

PREMILITARY SUICIDAL IDEATION, COMBAT
EXPOSURE, AND POSTTRAUMATIC STRESS
DISORDER AS PREDICTORS OF RECENT SUICIDAL
IDEATION IN OEF/OIF ERA VETERANS

By

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DEDICATION

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Abstract: There has been an alarming increase in suicidal ideation and suicide among military personnel and veterans since the commencement of the wars in Afghanistan (Operation Enduring Freedom; OEF) and Iraq (Operation Iraqi Freedom; OIF). Research suggests suicidal ideation as the single best predictor of suicide. Recent studies on suicidality (i.e., suicidal ideation, suicide plans, suicide attempts) have focused on identifying risk factors that place military personnel and veterans at the greatest risk of experiencing suicidal ideation. The current study sought to provide further empirical evidence and clarification of the association between recent suicidal ideation among OEF/OIF era veterans and several previously identified risk factors (i.e., PTSD, combat exposure, and demographic variables). Primarily, we examined whether premilitary suicidal ideation was a risk factor for recent suicidal ideation while controlling for previously identified risk factors. Lastly, this study sought to identify which risk factors place veterans at the greatest risk of experiencing suicidal ideation. Simultaneous multiple regression and hierarchical multiple regression results revealed that PTSD severity, racial minority status, and premilitary suicidal ideation were significant predictors of recent suicidal ideation. When controlling for previously identified risk factors, premilitary suicidal ideation was still a significant predictor of recent suicidal ideation. PTSD severity was found to be the best predictor of recent suicidal ideation, followed by premilitary suicidal ideation. Study findings suggest that premilitary suicidal ideation is an important factor to consider in veterans mental health when addressing suicidality. As such, further research dedicated to exploring the association of premilitary suicidal ideation with veteran suicidality is warranted.

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CHAPTER I

INTRODUCTION

There has been an alarming increase in suicidal ideation and completed suicides among active duty service members and veterans (Blow et al., 2012; Kang & Bullman, 2008; McCarthy et al., 2009). Since the commencement of Operation Enduring Freedom (OEF) in Afghanistan and Operation Iraqi Freedom (OIF) in Iraq in October 2001 and March 2003, the suicide rate for military members and veterans who have seen combat has increased beyond that of the general population, now making suicide the second leading cause of death among military personnel (Bush et al., 2013; Department of Defense, 2011; Kang & Bullman, 2008). Between 2001 and 2008, the suicide rate for active duty military personnel has increased by 50%, with the rate rising from 10.3 suicides per 100,000 individuals in 2001 to 15.8 per 100,000 individuals in 2008 (Jobes, Lento, & Brazaitis, 2012). In fact, the number of U.S. soldiers who have died by suicide is now estimated to be greater than the number who died in combat in Iraq and Afghanistan (Bryan et al., 2014; Hyman et al., 2012).

Our nation's active and reserve military service members are experiencing great consequences from the war on terrorism. However, our nation's veterans, those who have

proudly served their country and have since discharged from the military, are experiencing the most tragic effects. In 2008, military veterans completed approximately 20% of all suicides in the United States; however, military veterans only accounted for 10% of the U.S. adult population (Kaplan et al., 2012). Recent statistics from the U.S. Department of Veterans Affairs (2013) indicates that 22 veterans per day commit suicide. In addition to actual deaths by suicide, research indicates that veterans and service members report an even greater percentage of suicidal ideation and suicidal behaviors that do not result in death (Kinn et al., 2011).

Research indicates that suicidal ideation is the single best predictor of suicide (Mann et al., 2008). In addition, suicidal ideation, when compared to suicidal behaviors and completed suicides, affects a greater percentage of OEF/OIF veterans (Kinn et al., 2011). Suicidal ideation is a mental health issue that is having a devastating effect on veterans. Several studies have suggested that the majority of individuals who make a suicide attempt do so within a year of the first onset of suicidal ideation (Bryan et al., 2015; Kessler, Borges, & Walters, 1999; Nock et al., 2008a). Therefore, it has become imperative that steps be taken to identify suicidal ideation risk factors. The identification of risk factors for suicidal ideation plays a vital role in identifying those veterans who are at the greatest risk of experiencing suicidal ideation and/or attempting suicide.

Suicidal Ideation

Suicidal ideation is defined as thoughts, fantasies, ideas, or images related to committing suicide, or ending one's own life. Suicidal ideation varies in degree and can be classified as being either active or passive. Active suicidal ideation commonly refers to thoughts about harming oneself, while passive suicidal ideation refers to thoughts that life is

not worth living or that one would be better off dead (Raue et al., 2006). Lewinsohn, Rohde, and Seeley (1996) explain that suicidal ideation can be conceptualized as being expressed along two dimensions: severity (degree of seriousness) and duration (amount of time spent ideating). In addition to severity and duration, it is also important to consider frequency (how often these thoughts occur) as an important factor.

