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COMBAT-RELATED STRESS AND DEPRESSION IN FEMALE OEF/OIF/OND VETERANS

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Abstract

Objective: A cross-sectional design and four-model regression analysis were used to test the hypotheses that higher levels of combat-related stress (combat exposure and comrade loss) would predict higher levels of depressive symptoms and that social support and adaptive coping style would moderate the relationship between combat exposure and depression in a sample of female OEF/OIF/OND veterans. Methods: 128 female OEF/OIF/OND veterans completed an online survey consisting of the Combat Experiences Scale, Brief COPE, Postdeployment Social Support Scale, Patient Health Questionnaire, a one-item question about loss of comrades to combat, and demographic questions. Several control variables were included. Results: There was no significant relationship between combat-related stress and depression, although a majority (64.9%) of respondents identified losing one or more comrades to combat. Social support and adaptive coping style did not significantly moderate the relationship between combat exposure and depression. Higher levels of social support, being financially comfortable, and use of antidepressants were significantly correlated with lower levels of depression, while being employed part time was significantly correlated with higher levels of depression. A majority (67.2%) of respondents identified having a past experience of military sexual trauma (MST). The amount of variance in depression scores explained across the four regression models ranged from 54% to 61%. Conclusion: Results point to the importance of screening and intervening in mental health treatment with depressed female OEF/OIF/OND veterans around financial and employment concerns, as well as referring to psychopharmacology. As women increasingly serve in combat positions and experience high rates of MST, researchers should focus on identifying unique deployment-related stressors experienced by female veterans serving in combat positions and work to isolate those factors most strongly associated with depression following deployment.

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COMBAT-RELATED STRESS AND DEPRESSION
IN FEMALE OEF/OIF/OND VETERANS

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University of Pennsylvania School of Social Policy and Practice

A DISSERTATION
in
Social Work

Presented to the Faculties of the University of Pennsylvania
in
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DEDICATION

This dissertation is dedicated to my loving husband and best friend, Jeremy. His endless support and encouragement fueled my stamina to pursue another graduate degree and carry out this research.
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ABSTRACT

Objective: A cross-sectional design and four-model regression analysis were used to test the hypotheses that higher levels of combat-related stress (combat exposure and comrade loss) would predict higher levels of depressive symptoms and that social support and adaptive coping style would moderate the relationship between combat exposure and depression in a sample of female OEF/OIF/OND veterans. Methods: 128 female OEF/OIF/OND veterans completed an online survey consisting of the Combat Experiences Scale, Brief COPE, Postdeployment Social Support Scale, Patient Health Questionnaire, a one-item question about loss of comrades to combat, and demographic questions. Several control variables were included. Results: There was no significant relationship between combat-related stress and depression, although a majority (64.9%) of respondents identified losing one or more comrades to combat. Social support and adaptive coping style did not significantly moderate the relationship between combat exposure and depression. Higher levels of social support, being financially comfortable, and use of antidepressants were significantly correlated with lower levels of depression, while being employed part time was significantly correlated with higher levels of depression. A majority (67.2%) of respondents identified having a past experience of military sexual trauma (MST). The amount of variance in depression scores explained across the four regression models ranged from 54% to 61%. Conclusion: Results point to the importance of screening and intervening in mental health treatment with depressed female OEF/OIF/OND veterans around financial and employment concerns, as well as referring to psychopharmacology. As women increasingly serve in combat positions and experience high rates of MST, researchers should focus on identifying unique deployment-related stressors experienced by female veterans serving in
combat positions and work to isolate those factors most strongly associated with depression following deployment.
CHAPTER 1

Background and Significance

Introduction

The female veteran population is growing rapidly and experiencing unique mental health concerns relative to their male counterparts. Females currently make up over fifteen percent of total active duty military personnel (Defense Manpower Data Center [DMDC], 2015) with projections to rise dramatically in the coming years (Office of the Actuary [OACT], 2013) following recent conflicts in Iraq and Afghanistan, including Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND). For simplicity purposes, the initials OEF/OIF will be used throughout this paper to describe veterans who served during any of these three operations. Although researchers have heavily studied mental health concerns, particularly Post-traumatic Stress Disorder (PTSD), in the female veteran population (Conard & Sauls, 2014; Middleton & Craig, 2012), there has been less focus on factors influencing depression, despite significant existing disparities in rates between male and female veterans (Bean-Mayberry et al., 2011; Curry, Aubuchon-Endsley, Brancu, Runnals, & Fairbank, 2014).

According to a recent report by the Disabled American Veterans (DAV, 2014), depression is one of the most prominent health care needs among female veterans, contributing to educational and occupational difficulties and family and social challenges (Frayne et al., 2014). Overall, female veterans experience higher lifetime rates of major depression than males (Curry et al., 2014) and are at a three-fold increased risk for suicide compared to their civilian counterparts (Ghahramanlou-Holloway et al., 2014). Furthermore, the prevalence of depression
is expected to increase among female veterans, particularly following deployment periods (DAV, 2014).

The rate of combat exposure among females during deployment is growing (Middleton & Craig, 2012), and existing literature indicates that such exposure is more strongly correlated with depression in women than men (Luxton, Skopp, & Maguen, 2010). Furthermore, combat-related loss, including loss of comrades, has been linked to mental health concerns in the veteran population as a whole (Chapman, Elnitsky, Thurman, Spehar, & Siddharthan, 2012; Papa, Neria, & Litz, 2008) and may impact women more severely than men.

Despite this substantial body of literature, existing research on the impact of combat exposure and comrade loss on the severity of depression among female veterans is lacking. Given that coping ability has been shown to play a large role in female veterans’ mental health and wellness (Creech & Borsari, 2014; Mattocks et al., 2012), examining the impact of coping styles in females with combat-related stress may help to explain buffer effects and contributors to depression. Researchers have also identified the prevalence of loss of a sense of support following deployment among female veterans (Suter, Lamb, Meredith, & Tye-Williams, 2006). Although social support from friends, family, and communities has been shown to be a protective factor in mental health severity, including suicidality, among veterans (Jakupcak et al., 2010), researchers have not yet examined how levels of social support may contribute to the severity of depression among female OEF/OIF veterans who have experienced combat stress.

This study looked at potential contributors to depression in female OEF/OIF veterans by seeking to address the extent that combat-related stress, including combat exposure and loss of comrades to combat, impacts depression and does coping style and level of moderation social support provides between combat stress and depression. Scholars have urged researchers to
further explore the unique needs among the female veteran population, particularly in light of increasing rates of combat exposure (Mankowski & Everett, 2016; Sternke, 2011; Street, Vogt, & Dutra, 2009; Yano et al., 2010). Results from this study may assist mental health providers, including clinical social workers, to better understand the emerging mental health needs of the female veteran population as well as offer direction towards developing the most effective interventions.

**Growth in Female Military Participation**

For the past several decades, women have been joining the military in rising numbers (National Center for Veterans Analysis and Statistics [NCVAS], 2011), resulting in females being the fastest growing cohort of the veteran population (NCVAS, 2014). Although women have been an integral part of the U.S. military since its formation, they did not serve officially until 1901 as part of the Army Nurse Corps and later as formal members of the U.S. Armed Forces in 1948 with the passage of the Armed Services Integration Act (DAV, 2014; NCVAS, 2011). While only 1,500 women served in military roles during the Spanish-American War, over 280,000 have been deployed during recent conflicts Post-9/11 (NCVAS, 2011). This increase was due in large part to the lifting of gender caps – legislation that had previously limited the composition of female service members to two percent – as part of a 1967 modification to the Integration Act and the 1992 Defense Authorization Act that repealed combat exclusion laws prohibiting women from flying combat aircrafts (DAV, 2014; NCVAS, 2011). Although 90 percent of military positions had opened to women by 2015, Defense Secretary Ash Carter announced in December 2015 that the remainder of positions would open to females in January 2016, including those in the most selective units that involve direct combat roles, such as Army Rangers, Green Berets, and Navy SEALs (Department of Defense [DoD], 2015).
Since changes in female military participation, female service member recognition has also increased, evidenced by three women receiving appointments as highest-ranking four-star generals (Defense Media Activity, 2014). The variety of roles and positions assumed by women within today’s U.S. military also reflects such commitment (DAV, 2014). Currently, women comprise fifteen percent of active duty military personnel, over sixteen percent of military officers, eighteen percent of reservists, and twenty percent of new recruits (DMDC, 2015). The Navy, Marine Corps, and Air Force have all experienced an increase in female active duty service members since before the recent conflicts in Iraq and Afghanistan, totaling to over twelve percent of the service members deployed during OEF/OIF conflicts (Rivera & Johnson, 2014). Over half of these women, either as enlisted service members or officers, deployed to combat zones two or more times during OEF/OIF (NCVAS, 2011), which has since totaled more than thirteen years of war (Ritchie, 2014). As a result, today’s female veterans return from war with experiences unique from their predecessors.

Consequentially to the growth and expansion of female military participation, the composition of the veteran population is quickly changing. Female veterans, defined as those who are no longer on active duty status (Ritchie, 2014) and who were discharged under conditions other than dishonorable, are currently the fastest growing segment of the veteran community (The Women's Bureau, 2014). In vast contrast to earlier restrictions on female military participation, women now comprise about ten percent of the overall veteran population (NCVAS, 2014). Female veteran growth is also outpacing males. While the number of male veterans is expected to decline by 2020, the number of females is expected to continue to increase to over eleven percent by the same year (DAV, 2014) and to sixteen percent by 2043 (NCVAS, 2014). Furthermore, female veterans are utilizing healthcare services at increasingly
high rates, demonstrated by a 68 percent increase in the number of female veterans accessing health care through the VA between fiscal year 2005 and 2013, as opposed to a 16 percent increase among men (Northeast Program Evaluation Center, 2014). Although women comprise a smaller percent of the overall veteran population, they are more likely than their male counterparts to primarily utilize Veterans Affairs (VA) healthcare services (Tsai, Mota, & Pietrzak, 2015), particularly for mental health concerns (NCVAS, 2013). As this population continues to grow, healthcare institutions and providers will experience challenges in addressing their unique medical and mental health needs.

