS Severity, PCL-5 Severity, BDI Severity, and BAI Severity with DRRI Aftermath of Battle and Combat Experiences Items. Means and Standard Deviations of the SF-36, CAPS, PCL-5, BDI, and BAI.

	DRRI				
	Aftermath of Battle	Combat Experiences			
	r	*r*	*M*	*SD*	*N*
Physical Functioning	-.27*	-.34**	60.14	31.67	64
Role limitations due to Physical Health	-.19	-.05	48.79	44.45	64
Role limitations due to Emotional Problems	-.36**	-.24	50.00	45.87	64
Energy and Fatigue	-.43**	-.33*	43.62	25.16	60
Emotional Well-being	-.38**	-.34**	52.14	27.09	60
Social Functioning	-.43**	-.37**	50.40	32.88	64
Pain	-.32*	-.41**	46.77	28.12	64
General Health	-.33**	-.35**	48.87	24.60	64
CAPS total	.38**	.37**	53.21	31.63	66
PCL-5 total	.44**	.45**	38.34	25.10	62
Beck Depression Inventory Total	.28*	.23	20.52	14.82	54
Beck Anxiety Inventory Total	.43**	.42**	17.13	14.45	54
Aftermath of Battle		.75**	7.93	5.02	65
Combat Experiences	.75**		7.87	4.15	65

Note. Correlations for the Deployment Risk and Resiliency Intake: Aftermath of Battle and Combat Experiences subscales with the RAND Short-Form Health Survey subscales. Correlations for the Deployment Risk and Resiliency Intake: Aftermath of Battle and Combat Experiences subscales with the Clinician Administered PTSD Scale, PTSD Checklist-5, Beck's Depression Intake, Beck's Anxiety Intake, and Aftermath of Battle Experiences. * $p < .05$ ** $p < .01$.

Table 2

Regression Analyses for Aftermath of Battle Experiences and how they affect mental and physical health in OEF/OIF/OND Veterans using the SSF-36, CAPS, PCL, BAI and BDI

Step	Variable	*B*	β	ΔR^2	*F*
Physical Functioning, *N* = 62					
1	CE	-2.61	-0.35		8.24**
2	CE,AB	-0.35	-0.06	-.002	4.11
Role Limitations due to Emotional Problems, *N* = 62					
1	CE	-2.59	-0.24		3.71†
2	CE,AB	-3.46	-0.38	.08	4.55*
Energy/Fatigue, *N* = 58					
1	CE	-1.96	-0.34		7.29**
2	CE,AB	-1.87	-0.38	.08	6.59*
Emotional Well Being, *N* = 58					
1	CE	-2.18	-0.35		7.79**
2	CE,AB	-1.44	-0.28	.04	5.33
Social Functioning, *N* = 62					
1	CE	-2.93	-0.38		10.43**
2	CE,AB	-2.00	-0.31	.05	7.28†
Pain, *N* = 62					
1	CE	-2.72	-0.41		12.20***
2	CE,AB	-0.34	-0.06	.002	6.08
General Health, *N* = 62					
1	CE	-2.07	-0.37		9.41**
2	CE,AB	-0.66	-0.14	.01	5.09
CAPS, *N* = 64					
1		2.81	0.37		10.12**
2	CE,AB	1.43	0.23	.03	6.10
PCL-5, *N* = 60					
1	CE	2.72	0.46		15.48***
2	CE,AB	1.08	0.22	.02	8.44
BAI, *N* = 62					
1	CE	1.43	0.42		11.15**
2	CE,AB	0.79	0.27	.04	7.05
BDI, *N* = 52					
1	CE	0.82	0.24		3.03†
2	CE,AB	0.66	0.22	.03	2.26

Note. CAPS = Clinician Administered PTSD Scale. CE = Combat Experiences. AB = Aftermath of Battle. [a] † $p = .05$ * $p < .05$ ** $p < .01$ *** $p < .001$.