It is important to understand the distinction between suicidal ideation, suicidal behaviors, and suicide. In contrast to suicidal ideation, suicide refers to death from self-inflicted injury when individuals intend to kill themselves. Suicidal behaviors refer to the potential self-injurious behaviors for which individuals intended to kill themselves, or use the appearance of intending to kill themselves (O'Carroll et al., 1996). "Suicidal ideation is believed to represent the early stage of a continuum that begins with low mood and moves to passive death wishes, suicidal thoughts, plans and finally acts of self-harm or suicide" (Casey et al., 2008, p. 299). Suicidal ideation, at its least severe, may only consist of a fleeting thought. However, suicidal ideation, at its most serious, may lead to suicidal plans and acts (Kessler, Borges, & Walters, 1999).

Suicidal ideation is far more common than suicidal behavior or completed suicides due to the fact that it precedes more serious suicidal acts (Fong, Shah, & Maniam, 2012; Gliatto & Rai, 1999). This is simply because one must think about or contemplate suicide before acting upon the urge. Although suicidal ideation may or may not lead to an actual suicide attempt, it is strongly associated with increased risk of suicidal behaviors (Beck, Brown, Steer, Dahlsgaard, & Grisham, 1999; Brown, Beck, Steer, & Grisham, 2000; Kessler, Borges, & Walters, 1999). "Suicidal ideation frequently functions as the first warning sign of the potential for more serious suicide-related behavior" (Langhinrichsen-Rohling, Snarr,

Slep, Heyman, & Foran, 2011, p. 601). In fact, suicidal ideation is perhaps the best single predictor of suicide attempts (Britton et al., 2012; Mann et al., 2008; Szanto et al., 2003). Despite the association between suicidal ideation and suicide, suicidal ideation should be interpreted as a distinct phenomenon since the majority of individuals who experience suicidal ideation may not ever attempt suicide (Blonsnich et al., 2014).

Prevalence of Suicidal Ideation. “It is not unusual for ‘normal’ individuals to experience occasional suicidal thoughts” (Ruddell & Curwen, 2002, p. 367). However, frequency and severity varies depending on the individual. Severity of suicidal ideation can vary greatly from a single fleeting thought, to occasional curiosity, to extensive thoughts, to detailed planning. In a cross-national study that examined the prevalence of suicidal ideation, plans, and attempts, they found that lifetime prevalence of suicidal ideation was 9.2%, suicidal plans was 3.1%, and suicidal attempts was 2.7% (Nock et al., 2008a). However, other studies have found lifetime rates of suicidal ideation to vary between 2.09 and 25.4% depending on age, culture and geographic location (Bertolote et al., 2005; Casey et al., 2008; Lewinsohn, Rohde, & Seeley, 1996; Weissman et al., 1999). Nock et al. (2008a) found that the prevalence of having suicidal ideation differs by sociodemographic factors (i.e., age, sex, race/ethnicity, education).

In the United States, suicidal ideation and behaviors are important public health concerns. In 2008, suicide claimed the lives of 36,035 total individuals (Centers for Disease Control and Prevention [CDC], 2015). Additionally, approximately 666,000 individuals visited hospital emergency departments for nonfatal, self-inflicted injuries. Although these numbers may seem astonishing, they do not compare to the number of individuals who experience suicidal ideation. In 2008, an estimated 8.3 million adults 18 and older reported

experiencing suicidal ideation in the past year, this accounts for 3.7% of the adult U.S. population (Crosby et al., 2011).

Suicidal Ideation in Veterans

Although previous wars have resulted in a large number of veterans experiencing suicidal ideation and behaviors, the recent and ongoing war in Iraq and Afghanistan are resulting in the return of a significant percentage of veterans dealing with suicidal ideation, posttraumatic stress disorder, depression, and other psychological problems that increase the risk of suicide (Tanielian & Jaycox, 2008). “The increased rates of suicidality recently noted in veterans may be due to the occurrence of extended and concurrent wars and the concomitant heavy strain placed on military members” (Langhinrichsen-Rohling et al., 2011, p. 600).

Prevalence of suicidal ideation among service members and veterans has been identified to range from 6.5% to 45.9% in clinical samples and from 2.3% to 21.2 % in nonclinical samples (Bossarte et al., 2012; Corson et al., 2013; Jakupcak et al., 2009; Lemaire & Graham, 2011; Mavandadi et al., 2013; Pietrzak et al., 2010). These statistics indicate that up to nearly half of veterans who seek help have experienced suicidal ideation and up to one fifth of non-treatment seeking veterans have experienced suicidal ideation. The truth is that even these alarming statistics may not fully capture the number of veterans that experience suicidal ideation. This is largely due to the stigma placed on having suicidal ideation, which causes many veterans not to openly share these thoughts. Since these studies tend to utilize self-report measures, these numbers only capture those who are willing to admit to having suicidal thoughts (Corson et al., 2013).