**Gender Disparities in Mental Health Concerns Among Veterans**

In addition to increased military involvement, women are nearing and, in some cases, outnumbering men in rates of mental health and psychosocial concerns (Mankowski, Haskell, Brandt, & Mattocks, 2015). Between 2002 and 2014, over half of women veterans receiving care at VA facilities received a mental health diagnosis, with over a third receiving a diagnosis of adjustment disorder, over a quarter of PTSD, and 30 percent, compared to 24 percent of male veterans, of depression (Veterans Health Affairs, 2014). Runnals and colleagues’ (2014a) systematic review of gender differences in the mental health needs of veterans indicates that women veterans are also at higher risk for specific mental health concerns than males. These researchers’ findings indicate that female veterans are more likely to have a mental health diagnosis, have higher rates of mental health and medical comorbidities, and higher rates of depression and anxiety. Among OEF/OIF veterans, in particular, males and females demonstrate similar rates of PTSD while females present with significantly higher rates of depression (Curry et al., 2014; Haskell et al., 2010), with an estimated lifetime rate of over 46 percent compared to about 36 percent for males (Curry et al., 2014).
While much of the existing literature surrounding female veterans’ mental health issues is concentrated on PTSD (Conard & Sauls, 2014; Middleton & Craig, 2012), Military Sexual Trauma (MST, LeardMann et al., 2013; O’Brien & Sher, 2013; Williams & Bernstein, 2011), and correlations between trauma and MST (Maguen et al., 2012b; Scott et al., 2014), less attention has focused on depression (Curry et al., 2014). This lack of attention is surprising, considering that, among female veterans receiving care at VA facilities, it is estimated that over half access mental health treatment with a primary diagnosis of depression (Frayne et al., 2014). For female veterans ages 18-44, depression is the most common mental health condition, occurring in over one quarter of the population (Frayne et al., 2014), and female veterans with comorbid depression are twice as likely to be psychiatrically hospitalized than males (Maguen et al., 2012a). According to the National Institute of Mental Health (NIMH, 2015), depression is a “serious illness”, interfering with daily functioning and presenting in the form of a single episode or a persistent disorder, often accompanied by suicidal ideation. Chapman and Wu’s (2014) literature review of associations between substance abuse and suicidality in the veteran population outlines extensive research not only supporting higher suicide rates for veterans than non-veterans, but higher rates among female veterans than male veterans, particularly among those with a previously existing mental health diagnosis. Comorbid conditions, such as anxiety and substance abuse, can further complicate depression treatment, despite efforts by the VA to address female veterans’ growing mental health needs (Curry et al., 2014).

Concerning depression rates among female veterans not only place a burden on health care providers, but also contribute to a growing societal cost. Depressed women are more likely to be homeless (Deforge, Belcher, O’Rourke, & Lindsey, 2008), unemployed (Mossakowski, 2009), divorced (NIMH, 2009), and to have experienced one or more episodes of MST (DAV,
2014; Lehavot & Simpson, 2014). Currently, the rate of homelessness is at least twice as high among female veterans as non-veterans (DAV, 2014), the rate of unemployment is higher for female than male veterans (Bureau of Labor Statistics [BLS], 2014), marriages of female service members are more vulnerable to divorce (Negrusa, Negrusa, & Hosek, 2014), and over six percent of active duty women report experiencing unwanted sexual contact during a deployment period (DoD, 2014a). As the rates of participation and veteran status continues to rise, understanding the factors that influence depression will become increasingly important. Rivera and Johnson (2014) call for researchers to deviate from the heavy focus on PTSD and sexual trauma to examine mental health issues that disproportionately impact women veterans, including depression and suicidal ideation, in order to optimize treatment. Research efforts are needed to better understand the associations between the female veteran population and depression rates.

**Combat Exposure and Mental Health in Female Veterans**

While women have always been a valuable part of the U.S. military, their contributions have shifted dramatically in recent years, resulting in new war-related stressors. Combat-related stress, including combat exposure, is a growing reality for female service members (Godfrey et al., 2015; Hahn, Tirabassi, Simons, & Simons, 2015; Vogt et al., 2011), and the effects of combat exposure are both direct and indirect (Ritchie, 2014). Research supports indirect negative emotional consequences of combat on females, evidenced by Manguno-Mire et al.’s (2007) finding that non-veteran female partners of combat veterans with PTSD experienced disconcerting rates of psychological distress, including depression, stemming from the unique trauma associated with their partners’ combat exposure. Such findings point to the possibility of gender-based emotional vulnerabilities resulting from combat. There is a growing concern of increased indirect and direct combat exposure experienced by females in the field. Within the
military population, the shift in roles of female military personnel as supports (e.g. nurses) to service members (e.g. infantry, engineering, artillery) points to an even greater potential for emotional impact from combat and war casualties (Ritchie, 2014). This impact, then, becomes more pronounced as women are placed in positions that expose them to higher levels of direct combat.

Women service members during OEF/OIF represent the largest female cohort in military history to be involved extensively and actively in combat operations (NCVAS, 2011), including leaving military bases, working alongside male combat soldiers, and coming under direct fire (Vogt & Street, 2013). In 2013, the Pentagon opened 237,000 new military positions to women that were previously restricted to men, including those as medics, police, explosive ordnance personnel, and convoy truck drivers (DAV, 2014). As a result, women serve in infantry and armor divisions as well as special operations, exposing them to more combat violence and mental health issues than any other war era (DAV, 2014). In December 2015, the Pentagon unveiled plans to open all military positions to women, further increasing the likelihood of similar rates of combat exposure as men (DoD, 2015). The VA National Center for PTSD (2014b) webpage identifies that although many women are not trained for combat operations, they are increasingly involved in combat-supported missions as part of recent conflicts, exposing them to “hostile fire, returning fire, and seeing casualties”. Although women in military positions currently experience less direct combat exposure overall compared to men (Afari et al., 2015a; Ritchie, 2014), recent legislative changes have already resulted in women deploying to conflicts in Afghanistan and Iraq to serve in direct combat positions. Such exposure includes involvement in combat patrols, firing a weapon, or witnessing violent combat, including the injury of unit members and civilians in war zones (Middleton & Craig, 2012; Sternke, 2011).
Combat exposure has been linked to mental health problems among both male and female veterans. Justifiably, the majority of research has focused exclusively on men, including women only in small samples (Street et al., 2009). This literature points to strong correlations between combat exposure and PTSD, substance abuse, and depression in both Vietnam-era (Koenen et al., 2003) and OEF/OIF veterans (Hoge et al., 2004) as well indirect effects of combat on overall physical health and depression (Quartana, Wilk, Balkin, & Hoge, 2014). In support of earlier findings, Godfrey et al.’s (2015) recent study found that combat exposure and MST were linked to PTSD, depression, and lower mental health functioning in OEF/OIF veterans. Street and colleagues’ (2009) extensive literature review on the unique mental health concerns faced by females deployed to Iraq and Afghanistan points to significant differences in deployed females’ responses to trauma, particularly during combat, and their greater vulnerability to mental health diagnoses, most notably PTSD and depression. Moreover, these authors discuss the need for further systematic research on the effects of various types of combat on OEF/OIF female service members and veterans.

Literature suggests that females deployed to Iraq or Afghanistan who are exposed to any level of combat are at greater risk of experiencing emotional concerns than males, including experiencing an episode of sexual trauma (LeardMann et al., 2013), and developing PTSD (Maguen, Luxton, Skopp, & Madden, 2012) or depression (Maguen et al., 2012; Wells et al., 2010). Though such findings are preliminary and suggest the need for further research regarding gender differences among combat veterans, researchers propose that women are more vulnerable to emotional problems resulting from combat exposure (Woodhead, Wessely, Jones, Fear, & Hatch, 2012). Gad and Wenger (2011) suggest that predisposing factors to mental health issues prior to combat are of greater concern than the combat experiences themselves, and that females
are equally as resilient to the effects of combat-related stress as males. Similarly, Creech et al.’s (2015) recent findings failed to support a direct correlation between combat exposure and family functioning and relationship satisfaction, though identified that PTSD symptoms significantly predicted relationship difficulties following deployment. However, others (Hassija, Jakupcak, Maguen, & Shipherd, 2012) identify the effects of combat on females’ emotional health profound enough to call for routine screening of combat exposure in females post-deployment. Although current literature clearly indicates correlations between combat exposure and emotional concerns in females, more research is needed on its correlation with depression in OEF/OIF veterans, in particular.

**Comrade Loss as a Form of Combat-related Stress**

Stress associated with combat can take many forms, though the vast majority of research is focused on direct and indirect combat exposure, overlooking the potential for loss, grief, and subsequent psychopathology. Resulting from combat exposure, female veterans, serving increasingly in combat roles, are at greater risk for losing comrades, including war buddies and leaders, during a deployment – a factor that may contribute to high depression rates. Papa et al. (2008) write about this phenomenon, unique to the military population: “Because the military setting is highly relational, losing a close friend or a leader may result in grief reactions that interfere with military duties and long term functioning” (p. 689). These authors address the reality that many soldiers are unprepared for the traumatic loss of losing a fellow service member to combat, contributing to complicated grief reactions. Considering that death tolls resulting from recent conflicts are staggering, with current estimates of over 6,000 U.S casualties during OEF/OIF alone (DoD, 2014b), researchers should continually examine the reality of grief and loss resulting from combat involvement in the veteran population.
To date, no known study has examined the association between grief experiences related to combat and depressive symptoms in the female veteran population. In a sample of Vietnam-era veterans, Villereal (1997) compares combat experiences to Kübler-Ross' stages of dying, identifying strong relationships between combat exposure and symptoms of dying and grief. Green (2000) presents a conceptual framework for traumatic loss, identifying correlations between the loss of a close friend in combat and the predicted development of PTSD in veterans. Pivar and Field (2004) further suggest a unique viewpoint of comrade loss during combat in their findings that the degree of grief symptoms among Vietnam combat veterans was greater than grief in individuals who had lost a spouse. Papa and colleagues (2008) explore the presence of complicated grief symptoms among Vietnam veterans following the loss of a close friend, and discuss the possibility that loss of comrades leads to both a diagnosis of complicated grief and the likelihood of a lifetime diagnosis of depression. Other research on Vietnam veterans indicates that loss of comrades during combat, possibly complicated by survivor guilt and self-blame, negatively impairs functioning post-deployment, leading to difficulties relating to friends, family, and/or financial problems (Currier & Holland, 2012). These authors encourage clinicians working with combat veterans to routinely assess for bereavement-specific symptoms to determine concerns distinct from PTSD, depression, and anxiety.

Only one known empirical study has focused on grief and loss in OEF/OIF combat veterans. Among a large sample (N = 1,522) of OEF/OIF infantry soldiers post-deployment, Toblin et al. (2012) found that difficulty coping with grief resulting from the loss of a close relationship was significantly associated with post-deployment physical health and occupational concerns, including poor overall health, missed work, medical utilization, and difficulty carrying a heavy load and physical training among combat soldiers. As a result, researchers urge for
increased clinical sensitivity to issues of grief and loss, particularly following a death in a family due to combat (Scheider, Sneath, & Waynick, 2012; Toblin et al., 2012). Altogether, findings targeting veterans of multiple war eras point to the uniquely traumatic impact of losing a comrade in military combat and the similarity of such loss to losing a loved one to traumatic death.

Literature indicates that the loss of loved one is the most common trigger to a depressive episode (Zisook et al., 2010), suggesting that comrade loss may be significantly associated with depression in female veterans and a possible contributor to a depressive episode during or after deployment. Bereavement-related depression can appear similar to depression resulting from other stressful life events (Karam et al., 2009; Kessing, Bukh, Bock, Vinberg, & Gether, 2010). The American Psychiatric Association (APA) recognizes this association in their newest diagnostic manual for clinicians, the DSM-5 (2013a), whereby the APA removed bereavement as an exclusion criterion for a depressive episode. Prior to DSM-5, the APA (2013b) advised clinicians to observe bereavement as distinct from major depression, assigning symptoms associated with such a loss, including sadness, rumination about the loss, sleep disturbances, and weight or appetite changes, an exclusion category. Now, the APA (2013a) indicates that responses to a variety of significant losses may include symptoms strongly associated with depression. Research is lacking, however, on the relationship between comrade loss and presence and severity of depressive symptoms in female veterans, as a significant form of combat-related stress.

**Coping Style and Depression**

Coping style may explain the prevalence of depression in female veterans exposed to combat-related stress. Coping styles, defined as “patterns in responding to different stressful situations” (Endler & Parker, 1990, p. 208), are a well-documented factor underlying various
emotional disturbances. Coping styles may serve as a protective factor for depression, in cases of adaptive coping, or as a risk factor, in cases of maladaptive coping, as outlined by Folkman and Lazarus (2005; 1985), who sought to explain how individuals differ in responses to stress. Their research identified primary distinctions between problem-focused coping (e.g. problem solving), as a means of mediating stress, and emotion-focused coping, as a strategy for managing overwhelming feelings of stress. Carver et al. (1989) expanded on Folkman and Lazarus’ (1985) work by identifying adaptive (e.g. active coping, planning, use of emotional support) and maladaptive (e.g. denial, disengagement, self-blame) coping styles. Since then, other researchers have identified positive correlations between maladaptive, particularly emotion-focused (Hassija, Luterek, Naragon-Gainey, Moore, & Simpson, 2012), coping styles, depression (Kuiper, Olinger, & Air, 1989; Meyer, 2001), and comorbid anxiety (Man, Dougan, & Rector, 2012). Specifically, researchers have identified strong positive associations between emotion-oriented coping (Tremblay & King, 1994; Turner, King, & Tremblay, 1992) and avoidant coping (Simoni & Ng, 2000) and depressive symptomatology. Furthermore, avoidant coping strategies, including denial and disengagement, has shown to impede depressive symptom reduction during treatment (Oxman, Hegel, Hull, & Dietrich, 2008). Adaptive coping, on the other hand, including problem solving, has been shown to be a protective factor for depression (Farrokhi, Guilani, Zamani, & Kohsar, 2006).

Farrohki et al. (2006) also identified differences in the effect of coping style among men and women, identifying higher correlations between emotional-focused coping and attributions for negative events among females than males. These authors utilize their findings to support a greater need for research on the differences in coping style among genders with mental health concerns. Although earlier research on coping style differences between genders demonstrates
less consistent findings (Bruder-Mattson & Hovanitz, 1990), more recent studies point strongly to females exhibiting higher levels of emotional and avoidance-oriented coping than males (Matud, 2004), indicating that females may experience greater vulnerabilities to depression based on coping style. Although Felsten (1998) identifies avoidance coping as an equally strong predictor of depression in men and women, findings by Choi et al. (2015) point to the mediating impact of maladaptive coping, possibly developed during childhood, on depression and PTSD severity for women with trauma histories.

Few studies have examined at the role of coping in depression among the veteran population, though existing research identifies coping as a significant factor in veterans’ mental health. In Hassija et al.’s (2012) research, emotional avoidance and low levels of emotional expression were found to be significant predictors of PTSD and depression among mixed-gender and mixed-era veterans, calling for clinicians to assist clients in developing coping strategies that include positive forms of emotional expression to reduce depressive symptoms. In a sample of OEF/OIF veterans, Pietrzak and colleagues (2010) identified associations between cognitive-behavioral avoidance as a maladaptive coping strategy and suicidal ideation and resilience as protective factors for suicidality. Despite these finding, only one known study has looked at coping within the female veteran population. Creech and Borsari (2014) found significant relationships between avoidance coping and depression as predictors of alcohol misuse in a sample of female veterans in a primary care setting. No known studies have examined the role of coping style in depression among female OEF/OIF veterans. While current research indicates that certain stressors may ignite either adaptive or maladaptive coping styles, research emphasizing unique stressors experienced by female veterans and the moderating impact of coping styles on depression is lacking.
Social Support and Depression

Social support involves emotional, instrumental, informational, and appraisal support received from individuals outside oneself (Langford, Bowsher, Maloney, & Lillis, 1997). Thoits et al. (2011a) argue that social support plays a key role in buffering the effects of emotional stressors as persons in one’s support network act to provide various types of assistance and ultimately change an individual’s feelings and beliefs about a situation. As a result, social support may have such an impact on an individual’s emotional health so as to decrease one’s need for mental health treatment (Thoits, 2011b). Furthermore, recent evidence points to social support’s moderating effects on depression by increasing one’s self-esteem and self-efficacy, reducing negative emotions, enhancing coping strategies, and improving problem-solving abilities (Wang, Cai, Qian, & Peng, 2014).

Kelly et al. (2008) identifies that social support may help in reducing the negative impact of a stressful event, such as combat exposure, in veterans. Among Vietnam and OEF/OIF veterans, evidence exists that social support, particularly post deployment, may serve as a protective factor for a variety of psychiatric disorders, including severe mental illness (Kilbourne, McCarthy, Post, Welsh, & Blow, 2007), PTSD (Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009), and depression (DeBeer, Kimbrel, Meyer, Gulliver, & Morissette, 2014; King, King, Fairbank, Keane, & Adams, 1998; Tsai, Harpaz-Rotem, Pietrzak, & Southwick, 2012; U.S. Department of Veterans Affairs National Center for PTSD, 2014).

Keane et al.’s (1985) work, focused on Vietnam-era combat veterans, found that PTSD related to combat exposure was correlated with a reduction in post-deployment social support immediately following deployment and gradually over time. Boscarino (1995) later identified, in a sample of Vietnam veterans, strong associations between social support and psychiatric disorders, including PTSD, generalized anxiety, and depression. Similarly, Fontana et al. (1997)
found that high social support correlated with lower levels of psychopathology and that low social support may exacerbate mental health symptoms, particularly PTSD. Among a sample of OEF/OIF veterans with PTSD, emotional and informational social support was found to increase PTSD treatment response, while lower amounts of social interactions were correlated with increased PTSD symptoms (Price, Gros, Strachan, Ruggiero, & Acierno, 2013). Furthermore, the presence of PTSD (Brancu et al., 2014; Jakupcak et al., 2010; Van Voorhees et al., 2012) and depression (Pietrzak, Russo, Ling, & Southwick, 2011) may diminish the protective effect of social support among OEF/OIF veterans.

Building on Barrett and Mizes’ (1988) finding of a lack of relationship between combat exposure and social support, Smith et al. (2013) suggests that there is a difference between perceived and received social support among returning combat vets, identifying indirect relationships to PTSD and depression severity. Other researchers confirm these variations, indicating that perceived social support provides less of a buffer effect on symptoms of depression among veterans with multiple sclerosis (Bambara, Turner, Williams, & Haselkorn, 2011) and PTSD (Laffaye, Cavella, Drescher, & Rosen, 2008). Further research is needed, however, to better understand the connection between perceptions of social support post deployment and depression, particularly among OEF/OIF combat veterans (Smith et al., 2013).