Suicidal Ideation Risk Factors Among Veterans. Research on veteran suicidality (i.e., suicidal ideation, suicide attempts, suicide completions) has identified several factors that have been associated with an increased risk of suicidal ideation. These factors include PTSD (Guerra & Calhoun, 2011; Kessler et al., 1999), combat exposure (Boehmer et al., 2004; Bush et al., 2011), active duty versus Reserve/National Guard Service (Kang & Bullman, 2008), physical problems, (Braden & Sullivan, 2008; Ratcliffe et al., 2008), depression, PTSD, and substance abuse problems (Harris & Barraclough, 1997; Kang & Bullman, 2008).

Although several sociodemographic traits are associated with a greater risk of suicidal ideation in the general population, there are mixed conclusions on whether these factors are predictive of suicidal ideation among veterans (Corson et al., 2013). These mixed conclusions are due to several studies examining the same demographic factors and all finding different results. Although not found in every study, some studies have found that demographic factors such as age, gender, and ethnicity do influence the risk of suicidal ideation among OEF/OIF veterans (Corson et al., 2013; Jakupcak et al., 2009; Lemaire & Graham, 2011).

Research now indicates that veterans at the highest risk of suicidal ideation may be those diagnosed with two or more psychiatric disorders (Corson et al., 2013). Recent studies have also indicated that experiences prior to military enlistment may increase the risk of suicidal ideation in veterans. Specifically, veterans who have traumatic experiences before enlisting may be more vulnerable to suicidal ideation and behaviors when coping with combat deployments (American Psychological Association, 2014). Additionally, studies have

found that suicidal ideation prior to military enlistment (i.e., premilitary suicidal ideation) can lead to suicidality in veterans.

Premilitary Suicidal Ideation

Premilitary suicidal ideation is defined as having suicidal ideation, previously described as having thoughts, fantasies, ideas, or images related to committing suicide, or ending one's own life, at any point in the individual's life before joining the U.S. military. Therefore, the term premilitary refers to the time period ranging from birth to the day an individual leaves for military basic training. Premilitary suicidal ideation identifies suicidal thoughts that are unrelated to military experience. The identification of these premilitary thoughts recognizes that veterans have pre-existing mental health issues before enlisting in the Armed Forces. All service members and veterans have premilitary life experiences, however, when examining veteran issues (i.e., suicidal ideation, suicide, PTSD, depression) they are rarely taken into account.

To date, there has been very little research conducted on premilitary mental health and life experiences and how these factors affect service members and veterans. Although it is understood that childhood and adolescent experiences can have a grave impact on an adult's personality and mental health, researchers, until recently, have largely failed to take into account this vital period of life for service members and veterans. However, a few recent studies have found a relationship between premilitary trauma, abuse, and suicidal ideation with recent suicidality among military personnel and veterans (Bryan et al., 2014; Griffith, 2014; Perales et al., 2012; Youssef et al., 2013).

Childhood and Suicidal Ideation. Research on childhood adversities (i.e., sexual abuse, physical abuse, emotional abuse, parental lack of care, parental mental disorders) and

its association with adult suicidal behavior is not new. A wealth of empirical evidence has demonstrated a strong connection between childhood adversity and an increased prevalence of adult mental illnesses (i.e., suicidal ideation, suicide attempts; Enns et al, 2006; Kessler, Davis, & Kendler, 1997; MacMillan et al., 2001). Brown et al. (1999) found that adolescents who reported childhood abuse and neglect were 1.5 to 4.0 times more likely to have suicidal behaviors as adults than those who had no childhood abuse or neglect. Enns et al.'s (2006) study indicated "a substantial and statistically significant association between childhood adversities, particularly childhood abuse, and future suicidal ideation" (p. 6-7). There have been several other studies that have also shown an association between early childhood trauma or negative experiences and suicidal ideations, behaviors, and attempts in later adulthood (Dube et al., 2001; Mironova et al., 2011; Read et al., 2001).

Although the link between childhood adverse experiences and adult suicidality has been shown, only three known studies have examined this association with military and veteran populations. In the first of these studies, Perales et al. (2010) examined childhood abuse and its association with suicidal behavior in active duty Army soldiers who attempted or completed suicide. The results concluded that 43.3% of completed suicide cases and 64.7% of suicide attempt cases reported childhood trauma. The second study was conducted by Griffith (2014) and examined the relationship between childhood abuse and adult suicidal behavior among Army National Guard soldiers. Results indicated that 16% of soldiers reported harsh punishment during childhood and 8% reported physical abuse. Further results indicated that soldiers who reported childhood abuse were 3 to 8 times more likely of reporting suicidal ideation, suicidal intent, or previous suicide attempts. The third study, conducted by Youseff et al. (2013), evaluated the effect of childhood trauma on the severity

of suicidal ideation in OEF/OIF era military personnel and veterans. This study found that 33.9% endorsed childhood physical assault, 12.8% endorsed childhood sexual assault, and 38.8% endorsed other childhood psychological trauma. Results indicated that each childhood trauma type (i.e., physical, sexual, other) was significantly associated with severity of suicidal ideation in adult veterans.