Female veterans may have unique needs regarding social support. Thoits (1995) argues that women and men differ around structure of social support, indicating that women tend to have less extensive, but more intensive networks. Despite the abundance of research on social support in the general veteran population, there has been little focus on female veterans. King et al.’s (1998) investigation of Vietnam War veterans found correlations between “war zone” (p. 426) stressors, resilience, and female veterans’ ability to both recognize and utilize social
supports. Cotten et al. (2000) examined factors associated with perceived social support in a mixed-era sample of female veterans, finding that life stressors and feelings of loneliness were associated with lower levels of perceived support. Similarly, Benda (2006) found that family and friends as a social support network were more important to homeless mixed-era female veteran than males receiving treatment for substance abuse, though the author recommended further research looking at combat exposure and social support as additional variables in this population.

Nayback-Beebe and Yoder’s (2011) findings highlight the inverse relationship between social support post-deployment and levels of depression, PTSD, and anxiety symptoms severity in female OEF/OIF veterans. Similarly, Mankowski et al.’s (2015) recent qualitative study of eighteen OEF/OIF female veterans identified connections between low social support and PTSD and depressive symptoms, including suicidal ideation, as well as the buffering effect of positive social support post deployment for women who deployed to combat zones. Availability and perception of social support clearly plays a key role in emotional health, though both war and psychosocial stressors may impede one’s ability to access and utilize such support. The scarcity of available literature indicates a glaring need for additional research on the impact of social support on female OEF/OIF veterans’ mental health, with a specific focus on the possible moderation effect of social support post-deployment on depressive symptoms.

**Summary**

Although female veterans suffer disproportionately from a variety of mental health concerns compared to males, there is a significant disparity in depression rates. Little is known about the unique factors underlying depression among female OEF/OIF veterans. Current research highlights the need for further research efforts looking at the impact of direct and indirect combat exposure and grief related to comrade loss on female veterans. As more women
serve in roles that expose them to combat operations, the importance of understanding such stress and its relationship to mental health and depression, in particular, becomes increasingly imperative. Furthermore, a better understanding of the roles of coping style and availability of social supports can highlight potential areas for intervention.

Researchers are quickly turning to the female veteran population as a growing area of interest and this study sought to provide a deeper understanding of depression as one of the most prominent mental health concerns in this population. Should healthcare agencies serving female veterans routinely administer combat exposure screenings? Should clinicians assess for grief symptoms in female combat veterans? What factors most strongly protect female veterans from a depressive episode? This study provides data that lays groundwork for answering these and other questions. Study outcomes provide a foundation for further research efforts and the development of interventions unique to the female veteran population.

In conclusion, this study explored the relationships between combat-related stress and depressive symptoms, while including factors that may moderate the severity of a depressive episode, including adaptive coping style and social support. Taking these factors into consideration, the hypotheses for this study were:

1. Combat-related stress (combat exposure and comrade loss) would predict higher levels of depressive symptoms compared to lower levels of combat-related stress.

2. Social support would moderate the relationship between combat exposure and depression such that higher levels of social support would buffer the relationship between high levels of combat exposure and depression severity.
3. Adaptive coping style would moderate the relationship between combat exposure and depression such that higher levels of adaptive coping would buffer the relationship between high levels of combat exposure and depression severity.
CHAPTER 2

Research Design and Methods

Design and Setting

This study utilized a cross-sectional design to examine a sample of the female veteran population. Subjects were asked to complete an online survey lasting for about 15 to 20 minutes. This survey was accessible from any electronic device that was connected to a web browser. This method was selected as a feasible, cost effective means of exploring and estimating the associations between several variables that may be related to depression in female OEF/OIF veterans. However, a major limitation with cross-sectional designs is the inability to develop a causal relationship. This study was not seeking to draw causal conclusions. Rather, collected data explored the strength of relationships between issues likely impacting depression among a rapidly growing population. Identified relationships assist in forming the basis for future and, possibly, more expansive research efforts. Non-probability convenience sampling methods were used for cost effectiveness and to allow for a feasible sampling frame of female OEF/OIF veterans.

Recruitment Process and Eligibility Criteria

There are no known studies looking at the moderating impact of coping style and support in the relationship between combat stress, including combat exposure and loss of comrades, and depression. However, studies examining the moderating impact of coping style and social support in depression separately can provide useful data for calculating power. In a study involving patients with chronic heart and lung disease, Schroder (2004) found coping competence to have a significant buffering effect between symptom stress and depression, explaining between 7-17 percent of variance in depressive symptoms. Wang and colleagues’ (2014) analysis of a large sample (N = 632) of university students found social support to be a
significant moderator between stress and depression, explaining about 7 percent of variance. A power analysis using the lower bound of 7 percent (.07) in the analyses of Schroder and Wang et al. with an alpha level of .05 and a probability of finding an effect of .8 suggested a sample of 115 participants would be adequate to detect an effect for this study.

Due to this study’s focus on combat stress and current symptoms of depression, only female veterans who served in the recent conflicts in Iraq and Afghanistan, including Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND) were determined to be eligible for participation. The researcher utilized convenience sample methods to recruit participants through email listservs, flyers, and website postings (e.g. Facebook, veteran organization websites) over a period of approximately six months between August 2015 and February 2016. By recruiting from a variety of institutions and personal contacts, referrals were sought from a racially and ethnically diverse population of female veterans. Specifically, respondents were recruited from listservs and Facebook pages for university veterans associations, including Drexel University’s Office of Veteran Student Services, University of Pennsylvania’s Student Veteran Association, Temple University’s Temple Veteran Association, and Salem State University’s Student Veteran Organization; listservs, Facebook pages, web postings, and flyers at female veteran organizations, including Vets Journey Home, Philadelphia Veterans Multiservice Center’s Women Veteran’s Center, Women Veterans of American, Service Women’s Action Network, and Women’s Veteran’s Network in Boston, MA; and flyers posted at Vet Centers in the Philadelphia area that provide counseling services to male and female combat veterans, including the Philadelphia Vet Center, Northeast Philadelphia Vet Center, Bucks County Vet Center, and Montgomery County Vet Center. The primary investigator for this study secured permission from all institutions to post
flyers about the study at recruitment sites, forward emails about the study to mailing groups, and post survey invitations on agency websites (e.g. Facebook). Several individuals were asked to send the survey link to others they knew that met study criteria.

Efforts to reduce refusals included informing respondents of the study’s importance, ensuring understanding for the significance of completing the survey in full, posting easy to read flyers with brief hyperlinks to the survey, sending concisely worded emails with easily accessible hyperlinks to the survey, and including an incentive to be entered into a raffle to win one of two $100 Amazon gift cards. A raffle was used as an incentive instead of compensating each participant, as this would not have been financially feasible. Subjects were required to enter their email addresses at the end of the online survey if they desired to participate in the raffle. Ninety-three respondents participated in the raffle. The email addresses were only used to send the Amazon gift cards via email and then were deleted. All participation and responses were tracked through an online survey created through Qualtrics, LLC. Efforts were taken to make the survey easy to understand and as brief as possible. The inclusion criteria for this study were the following:

- Identified as a female
- Identified as a veteran
- Served at least one military deployment in the service of OEF/OIF/OND
- Agreed to participate in the study and provides online informed consent prior to beginning the survey

The final sample size for this study included 128 participants.
Measures

All data was collected through an online survey with responses entered into the survey website to maintain confidentiality. Potential subjects received an invitation to complete the survey and did so at their convenience.

Independent Variables

Combat-Related Stress:

Combat exposure: The Combat Experiences Scale (CES) was used to assess exposure to combat, such as firing a weapon, being fired on by enemy or friendly fire, or witnessing injury and death. The CES is a 17-item self-report measure from the Deployment Risk and Resilience Inventory-2 (DRRI-2, Vogt, Smith, King, & King, 2012), an updated version of the original DRRI (King, King, Vogt, Knight, & Samer, 2006) and one of the most widely used research tools for assessing deployment-related risk and resilience factors, is rated on a 6-point Likert-type scale ranging from 1 = never to 6 = daily or almost daily, with higher scores reflecting higher levels of combat exposure. Vogt et al. (2013) found strong internal consistency and reliability for all 17 CES items (Cronbach’s alpha of .91). In this study, strong internal consistency and reliability was also found for all items with a Cronbach’s alpha of .89. This measure is available free of charge to providers and researchers through the VA National Center for PTSD (2014a).

Loss of comrades: Included in the questionnaire, participants were asked the following one-item question to assess for loss of comrades during deployment: “As a result of your military service, did you lose a fellow soldier or valued leader because he/she died during combat?” Responses were categorized as “yes – one”, “yes – more than one”, and “no” to determine presence and severity of comrade loss. This item was adapted from Chapman et al.’s (2012)
research that looked at the impact of combat-related loss on veterans with PTSD and mild traumatic brain injury (mTBI).

Coping Style:

The Brief COPE (Carver, 1997), a condensed version of the COPE (Carver et al., 1989) and based on concepts of coping from Folkman and Lazarus (1985), was used to assess coping styles by examining a wide range of thoughts and actions an individual may use in stressful situations. Brief COPE is a 28-item self-report measure using fourteen subscales with two items each. In order to remain consistent with current literature regarding coping style and depression, the researcher in this study utilized three subscales from the brief COPE (active coping, use of emotional support, and planning) to measure levels of adaptive coping styles. Item examples include: “I’ve been taking action to try to make the situation better” (active coping), “I’ve been getting emotional support from others” (use of emotional support), and “I’ve been thinking hard about what steps to take” (planning). Responses are measured on a four-point, Likert-type scale ranging from 1 = I don’t do this at all to 4 = I do this a lot, with higher scores reflecting high levels of adaptive coping. Internal consistency across all fourteen subscales is relatively high, ranging from .5 to .9 (Carver, 1997). In this study, strong internal consistency and reliability was also found for all three subscale items with a Cronbach’s alpha of .86. The Brief COPE is available free of charge to researchers through the University of Miami College of Arts and Sciences Department of Psychology (2007).

Social Support:

The Postdeployment Social Support Scale (PSSS) was used to assess the presence of emotional support and assistance provided by family, friends, and the community following a deployment period. This scale assesses for both emotional (e.g. providing understanding,
companionship, sense of belonging) and instrumental support (e.g. proving tangible aid). The PSSS is a 10-item self-report measure from the DRRI-2 (King et al., 2006; Vogt, Proctor, King, King, & Vasterling, 2008) and is rated on a five-point, Likert-type scale ranging from 1 = strongly disagree to 5 = strongly agree, with higher scores reflecting higher presence of social support. Vogt et al. (2013) found strong internal consistency and reliability for all 10 PSSS items (Cronbach’s alpha of .90). In this study, strong internal consistency and reliability was also found for all items with a Cronbach’s alpha of .91. This measure is available free of charge to clinical providers and researchers through the VA National Center for PTSD (2014a).

**Dependent Variables**

**Severity of Depression:**

The Patient Health Questionnaire (PHQ-9, Rogers, Adler, Bungay, & Wilson, 2005) was used to assess depressive symptoms consistent with the *DSM-IV* (APA, 2000) criteria for depression. The PHQ-9 consists of nine items taken directly from the depression criteria and utilizes a 4-point Likert-type scale ranging from 0 = Not at all to 3 = Nearly every day. One recent study found high internal consistency rating (Cronbach’s alpha of .89) (Kung et al., 2013), and several studies have determined the PHQ-9 to be a good severity measure in the primary care outpatient setting (Chen, Huang, Chang, & Chung, 2006; Kroenke, Spitzer, & Williams, 2001; Martin, Rief, Klaiberg, & Braehler, 2006). In this study, strong internal consistency and reliability was also found for all items with a Cronbach’s alpha of .91. PHQ-9 scores of 5, 10, 15, and 20 represented mild, moderate, moderately severe, and severe depression, respectively, while a PHQ-9 score greater than or equal to 10 has been found to have sensitivity and specificity of 88% for major depression (Kroenke et al., 2001). Multiple studies have found the PHQ-9 to be interchangeable with another widely used self-report measure, the Beck Depression
Inventory (BDI-II, Kung et al., 2013; Titov et al., 2011). The PHQ-9 is available free of charge to researchers and clinicians (Pfizer, 2015), and has been widely used in VA clinical and research settings (DoD & VA, 2009).

**Demographic and Control Variables:**

The NIMH (2009) identifies risk factors for depression in women including a diagnosis of anxiety and/or PTSD, substance abuse, history of depression, divorce, disengagement in mental health treatment, and poverty. MST (DAV, 2014) and unemployment (Mossakowski, 2009) have also been identified as significant risk factors for depression in the female veteran population. The researcher controlled for these risk factors and collected demographic information at the beginning of the survey through the following questions:

- **Age (Numerical):** “How old are you?” (Actual age in years)
- **Race/ethnicity:** “How would you describe your race/ethnicity?” (White/Caucasian, Black/African American, Asian/Pacific Islander, Native American/Alaskan, Hispanic, Other/Mixed)
- **Branch of military served:** “What branch of the military did you serve in?” (Army, Marine Corps, Navy, Coast Guard, Air Force)
- **Divorce Status:** “What is your marital status?” (Married, partnered, separated, divorced, never married)
- **Poverty Status:** “How would you describe your financial situation?” (Can’t make ends meet, have just enough to get along, am comfortable)
- **Employment Status:** “What is your employment status?” (Employed - full time, employed - part time, unemployed – full time student, unemployed – looking for work, unemployed – disabled/unable to work, unemployed – other reason)
• **Past Diagnosis of Depression, Anxiety, or PTSD:** “Have you ever been diagnosed with or received treatment for the following? Please select all that apply:” [Depression, Anxiety, Post-traumatic Stress Disorder (PTSD)]

• **Alcohol Misuse:** “How often did you have a drink containing alcohol in the past year?” (Never, monthly or less, 2-4 times a month, 2-3 times a week, 4 or more times a week).
  “How many drinks containing alcohol did you have on a typical day when you were drinking in the past year?” (1 or 2, 3 or 4, 5 or 6, 7 to 9, 10 or more). “How often did you have six or more drinks on one occasion in the past year?” (Never, less than monthly, monthly, weekly, daily or almost daily). Language is based on the Alcohol Use Disorders Identification Test (AUDIT-C, Bush, Kivlahan, & McDonell, 2009) brief alcohol screen with scores of three or more indicating risky drinking behavior in women.

• **Drug Abuse:** “In the past year, have you used any illicit substances, including Cannabis, Cocaine, Methamphetamine, inhalants, stimulants (not prescribed to you), sedatives or sleeping pills (not prescribed to you), or Opioids (not prescribed to you)?” (Yes/No).
  Language is based on the National Institute on Drug Abuse (NIDA) drug screening tool.

• **Engagement in Mental Health Treatment:** “Are you currently seeing a mental health provider, including a therapist (psychologist, social worker, or counselor) or psychiatrist?” (Yes/No). If yes, “How long have you been seeing a mental health provider(s), even if the appointment have been off and on and/or inconsistent?” (Less than one year, 1-3 years, 3 or more years)

• **Antidepressant Use:** “Are you currently taking any prescription medications for depression?” (Yes/No)
Military Sexual Trauma (MST) status: “When you were in the military, did you ever receive unwanted or uninvited sexual attention (e.g. touching, cornering, pressure for sexual favors or inappropriate verbal remarks, etc.)?” (Yes/No). Language is based on VA MST screening procedures.

Analysis

Multiple regression analyses were conducted to examine linear relationships between combat-related stress and depression severity while moderating for coping style and social support and controlling for competing variables (race/ethnicity; divorce status; poverty status; employment status; branch of military served; diagnosis of anxiety, PTSD, or substance abuse; history of depression; engagement in mental health treatment; medication use; and MST status). Moderation occurs when the direction and/or strength of a given relationship is dependent on some third variable (Baron & Kenny, 1986; Hayes, 2015; Preacher, Rucker, & Hayes, 2007). In this study, moderation analysis specified how coping style and social support alter the relationship between an independent variable, combat-related stress, and dependent variable, depression. Two models were used to analyze coping style and social support as moderating variables. Drawing upon Hayes’s (2015) moderation model, the impact of combat-related stress (CS) on depression (DEP) when moderated by coping style ($M_1$) and social support ($M_2$) can be depicted as the following linear regression models:

1. $DEP = a + b_1 CS + b_2 M_1 + b_3 CS M_1$
2. $DEP = a + b_1 CS + b_2 M_2 + b_3 CS M_2$
Where $b_1, b_2, b_3$ are regression coefficients with $a$ as a regression intercept, the effect of combat-related stress on depression is linearly moderated by coping style and social support if the regression coefficients for $CSM_1$ and $CSM_2$ is different from zero by an inferential test.

**Human Subjects**

All possible efforts were made to protect the identity and confidentiality of study subjects. The primary investigator obtained approval from the University of Pennsylvania’s Institutional Review Board that this study met criteria for exemption. Informed consent was obtained from each subject at the beginning of the online survey and subjects were unable to move forward with the survey unless they consented by clicking “yes”. Subjects were informed of the primary aims of the study (to look at the role of combat-related stress, coping, and social support in depression among female veterans), recruitment goals, and any risks and benefits to their participation. There were no known risks to subjects associated with this study aside from the potential for emotional distress caused by the sensitive nature of certain questions. As a result, the Veterans Crisis Line telephone number and website were provided to subjects as part of the informed consent process.

Subjects were informed that participation in the survey was completely voluntary and anonymous. No identifying information was collected that could be traced back to survey responses and subjects were able to discontinue their participation at any point during the survey. As an incentive to participate in the survey, subjects were informed of the voluntary opportunity to enter into a raffle to win one of two $100 Amazon gift cards at the end of the survey. Subjects who chose to participate in the raffle were directed to a separate survey created through Qualtrics where they were instructed to provide a valid email address. All email addresses were deleted after the raffle was completed and gift cards disseminated following the closure of recruitment.
Email addresses could not be linked to any survey responses and the primary investigator was only able to view the two winning participants’ email addresses that were drawn at random through Qualtrics.

All data was collected through a password protected website and was only accessed by the primary investigator. Subjects were informed of the indirect benefit of participation (helping to develop a better understanding of mental health concerns among female veterans). Subjects were informed that participation was completely voluntary and that failure to participate would not result in any direct or indirect penalties. Subjects were provided with the name and telephone number of the primary investigator for the study as well as the telephone number for the Office of Regulatory Affairs at the University of Pennsylvania if they had any questions or concerns during the course of the study.
CHAPTER 3

Results

Sample Characteristics

Table 1 presents the means and standard deviations for all scales as well as the results from the sociodemographic portion of the survey. The final sample for this study included 128 respondents with an average age of 36.1 years old (SD=7.88). The majority of participants were White/Caucasian (82.0 percent), non-Hispanic (92.2 percent), and Army veterans (82.0 percent). Most of the respondents were married (65.6 percent), financially comfortable (75.8 percent), and about half were employed full-time (56.3 percent). Regarding combat-related stress, just over two thirds (83, 64.9 percent) of respondents experienced the loss of one or more comrades to combat during deployment. The average CES score, measuring combat exposure on a scale of 17 to 102, was 23.49 (SD=9.53). The average adaptive coping style score, which includes the sum of six items from the Brief COPE scale from subscales measuring active coping, use of emotional support, and planning, with total scores ranging from 6 to 24, was 15.55 (SD=4.63). The average PSSS score, measuring social support with total scores ranging from 10 to 50, was 40.49 (SD=8.59). The mean PHQ-9 score, measuring depression symptoms and ranging from 0 to 27, was 7.17 (SD=6.59).