It is important to consider childhood adversities when examining premilitary suicidal ideation, because research shows that children who experience childhood adversities are at an increased risk of experiencing childhood or adolescent suicidal ideation (Bruffaerts et al., 2010). Additionally, research studies suggest that veterans who experience childhood adversities are at an increased risk of experiencing adult suicidal ideation, regardless of their military experiences. Therefore, these previous studies would suggest that veterans who experience premilitary suicidal ideation, due to childhood adversities, are at an increased risk of experiencing adult suicidal ideation.

Adolescents and Suicidal Ideation. Adolescence is a stage of life that every service member has either already gone through, or is currently still in. The age of adolescence typically “begins between 11 and 13 years of age with the appearance of secondary sex characteristics and spans the teenage years, terminating at 18 to 20 years of age” (Medical Dictionary, 2015, para. 10). According to data from the U.S. Military Entrance Processing Command (MEPCOM) for the fiscal year (FY) 2009, 52% of all service members across all branches of the military enlisted in the military between ages 16-19 (Rostker, Klerman, & Zander-Cotugno, 2014). Additionally, 21% of the service members who enlisted in the military were between ages 20-21. Therefore, this developmental stage is imperative to

discuss when considering premilitary life experiences seeing that a large percentage of individuals joining the military are still considered being in the adolescent stage.

Suicidal ideation is a factor that threatens all ages. However, research has found that adolescents are at a particularly high risk of experiencing suicidal ideation. Nock et al. (2008a) found that the initial onset of suicidal ideation highly increases during adolescence. A past study conducted on adolescents found that up to 60% of high school students have experienced some degree of suicidal ideation or behavior (Fiedman et al., 1987). These statistics indicate that experiencing thoughts about one's own death is quite common among adolescents. These statistics also clearly demonstrate that adolescence is a time period in which all individuals, including veterans, are at increased risk of experiencing suicidal ideation.

It is well established that past suicidal ideation and behaviors are the most robust and reliable risk factors for future suicide risk (Bryan & Rudd, 2006; Joiner et al., 2005). This suggests that adolescents who experience suicidality before joining the military are at a much higher risk of re-experiencing suicidal ideation and behaviors either while in the military or as a veteran. Several longitudinal studies have shown the impact and lasting effects of experiencing childhood or adolescent suicidal ideation. Reinherz and colleagues (2006) found that both male and female adolescents (mean age of 15) who reported suicidal ideation had greater overall levels of psychopathology, suicidal ideation and suicide attempts by age 30 compared to those who reported no suicidal ideation. Results also found that when participants with and without adolescent suicidal ideation were compared on suicidal ideation and attempts at age 30, adolescents who reported suicidal ideation were 15 times more likely to have experienced suicidal ideation in the past 4 years. Similar to these results, Reinherz et

al. (1995) found evidence “that suicidal ideation at age 15 was a marker of distress with multiple longterm implications” (p.607). These studies highlight the relationship between adolescent suicidal ideation and adult suicidal ideation. These studies also point out the need for assessing premilitary suicidal ideation in veterans with suicidal ideation and psychopathology.

Premilitary Suicidal Ideation and Veteran Suicidality. Veterans are no different from the general population when considering childhood or adolescence (i.e., premilitary life experiences). As demonstrated, research shows that many individuals experience suicidal ideation during childhood, adolescence, or both. Therefore, while it is reasonably understood that a percentage of service members and veterans have experienced premilitary suicidal ideation, only one known study has directly examined the relationship between premilitary suicidal ideation and behaviors and current suicidal ideation and behaviors in active duty service members and veterans (Bryan et al., 2014). In the first of two samples used in the Bryan et al. study, it was discovered that 22% of veteran participants reported premilitary suicidal ideation. Results indicated that participants who made a suicide attempt after joining the military were more likely to have experienced suicidal ideation and suicide attempts prior to enlisting in the military. In the second sample, 17% of active duty service member participants reported premilitary suicidal ideation. These results also concluded that participants who made a suicide attempt while in the military were more likely to have experienced premilitary suicidal ideation. Additional results showed that participants who had some premilitary suicidality (i.e., nonsuicidal self-injury, suicide attempt) reported significantly more severe suicidal ideation during the past week.