About half (53.1 percent) of the participants had received a prior diagnosis or treatment for depression, anxiety, and/or PTSD, although the majority (81.3 percent) of them were not taking antidepressant medication at the time of the survey. Almost three quarters (71.9 percent) of the respondents were not seeing a mental health provider at the time of the survey and, of those receiving mental health treatment (23.2 percent), about one-half (47.2 percent) had been in treatment for over three years. Regarding substance use, the majority (91.4 percent) of
participants did not use illicit drugs within the last year, and the average AUDIT-C score, ranging from 0 to 12, was 2.88 (SD=1.97). Just over two thirds (67.2 percent) of participants experienced unwanted or uninvited sexual attention during the military.
### Table 1: Scales and Sample Description

<table>
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<th>Mean</th>
<th>SD</th>
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<tbody>
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<td>Alcohol Use Disorders Identification Test</td>
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<tr>
<td>No</td>
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<td>Currently Seeing Mental Health Provider</td>
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<td>23.2</td>
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<td>23.2</td>
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<tr>
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<td>92</td>
<td>71.9</td>
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<tr>
<td>Length of Time Seeing a Mental Health Provider</td>
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<tr>
<td>&lt; 1 Year</td>
<td>8</td>
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<tr>
<td>1-3 Years</td>
<td>11</td>
<td>30.6</td>
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<tr>
<td>&gt; 3 Years</td>
<td>17</td>
<td>47.2</td>
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<tr>
<td>Unwanted or Uninvited Sexual Attention</td>
<td>Yes</td>
<td>67.2</td>
</tr>
<tr>
<td>Yes</td>
<td>86</td>
<td>67.2</td>
</tr>
<tr>
<td>No</td>
<td>42</td>
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Regression Results for Combat Stress, Coping Style, Social Support, and Depression

The study hypotheses were that greater levels of combat-related stress (combat exposure and comrade loss) would be significantly correlated with greater severity of depressive symptoms and that social support and adaptive coping style would moderate the relationship between combat exposure and depression such that higher levels of social support and adaptive coping would buffer the relationship between high levels of combat exposure and depression severity. Table 2 displays the results of four multivariate linear regression models used to explain the impact of combat stress, social support (PSSS), and adaptive coping, on depression (PHQ-9), as well as the moderation effects of social support and adaptive coping. Models 1 and 2 examine correlations between the independent variables, combat exposure (CES) and combat-related comrade loss, as well as social support and adaptive coping, and depression. Models 3 and 4 examine the extent to which social support and adaptive coping moderate the impact of combat exposure on depression. Control variable categories with few responses were combined to simplify the presentation of results in these models. Regression results indicate that none of the study hypotheses were supported.

Models 1 and 2 did not identify significant relationships between combat exposure or comrade loss and depression. Model 1 found a statistically significant relationship between social support and depression; a one-point increase on the PSSS was associated with a .27 point decrease on the PHQ-9. Model 2, which tested the relationship between adaptive coping and depression, did not detect a statistically significant relationship. Model 1, which includes combat exposure, comrade loss, social support, and control variables, explains 60% of the variance on the PHQ-9. Model 2, which includes combat exposure, comrade loss, adaptive coping, and control variables, explains 54% of the variance.
Additional regressions in Models 3 and 4 tested the extent to which social support and adaptive coping moderate the impact of combat exposure on depression. Model 3 includes the moderating impact of social support on combat exposure and depression and did not find a significant interaction effect. Model 3, which includes combat exposure, comrade loss, the interaction effect of combat exposure and social support, and control variables, explains 61% of the variance on the PHQ-9.

Model 4 includes the moderating impact of adaptive coping as a total score on combat exposure and depression. Interaction effects were also examined across individual adaptive coping subscales from the Brief COPE questionnaire measuring active coping, use of emotional support, and planning and there were no significant effects. Model 4, which includes combat exposure, comrade loss, the interaction effect of combat exposure and adaptive coping, and control variables, explains 56% of the variance on the PHQ-9.

Financial situation, employment status, and use of antidepressant medication were the only control factors that had statistically significant relationships to depression across all four models. Those who were financially comfortable scored lower on the PHQ-9 than those who could not make ends meet. Being employed part time and not using prescription medications for depression was significantly associated with higher depression scores.
### Table 2: Combat Stress, Coping Style, and Social Support Explaining Depression

<table>
<thead>
<tr>
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<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
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<tr>
<td><strong>Independent and Moderating Variables</strong></td>
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<tr>
<td>Combat Experiences Scale</td>
<td>0.0027</td>
<td>0.09</td>
<td>-0.11</td>
<td>0.51</td>
</tr>
<tr>
<td>Yes, More than One</td>
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<td>0.51</td>
<td>0.18</td>
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<td>No</td>
<td>0.95</td>
<td>1.11</td>
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<td>Post Deployment Support</td>
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<td>-0.39</td>
<td>***</td>
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<tr>
<td>Adaptive Coping Score</td>
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<td></td>
<td>0.65</td>
</tr>
<tr>
<td>Interaction of Combat Experiences Scale and Social Support</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Interaction of Combat Experiences Scale and Adaptive Coping</td>
<td>-0.04</td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td><strong>Control Variables</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Alcohol Use Disorders Identification Test</td>
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<td>0.42</td>
<td>* 0.29</td>
<td>0.40</td>
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<td>0.18</td>
<td>-0.01</td>
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<tr>
<td>Non-White</td>
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<td></td>
<td></td>
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<tr>
<td>Military Branch (ref. = Army)</td>
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<td></td>
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</tr>
<tr>
<td>Air Force</td>
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<tr>
<td>Marines/Navy/National Guard</td>
<td>0.8</td>
<td>1.60</td>
<td>0.80</td>
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<tr>
<td>Marital Status (ref. = Married)</td>
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<td>-0.63</td>
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<tr>
<td>Never Married</td>
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<tr>
<td>Divorced/Separated</td>
<td>-3.21</td>
<td>**</td>
<td>-2.79</td>
<td>***</td>
</tr>
<tr>
<td>Financial Situation (ref.=Can't Make Ends Meet)</td>
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<td>**</td>
<td>-0.97</td>
<td>***</td>
</tr>
<tr>
<td>Just Enough to Get Along</td>
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<td>-3.50</td>
<td>-1.24</td>
<td>-3.35</td>
</tr>
<tr>
<td>I am Comfortable</td>
<td>-6.45</td>
<td>**</td>
<td>-0.97</td>
<td>***</td>
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<td>Employment Status (ref. = Employed Full Time)</td>
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<td>Employed, Part Time</td>
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<td>**</td>
<td>3.11</td>
<td>**</td>
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<tr>
<td>Unemployed</td>
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<td>0.53</td>
<td>0.45</td>
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<tr>
<td>Depression Diagnosis/Treatment (ref. = No)</td>
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<table>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>R²</strong></td>
<td>0.60</td>
<td>0.54</td>
<td>0.61</td>
<td>0.56</td>
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</table>

*p < .05, **p < .01, ***p<.001
CHAPTER 4

Discussion

This study explores factors impacting depression in female OEF/OIF veterans and is the first known study to examine the moderating effects of coping style and social support on combat stress and depression, as well as to include comrade loss as a variable of combat-related stress. In doing so, this study expands on previous efforts seeking to understand mental health disparities in the female veteran population, particularly in light of increased direct combat exposure during deployments (LeardMann et al., 2013; Maguen et al., 2012a; Maguen et al., 2012; Street et al., 2009; Wells et al., 2010). Prior to the current study, existing research on OEF/OIF female veterans has been heavily focused on PTSD (Rivera & Johnson, 2014), despite depression being the most prominent mental health concern in this rapidly growing population (Frayne et al., 2014). This issue is highlighted in the present study with over forty percent of respondents identifying a prior diagnosis of depression, compared to one-quarter that identified a prior diagnosis of PTSD.

The aim of this study was two-fold: (1) to explore the relationship between combat-related stress and depression in OEF/OIF female veterans and (2) to examine the moderating impact of social support and adaptive coping in the linkage between combat exposure and depression symptoms through multiple regression analyses. The researcher controlled for several key variables, including race/ethnicity, marital status, financial situation, employment status, branch of military served, diagnosis of anxiety and PTSD, substance abuse, history of depression, engagement in mental health treatment, antidepressant use, and military sexual trauma (MST). The researcher used well-validated measures to assess depression, combat exposure, adaptive coping, and post deployment social support in a sample of female veterans.
who had served at least one military deployment to Iraq or Afghanistan. This study’s findings emphasize several distinct characteristics surrounding depression in OEF/OIF female veterans and provide significant implications for clinical social work practice. Although the study hypotheses were not supported, findings support the significant role of social support, financial situation, employment status, and antidepressant use in depression severity and highlight the prevalence of combat-related comrade loss and MST in the sample population.

**Combat-Related Stress and Depression**

Regression analyses did not identify significant relationships between combat exposure and depression and combat-related comrade loss and depression. Although over half of the participants in this study reported having a prior diagnosis of mental health concerns, including depression, anxiety, and/or PTSD, the average combat exposure score was relatively low, indicating consistency with prior research that, although combat exposure among enlisted females is growing, the combat exposure rate remains significantly lower than males, even in OEF/OIF veteran samples (Afari et al., 2015b). This finding also echoes Gad and Wenger’s (2011) conclusion that, although there is significant evidence that females are at greater risk for mental health concerns than males, predisposing mental health traits prior to combat may be more significant predictors than combat experiences. The present study, however, controlled for a prior diagnosis of depression among participants and did not find any significant relationship to current depression severity.

Similarly, although there was no significant relationship between combat-related comrade loss and depression, the majority of participants in this study – nearly 65 percent – identified losing one or more comrades to combat during deployment. This finding highlights the prevalence of comrade loss for women deployed to Iraq or Afghanistan. Hall (2013) writes
about the unwavering commitment to service and willingness to die for one’s comrades as being a unique aspect of military identity and culture, identifying the need for a self-sacrificial attitude as being a “constant burden faced by service members and their families” that leads to “a level of stress unknown by most civilian families” (p. 24). This level of commitment to one’s country, mission, and fellow service members creates close relational bonds unmatched in the civilian world. Drescher (2013) writes that the unique role of small unit cohesion in the military results in “extremely close relationships” such that, when comrade death occurs, “the pain associated with the loss can be intense…and unit members will have little time to process the loss” (p. 251).

The present study’s findings suggest that while combat exposure and comrade loss do not have a significant impact on depression in OEF/OIF female veterans, the prevalence of combat-related comrade loss highlights important areas for further study regarding the impact of this particular stressor on female mental health, grief and loss, and reintegration post-deployment.

**Moderating Effects of Social Support and Adaptive Coping**

Regression analyses found that neither social support nor adaptive coping style, when examined across individual subscales, significantly moderated the relationship between combat exposure and depression in OEF/OIF female veterans. The absence of a significant moderation effect from social support in this study aligns with Barrett and Mizes’ (1988) earlier findings of the lack of relationship between combat exposure severity and social support levels, despite strong correlations between social support and combat levels, respectively, and PTSD severity in Vietnam veterans.

While there is much evidence for the potential harmful effects of combat exposure on mental health in both male and female veterans, the lack of a significant relationship between combat-related stress and depression and moderation effects in this study suggest that alternative
stressful or traumatic experiences unique to the combat-zone deployment setting might more strongly contribute to depression in female OEF/OIF veterans. Vogt and Street (2013) describe several stressors unique to female service members deployed to combat zones that may contribute to mental health concerns. These include: lack of private bathroom facilities leading to difficulty maintaining menstrual hygiene and urinary tract conditions; limited access to gynecologic care, including birth control; sexual assault and harassment; gender harassment; limited social support from female peers and superiors; and prolonged family separations, particularly for single mothers. The presence of these factors during a deployment period, coupled with combat exposure, may better explain depression in OEF/OIF female veterans.

Social Support, Adaptive Coping, and Depression

In this study, a significant relationship was found between social support and depression. There was also a high average social support (PSSS) score among participants of 40.49 out of 50. The high $R^2$ scores in the regression models that account for social support, in addition to other independent and control variables, suggest that social support plays a significant role in explaining depression in the OEF/OIF female veteran population. This finding is consistent with prior research pointing to the protective impact of social support against depression in mixed-gender veteran samples (DeBeer et al., 2014; King et al., 1998; Tsai et al., 2012; U.S. Department of Veterans Affairs National Center for PTSD, 2014b) and OEF/OIF female veterans (Nayback-Beebe & Yoder, 2011). Recent research further supports the importance of high levels of social support in conjunction with psychotherapy for depression and anxiety disorders (Lindfors, Ojanen, Jääskeläinen, & Knekt, 2014), and this component might be especially crucial in female veterans. Considering the high average PSSS score in this study and the inability to isolate the impact of social support to determine whether depressed individuals
benefit from social support or whether those with existing social support are less depressed, this result provides significant evidence for the role of social support in female veterans following deployment as a potential avenue for intervention in mental health treatment.

Similarly, although no significant relationship was found between adaptive coping style and depression in this study, the average adaptive coping score was relatively high at 15.55 out of 24. This finding suggests possible resiliency among female veterans that might serve as a protective factor for mental health concerns regardless of combat exposure. Consistent with previous research, coping style has been identified as playing a strong role in the presence of mental health concerns (Creech & Borsari, 2014; Simoni & Ng, 2000; Tremblay & King, 1994; Turner et al., 1992) and as a protective factor for depression in females (Farrokhi et al., 2006).

Furthermore, the high $R^2$ scores identified in the regression models that account for total adaptive coping scores, in addition to other independent and control variables, suggests that adaptive coping significantly helps to explain depression in this study’s sample population.

**Financial and Employment Status, Medication Use, and Depression**

Although not the primary focus of this study, it is noteworthy that a significant relationship was identified between financial situation and depression, such that those who were financially comfortable had significantly lower depression scores across all four regression models. Part time employment status, accounting for 12.5 percent of participants, was also significantly associated with depression across all four models, indicating that participants who were working part time had higher rates of depression. These findings suggest that financial security and full time employment might serve as protective factors for depression in female OEF/OIF veterans. Prior research findings indicate that both financial security and financial management skills are important for emotional health. In a mixed gender sample of OEF/OIF
veterans, Elbogen et al. (2012) found strong associations between financial well being and major depression, PTSD, Traumatic Brain Injury (TBI), and post-deployment adjustment. These findings also suggest that, given the lack of significance between combat-related stress and depression, stressors involving financial and employment status might better explain situational depression, also termed Adjustment Disorder, verses clinical depression in the current study’s sample population. The DSM-5 (2013a) notes that Adjustment Disorder can result in symptoms mimicking a depressive episode, but develop due to a specific stressor or set of stressors that, when resolved, results in decreased symptoms within six months.

Despite this finding, unemployment status did not have a significant impact on depression severity in this sample population, potentially explained by the majority of unemployed participants engaged in school full time or choosing not to work (e.g. stay at home mom). Only a small percentage of participants (4.6 percent) identified that they were looking for work or disabled/unable to work. This finding suggests that depression may prevent OEF/OIF female veterans from obtaining or engaging in full-time work, possibly exacerbated by lower levels of income compared to those with full time employment.

Similarly, in this study, a significant relationship was found between antidepressant use and depression, such that those participants who were not using prescription medications for depression had significantly higher depression scores as evidenced across all four models. Although the non-medication using subgroup accounts for over eighty percent of participants, this finding points to the importance of proper and thorough treatment for depression upon diagnosis, including the use of psychopharmacology. Female OEF/OIF veterans who suffer from depression may also experience barriers to mental health treatment that prevent them from accessing appropriate psychotropic medications. Prior research of OEF/OIF female veterans
identifies that many of them experience the need for mental health services but do not seek treatment due to barriers accessing treatment within the VA system, including scheduling difficulties, prior negative experiences, and concerns about the stigma associated with receiving mental health care (Owens, Herrera, & Whitesell, 2009). This study highlights the need to prioritize female veterans’ access to care, including specialty mental health and primary care services that provide screening, monitoring, and treatment of depression symptoms.

Military Sexual Trauma

It is important to note the high percentage (67.2 percent) of respondents in this study who identified at least one past experience of unwanted or uninvited sexual attention during their time of military service. This study utilized screening language that is currently adopted by the VA to screen for MST across all medical facilities. Researchers have repeatedly found links between the occurrence of MST among active duty females and mental health concerns (LeardMann et al., 2013; O’Brien & Sher, 2013; Williams & Bernstein, 2011), and this study suggests a much higher rate of women in the military experience MST than the current DoD estimate of six percent (2014a). OEF/OIF females may be particularly vulnerable to MST as they enter into positions previously restricted to women and serve alongside more male service members than females from previous war eras. Although the impact of MST on female mental health has recently been a focus of research (Maguen et al., 2012b; Scott et al., 2014), this study highlights prevalence of unwanted sexual attention among females in the military that may contribute to a wide variety of emotional concerns.

Clinical Implications

This study enhances the burgeoning literature on female veterans’ mental health by focusing on factors that contribute to depression, a primary mental health concern in this
growing population, and emphasizing stressors that impact female OEF/OIF veterans, including combat-related comrade loss and MST. The study’s findings offer several key implications for clinical social workers, particularly those providing mental health treatment to female veterans.

First, clinical social workers can be aware of the impact of social support post deployment and encourage efforts to foster use of such support within the treatment setting. The availability and use of social support can be assessed and encouraged within the treatment setting and incorporated into existing evidenced based psychotherapies, including behavioral activation skills in Cognitive Behavioral Therapy (CBT). Clinical social workers can work collaboratively with clients to promote engagement in peer social settings and/or support groups and to utilize available family, friends, and coworkers following deployment. Social networking may also be a tool to foster social support. This study’s researcher utilized Facebook announcements and groups to successfully recruit a large number of the participants. Participants’ engagement in social media and willingness to participate in online research not only points to a potentially successful arena for future research recruitment, but to the ability of individuals within this population to connect with peers and support systems.

Second, clinical social workers can remain aware of the strengths and resiliency of the female veteran population, including adaptive coping abilities. Meichenbaum (2013) describes the importance of identifying and building upon resiliency in combat veterans and their families throughout and following deployment, emphasizing that resiliency is a natural response to trauma. He calls for systematic and routine assessment for “signs of resilience” (p. 328) through the use of scales like the Posttraumatic Growth Inventory. Clinical social workers may identify existing adaptive coping strategies in female veteran clients, despite stressors experienced during deployment, and utilize interventions that build upon such strengths.
Third, this study’s findings suggest that clinical social workers need to provide appropriate support and referrals to depressed female veteran clients facing financial strain as financial and employment stressors may contribute to depression and, possibly, situational depression, in female OEF/OIF veterans. Rather than focusing on the impact of one’s military experience as a key contributor to depression, mental health professionals can assess thoroughly for psychosocial concerns, including employment status and financial security, and provide appropriate referrals for case management, whereby intervening as quickly as possible to address depression from a variety of angles. Storey (2009) argues that case management, particularly with combat veterans, can provide a psychotherapeutic intervention for individuals with complex psychosocial and emotional concerns. Likewise, clinical social workers providing treatment to female veterans with depression can assist with case management needs within the psychotherapeutic relationship. For example, routinely screening for financial stressors and barriers to obtaining employment to provide financial security, while maintaining a list of agencies that provide financial assistance and support to veterans, are efficient interventions that might resolve symptoms effectively in conjunction with evidenced-based treatment.