Findings from Bryan et al. (2014), as well as the previous research described on childhood and adolescent suicidal ideation, suggests that premilitary suicidal ideation is an important factor to consider in both research and treatment of veterans. These findings “highlight the importance of screening at the earliest stages of military enlistment (e.g., military entrance processing stations)” (Bryan et al., 2014, p. 7). Premilitary suicidal ideation combined with the difficult experiences and consequences of military service (i.e., combat exposure, posttraumatic stress disorder) may place certain veterans at the highest risk of experiencing recent suicidal ideation.

Combat Exposure

Combat exposure refers to conflict with legitimate armed forces, guerilla forces, or terrorist organizations, and/or the exposure to wartime casualties. These experiences range from being engaged in firefights to dealing with or observing the injured or dead bodies killed in action. Due to the pace of deployments and the nontraditional combat tactics of the Afghanistan (OEF) and Iraq (OIF) war many veterans are being exposed to combat experiences, many of which are exposed to high rates of traumatic events (Edwards, 2012; Hoge et al., 2004). As of 2012, an estimated 2.3 million American service members have served in Iraq or Afghanistan, with 800,000 of those members having served multiple combat deployments (Riggs & Sermanian, 2012; Swofford, 2012). Hoge, Auchterlonie, and Milliken (2006) found that 46% of OEF soldiers and 65.1% of OIF soldiers reported a history of combat.

Since the onset of OEF/OIF studies have looked at the effects of combat exposure on veterans. Many of these veterans are not only returning home with medical and physical complications (i.e., gunshot wounds, missing limbs, traumatic brain injury), but also

returning home with mental health issues (Osório et al., 2013). “Exposure to combat zones has been shown to increase rates of somatic symptoms, psychological distress, impaired health status, and greater health related physical and social impairment in functioning” (Selby et al., 2010, p. 301). Hoge et al. (2004) indicated that one in six returning combat service members have reported symptoms of negative mental health.

Service members who are deployed in a combat role are “frequently exposed to severe traumatic events including being wounded, opening fire at the enemy and seeing or handling human remains” (Osório et al., 2013, p. 71). Additionally, Friedman (2006) explains that other OEF/OIF war-zone stressors for returning veterans include:

Feeling helpless to alter the course of potentially lethal events; being exposed to severe combat in which buddies were killed or injured; having personally killed enemy combatants and, possibly, innocent bystanders; being exposed to uncontrollable and unpredictable life-threatening attacks such as ambushes or roadside bombs; experiencing postcombat exposure to the consequences of combat, such as observing or handling the remains of civilians, enemy soldiers, or U.S. and allied personnel; being exposed to the sights, sounds, and smells of dying men and women; and observing refugees, devastated communities, and homes destroyed by combat (p. 586).

Research indicates that extended periods of exposure to combat experiences such as these is often linked to an increased risk of mental health issues such as posttraumatic stress disorder, suicidal ideation and behaviors, and depression (La Bash et al., 2008; Ramchand et al., 2010).

Combat Exposure and Suicidal Ideation. The alarming increase in the suicide rate since the start of OEF and OIF suggests that exposure to combat is likely an important factor that contributes to suicidality in veterans. Combat exposure has been linked to not only completed suicides and suicide attempts, but has also been shown to be associated with suicidal ideation among OEF/OIF military personnel and veterans (Bryan et al., 2015; Maguen, Metzler, Bosch, & Neylan, 2012; Thoresen & Mehlum, 2008). In fact, recent studies have found a stronger association between combat exposure and suicidal ideation than combat exposure and suicide attempts (Maguen et al., 2012; Sareen et al., 2007).

Jakupcak et al. (2011) studied suicidal ideation in OEF/OIF combat veterans and found that combat exposure levels were significantly higher among those with suicidal ideation. Several other studies have found similar associations between general combat exposure and suicidal ideation (Pietrzak et al., 2010). Some studies have looked beyond general combat exposure and have identified particular types of combat exposure that are highly associated with suicidal ideation. Fontana, Rosenheck, and Brett (1992) found that failing to prevent death or injury during combat was associated with suicidality. In a recent study Maguen et al. (2012) found that veterans who had higher killing experiences were twice as likely to report suicidal ideation, compared to those with lower or no killing experiences. Similar findings in which combat killing was examined, found a strong association with suicidality (Bryan et al., 2015; Kline et al., 2016).

Evidence for a relationship between combat exposure and suicidal ideation has also been indirectly inferred through guilt and other mental health symptoms (Bryan et al., 2013b; Gradus, Street, Suvak, & Resick, 2013). It is very common for combat veterans to return home having had experienced a traumatic event and now have feelings of guilt. Research on

guilt and combat exposure has shown that combat-related guilt was the most significant predictor of suicidal ideation among Vietnam combat veterans (Hendin & Haas, 1991). Guilt was also significantly correlated with suicidal ideation in OEF/OIF combat veterans with combat-related PTSD (Bryan et al., 2013b). In a study that examined the relationship between combat exposure and suicidal ideation, it was found that this association was almost fully accounted for by mental health symptoms (i.e., PTSD, depression, alcohol use; Gradus et al. 2013). These results imply that OEF/OIF veterans who are experiencing suicidal ideation “are not necessarily those identified as having the most severe deployment experiences, but those who have the most severe mental health symptomatology following deployment experiences” (p. 585). These studies demonstrate not only how difficult combat exposure can be on veterans mental health, but also reveal how issues related to combat exposure can lead to suicidal ideation.

Although many studies have found a relationship between combat exposure and suicidal ideation, a few recent studies did not find such a relationship (Bryan, Hernandez, Allison, & Clemans, 2013a; Guerra & Calhoun, 2011). Several of these studies have suggested that the indirect evidence between combat exposure and suicidal risk actually arise from studies investigating the link between PTSD and suicide risk, indicating that PTSD is likely a more significant predictor of suicidal ideation than combat exposure. Although the relationship between combat exposure and PTSD is well established (Bull & Kang, 1994; Richardson, Frueh, & Acierno, 2010), the bulk of literature still indicates that whether direct or indirect, combat exposure is associated with suicidal ideation.

Posttraumatic Stress Disorder

According to the Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5; American Psychiatric Association [APA], 2013), posttraumatic stress disorder (PTSD) is the direct or indirect exposure of a traumatic event that involves actual or threatened death, serious injury or sexual violation. This traumatic event can be experienced directly, witnessed in person as it occurs to others, learned that it occurred to a family member or close friend, or experienced repeated or extreme exposure to aversive details of the traumatic event. As a result of the traumatic event, an individual begins to experience behavioral and emotional symptoms that, according to the DSM-5, are divided into four symptom clusters: intrusion, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity (APA, 2013). Each of these four symptom clusters is characterized by several possible symptoms (APA, 2013).

Prevalence of Posttraumatic Stress Disorder. Although PTSD affects both civilian and veteran populations, veterans are exposed to unique experiences and stressors, such as deployments and combat exposure, which can cause psychological issues resulting in symptoms of posttraumatic stress disorder (Hoge et al., 2004). PTSD is a serious issue among veterans and is now the most commonly diagnosed disorder among OEF/OIF veterans (Corson et al., 2013). Gates et al. (2012) estimated that approximately 226,000 individuals who served in OEF/OIF through October 31, 2007 currently have PTSD. Prevalence of PTSD among OEF/OIF veterans is estimated to range from as low as 4% to as high as 23% (Gates et al., 2012; Hoge et al., 2004; Kang, 2009; Richardson, Frueh, & Aciermo, 2010; Seal et al., 2009; Tanielian & Jaycox, 2008; Thomas et al., 2010).

PTSD is a condition that can be, and is often chronic and quite debilitating (Bolton et al., 2004). Individuals with PTSD are more likely to experience job instability (Smith, Schnurr, & Rosenheck, 2005), marital and family problems (Jordan et al., 1992), poor physical health (Boscarino, 2004; O'Toole, Catts, Outram, Pierse, & Cockburn, 2009), decreased work productivity (Kessler & Frank, 1997), and have a high comorbidity with other psychiatric disorders (Breslau, 2001). Veterans with a history of PTSD also have “a higher risk of cardiovascular, respiratory, gastrointestinal, infectious, nervous system, and autoimmune disease and are more likely to experience anxiety, depression, substance abuse, and other psychiatric disorders” (Gates et al., 2012, p. 362). Additionally, many studies have shown a clear relationship between PTSD and suicidality in military personnel and veterans.

Posttraumatic Stress Disorder and Suicidal Ideation. Given the high prevalence of PTSD and the high rates of suicidal ideation among veterans, decades of research has sought to better understand this link. Many studies have now found PTSD to be associated with suicidal ideation (Guerra & Calhoun, 2011; Kessler et al., 1999; Lemaire & Graham, 2011). Haney et al. (2012) concluded in an evidenced based synthesis that PTSD should be considered a risk factor for suicidal ideation, attempts and completion among military and veteran populations. In a recent study that examined the relationship between PTSD and suicidal ideation in OEF/OIF veterans, it was found that veterans who screened positive for PTSD were more than four times as likely to have experienced suicidal ideation compared to non-PTSD veterans (Jakupcak et al., 2009).