Additionally, clinical social workers need to appropriately provide referrals to psychopharmacology for female veterans experiencing depression and advocate for access to comprehensive treatment. The VA/DoD Clinical Practice Guidelines for Management of Major Depressive Disorder (2016) recommends both evidence-based psychotherapy and psychopharmacology for individuals diagnosed with major depression. This study emphasizes the importance of comprehensive evaluation and treatment accessibility for female OEF/OIF veterans.
Furthermore, this study highlights the prevalence of comrade loss as a result of combat and MST in an OEF/OIF female veteran sample. Within the context of comprehensive psychosocial assessment, clinical social workers may inquire about loss of comrades and explore the emotional impact of these losses on female veteran clients. This recommendation builds upon Drescher’s (2013) urging for thorough grief and loss assessment, including signs of complicated grief stemming from military-related losses, and awareness of co-morbidity of grief with other mental health issues, including depression, in combat veterans. Additionally, given the high number of study participants who identified experiencing unwanted or uninvited sexual attention during the military, clinical social workers can be alert to experiences of sexual harassment and assault, even if clients do not identify themselves as victims of MST, and explore the emotional impact of such experiences.

**Future Directions**

The results of this study point to several important areas for future research. With regards to combat stress, ongoing analysis of the impact of combat exposure on female mental health is crucial as integration efforts of females into direct combat positions remains a legislative focus. Given the importance of understanding depression in female veterans and recent legislation allowing females to serve in all military positions, longitudinal studies are needed to better understand the impact of combat exposure in females across the lifespan. The prevalence of combat-related comrade loss is notable in this study and suggests an area for future research around the emotional impact of grief and loss in the female veteran population. The impact of this type of stressor on male and female veterans should be a focus of study, particularly as this relates to mental health issues, including complicated grief. Although no correlations were identified between combat stress and depression in this study, researchers need
to continue to identify unique deployment-related stressors experienced by female veterans serving in combat zones and work to isolate those most strongly associated with depression post-deployment.

The significant role of social support highlighted in this study suggests a need for further research around the varying impacts of perceived and received social support in the female OEF/OIF veteran population. Intervention studies dedicated to enhancing social support, establishing financial security, and increasing access to psychopharmacology post-deployment may also be carried out to examine effective treatment strategies in depressed female veterans. Future research efforts can also seek to identify additional protective factors for female veterans and focus on resiliency in the context of coping styles among female veterans, as well as differences in coping between male and female OEF/OIF veterans, including maladaptive coping styles, as discussed in prior research with veterans (Creech & Borsari, 2014; Farrokhi et al., 2006). Additionally, researchers can continue to focus on the prevalence and impact of MST in female veterans and provide guidance to clinicians around effective intervention tools to reduce risk for developing mental health concerns.

**Study Strengths and Limitations**

This study has significant strengths as well as limitations. This study used feasible methods to examine understudied variables related to female veterans following deployment, thus, contributing to the current literature about depression in female veterans and offering several important implications for practice as well as future research. Overall, the high proportions of variance identified through the regression analyses points to a significant strength of this study’s design; the statistical models used in this study significantly explained certain factors impacting depression in the study’s sample of female OEF/OIF veterans. However, the
study is limited in its ability to assess the impact of combat stress and buffers on OEF/OIF female veterans beyond the measures utilized. Specifically, depression was measured using a questionnaire that only assesses for clinical depression and does not take into account other possible manifestations of depression symptoms, including Adjustment Disorder and grief. In-depth, qualitative interviews of females with high levels of combat exposure could identify patterns in mental health concerns that can further be explored through quantitative studies utilizing applicable measurement tools. Furthermore, this study relied on subjective, self-report measures and utilized limited constructs to measure adaptive coping. Additional studies could incorporate other types of adaptive and maladaptive coping styles to examine their relationship to depression.

This study used a cross-sectional design with convenience sampling methods to examine the relationship between combat exposure, social support, coping style, and depression in OEF/OIF female veterans. Cross-sectional study designs provide cost and time effective ways to examine specific populations at one point in time and explore characteristics of the population. As a result, many variables can be assessed and explored in detail from a large sample population. This study was able to examine a relatively large sample of female OEF/OIF veterans compared with previous research, although the recruitment efforts were limited to specific agencies, online groups, and geographic regions. Significant limitations of this design are the inability to draw a casual conclusion from the research findings as well as the lack of assurance of directionality of independent and dependent variables. Longitudinal studies are necessary to increase understanding of depression in the female OEF/OIF veteran population across the lifespan. It will be important for future researchers to engage in well-designed
longitudinal studies in order to understand depression in this population both shortly following deployment and later in civilian life.

This study was unique in its recruitment efforts compared to the majority of prior research that relied on recruitment solely from government-funded entities, like VA medical centers. As a result, this study obtained a relatively diverse sample population. Alternatively, the respondents self-selected to participate in the survey and had access to a computer or other device with Internet access. Self-selection may represent participants’ biases regarding the value of research and importance of mental health concerns in the target population. Therefore, this study’s sample is not an accurate reflection of the entire OEF/OIF female veteran population, and the results of this study cannot be generalized to the population as a whole. Study outcomes may have varied significantly with the incorporation of recruitment from VA medical centers, which often serve individuals without private health insurance facing various socioeconomic stressors. Despite this limitation, this study demonstrates that the convenience of utilizing an online survey to recruit participants is an efficient and effective research tool that can be replicated in a variety of settings.

Lastly, this study was conducted during a major legislative initiative that opened all combat positions to females. Future research can continue to explore the primary areas of focus in this study in order to re-examine the impact of combat exposure on depression as an increasing number of females serve in a variety of combat positions.

**Conclusion**

Depression remains the most prevalent mental health concern among female veterans (Frayne et al., 2014) with vast disparities existing in depression rates between male and female veterans (Curry et al., 2014; Haskell et al., 2010; Runnals et al., 2014b). As women continue to
serve in increasingly diverse military positions, exposing them to higher levels of combat, researchers must continue to explore links between combat exposure and mental health concerns unique to females. Much of the current research around OEF/OIF female veterans is focused on the impact of combat trauma on PTSD, ignoring gender disparities in depression rates and the impact of other types of military-related stressors, including grief resulting from loss of comrades. This study points to the prevalence of comrade loss resulting from combat and possible resiliency within this population that might protect against the development of depression despite combat exposure. Findings also provide support for factors that uniquely impact depression in female OEF/OIF veterans, including post-deployment social support, financial and employment status, and use of antidepressant medication. This study also highlights the prevalence of MST experiences in the female OEF/OIF veteran population. Clinical social workers, as professionals providing more mental health care than any other profession in the U.S. (ACSWA, 2016), need to assess for financial strain post-deployment and focus on interventions that enhance clients’ social support and access to comprehensive treatment for depression. As female involvement in direct combat positions increases, future research efforts can focus on additional types of gender-specific deployment-related stressors and their impact on depression in female OEF/OIF veterans as well as the overall emotional impact of combat-related comrade loss and MST.
Online Informed Consent

This study is looking at the role of combat-related stress, coping, and social support in depression among female veterans. The primary investigator for this study is Holly Sairsingh, social worker and doctoral candidate at the University of Pennsylvania School of Social Policy and Practice. We hope to recruit 115 female veterans for this study. By sharing your experiences, you can help us better understand mental health concerns among female veterans. The following questions will ask about demographic information and include four standardized questionnaires. This should take about 15 - 20 minutes to complete.

There are no known risks associated with this study. However, some of the survey questions are sensitive in nature may cause emotional distress. You may exit the survey at any time. Also, please be aware of the availability of the Veterans Crisis Line at 1-800-273-8255 (HELP). Additional resources are available at http://www.veteranscrisisline.net/.

All information you provide will be kept confidential and your privacy will be strongly upheld. Research staff will not be able to associate you with your answers, as you are not required to provide any identifying information during the survey. Your participation is completely voluntary. There is no penalty if you choose not to participate in the study. You will not lose any benefits or advantages that are now coming to you, or would come to you in the future.

At the end of the survey, you will have the option to enter a raffle to win one of two $100 Amazon gift cards as appreciation for your time. In order to enter the raffle, you will need to provide an email address that is delinked from your survey responses. This address will only be used to send you the gift card and will then be deleted.

If you have questions, concerns or complaints regarding your participation in this study or if you have any questions about your rights as a research subject, you should speak with the Principal Investigator Holly Sairsingh at 215-823-5800 x6648. If a member of the research team cannot be reached or you want to talk to someone other than those working on the study, you may contact the Office of Regulatory Affairs with any question, concerns or complaints at the University of Pennsylvania by calling (215) 898-2614.

By answering “yes” you are indicating your consent to participate.

Thank you in advance for your participation!

___Yes, I agree to participate and I meet the study criteria of being a female veteran who served at least one military deployment in the service of Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), or Operation New Dawn (OND)
___ No, I do not wish to participate or do not meet the study criteria
Are You a Female Veteran Who Served at Least One Military Deployment in the Service of OEF/OIF/OND?

I am looking for eligible female veterans to complete a one-time, anonymous, online survey as part of my dissertation study. This study is looking at the effects of combat stress, coping, and social support on depression. The survey takes about 15–20 minutes to complete. At the end of the survey, you will have the option to enter a raffle to win one of two $100 Amazon gift cards. If you are interested, please go to the following website to begin the survey:

http://tinyurl.com/female-veterans

Holly Sairsingh, LCSW, Doctoral (DSW) Candidate at the University of Pennsylvania School of Social Policy and Practice

Questions? Email Holly at: hsairs@sp2.upenn.edu
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