Much of the research on PTSD and suicidality has only focused on PTSD that meets full criteria for a diagnosis. However, since PTSD ranges in severity and symptoms, research has now suggested a relationship between suicidal ideation and PTSD symptoms that fall

short of meeting full criteria (i.e., subthreshold PTSD; Marshall, 2001), Additionally, studies indicate that all DSM-IV PTSD symptom clusters (re-experiencing symptoms, avoidance/numbing, hyperarousal) have been shown to be independently associated with suicidal ideation (Bell & Nye, 2007; Lemaire & Graham, 2011; Surís, Link-Malcom, & North, 2011). While some studies have found PTSD or PTSD symptoms to be independently associated with suicidal ideation, other studies have shown that PTSD comorbidity may better explain this association (Campbell et al., 2007). Jakupcak et al. (2009) found that OEF/OIF veterans with PTSD and two comorbid disorders (i.e., depression, anxiety) were 5.7 times more likely to have suicidal ideation than veterans with PTSD only. Another study found that military personnel with PTSD and 2 or more comorbid disorders were 7 times more likely to report suicidal ideation as compared to those with only PTSD (Calabrese, 2011). In contrast to most studies, a few studies have found that PTSD was not associated with suicidal ideation (Corson et al., 2013). Despite these few studies, most research suggests that there is indeed a relationship between subthreshold PTSD, PTSD symptom clusters, and full criteria PTSD and suicidal ideation.

Demographic Factors and Suicidal Ideation

In the general population, there have been many studies that have demonstrated that certain demographic factors do increase the risk of suicidal ideation (Kessler et al., 2005; Klerman, 1987; Nock et al., 2008a; Pirkis, Burgess, & Dunt, 2000). However, identifying a relationship between veteran suicidal ideation and demographic factors (i.e., age, gender, race/ethnicity) has been difficult. Although some studies have identified demographic factors to be associated with suicidal ideation among veterans, some studies have found no relationship and other studies have only identified an association with a single demographic

factor (Corson et al., 2013; Guerra & Calhoun, 2011; Lemaire & Graham, 2011; Pietrzak, Russo, Ling, & Southwick, 2011). To make matters even more difficult in the identification of these relationships, many of these studies have produced conflicting results. In fact, in three recent studies that examined the relationship between demographic factors and suicidal ideation in OEF/OIF veterans, each study identified a relationship with only a single demographic variable that was different from the other two studies (Corson et al., 2013; Jakupcak et al., 2009; Lemaire & Graham, 2011).

Age. When examining demographic factors, age has been found to be one of the more significant predictors of suicidal ideation and suicidality in the general population (Crosby et al., 2011; Pirkis, Burgees, & Dunt, 2000). Crosby et al. (2011) found that the prevalence of suicidal ideation was highest among adults aged 18-29 years when compared to the overall U.S. adult population. The risk for this age range seems troublesome since those aged 20-29 represent the majority of returning OEF/OIF veterans who seek care within the VA system (Brenner et al., 2008). However, despite this risk, many studies among OEF/OIF veterans have indicated that there is no relationship between age and suicidal ideation (Corson et al., 2013; Guerra & Calhoun, 2011; Lemaire & Graham, 2011).

Although less common, a few studies have found some general relationships between age and suicidal ideation. A study that examined sociodemographic variables (gender, age, race/ethnicity, years of education, marital status) between veterans with and without suicidal ideation found the only significant variable to be age (Jakupcak et al., 2009). These results found that subjects in the suicidal ideation group were older than those in the no suicidal ideation group. Pietrzak, Russo, Ling, and Southwick (2011) found similar results indicating that OEF/OIF veterans who have suicidal ideation were older than non-contemplators.

Studies on age and suicidality have primarily focused on suicide attempts. Therefore, we still do not fully understand the link between age and suicidal ideation. Further research is warranted to identify if veterans in a specific age range are at an increased risk of suicidal ideation.

Gender. In an analysis of years of research on the association of gender and suicidal ideation and behaviors, Canetto and Sakinofsky (1998) concluded that the gender paradox of suicidal behaviors is in fact a real phenomenon. The gender paradox is the finding that women experience higher rates of suicidal ideation than men and men are at higher risk of completed suicides than women. This phenomenon, in which women report higher rates of suicidal ideation than men, has been shown in many studies (Cleary, 2000; Warheit et al., 1996).

Much like the general population, most studies with veterans demonstrate that males are at a higher risk of suicide completion than females, although female veterans attempt suicide more often (Allen, Cross, & Swanner, 2005; Zivin et al., 2007). However, there is very little evidence to suggest a relationship between gender and suicidal ideation among veterans. Most recent studies on suicidal ideation among veterans found no association between suicidal ideation and a specific gender (Guerra & Calhoun, 2011). However, in a few studies that did identify a relationship, the results have been conflicting. Some studies have found results that replicated the gender paradox, finding that individuals of female gender were associated with higher rates of suicidal ideation (Kline et al., 2011; Lemaire & Graham, 2011). In contrast, Bush et al. (2011) found that male veterans were associated with higher suicidal ideation. Further research is needed to bring clarity to this relationship and identify if male or female veterans are at a greater risk of experiencing suicidal ideation.

Race/Ethnicity. There have been many studies that have looked at the relationship between demographic factors (i.e., gender, age) and suicidal ideation (Kessler, Borges, Walters, 1999; Spicer & Miller, 2000). However, there are very few studies that have examined the association between race and/or ethnicity and suicidal ideation (Perez-Rodriguez, Baca-Garcia, Oquendo, & Blanco, 2008). Most of the literature on race/ethnicity and suicidality addresses suicide attempts/completions and fails to include suicidal ideation. However, among the studies that have included suicidal ideation, two have indicated that there is no significant relationship between ethnicity and suicidal ideation when compared to other ethnicities (Kessler, Borges, & Walters, 1999; Kessler et al., 2005).

Research on specific racial groups has found that the prevalence of suicidal ideation varies widely across these groups (Perez-Rodriguez et al., 2008). However, while studies have addressed suicidal ideation within specific ethnicities, studies identifying whether there is a statically significant difference across ethnicities has varied. Crosby et al. (2011) found that the racial/ethnic group with the highest prevalence of suicidal ideation was non-Hispanic Whites and the racial/ethnic group with the lowest prevalence for suicidal ideation was non-Hispanic Asians. Although this study established racial/ethnic prevalence of suicidal ideation, none of the racial/ethnic differences were found to be statistically significant. A more recent study found that among emerging adults, racial and ethnic minorities experience a greater risk of suicidal ideation than White individuals (Cheref et al., 2015). Specifically among racial minorities, American Indians were found to have significantly higher rates of current suicidal ideation and suicidality than other ethnicities (Goldston et al., 2008; Yoder et al., 2006). Other studies have found that suicidal ideation is more prevalent among

individuals of more than one race/ethnicity (Olvera, 2001; Wong, Sugimoto-Matsuda, Change, & Hishinuma, 2012).

When evaluating race/ethnicity among OEF/OIF veterans, many studies have found no relationship between race/ethnicity and suicidal ideation (Guerra & Calhoun, 2011; Jakupcak et al., 2009; Lemaire & Graham, 2011; Pietrzak et al., 2010). However, Corson et al. (2013) found that the only demographic variable significant across models was race/ethnicity. Similar to some general populations studies (Crosby et al., 2011), this study demonstrated that suicidal ideation was less likely among non-Hispanic White veterans compared to other ethnicities. Corson et al. (2013) believed that “this finding may reflect an emergence of post-deployment distress that varies by ethnicity similar to that documented among Vietnam and Gulf War veterans” (p. 296).

Purpose of the Study

Suicidal ideation and suicide rates have been increasing in military and veteran populations since the start of Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF; Lorge, 2008; Selby et al., 2010). It is vital that preventative measures be taken to address the epidemic of suicides that has occurred since the onset of OEF/OIF in 2001. Since suicidal ideation has been identified as the strongest predictor of a suicide attempt, it is, therefore, important that we seek to better understand its impact on U.S. veterans. Additionally, it is imperative that research identifies the strongest predictors of suicidal ideation. This study did just that by examining different risk factors that research has already shown to be linked to suicidal ideation. Research has demonstrated that posttraumatic stress disorder, combat exposure, and several different demographic factors (i.e., gender, race/ethnicity, age) are associated with suicidal ideation. However, with studies producing

mixed results, further research is needed. This study provides further empirical evidence of these factors and its association with suicidal ideation. Additionally, this study examined premilitary suicidal ideation, a variable with little empirical data, to determine if there is an association between premilitary suicidal ideation and recent suicidal ideation in veterans. Furthermore, this study evaluated which of these risk factors is shown to be the strongest predictor of recent suicidal ideation in OEF/OIF era veterans.

CHAPTER II

METHODS

Study Design

In order to identify and evaluate risk factors of suicidal ideation, a quantitative, non-experimental research design was used to examine the research questions presented.

Research Questions

1. Will the variables age, race, gender, posttraumatic stress disorder, and combat exposure independently predict recent suicidal ideation in OEF/OIF era veterans?
2. Will premilitary suicidal ideation independently predict recent suicidal ideation and significantly increase the predictive power of the model, after controlling for demographic variables, posttraumatic stress disorder, and combat exposure?
3. Which of the six predictor variables (age, race, gender, posttraumatic stress disorder, combat exposure, and premilitary suicidal ideation) will account for the greatest proportion of variance in recent suicidal ideation among OEF/OIF era veterans?

Hypothesis

H_{1a-e}: Variables including a) posttraumatic stress disorder and b) combat exposure will independently predict recent suicidal ideation in OEF/OIF era veterans. The

demographic variables c) age, d) gender, and e) race will not independently predict recent suicidal ideation in OEF/OIF era veterans.

H_{2a-b}: Premilitary suicidal ideation will a) independently predict recent suicidal ideation and b) significantly increase the predictive power of the model, after controlling for demographic variables, posttraumatic stress disorder, and combat exposure.

H₃: Posttraumatic stress disorder will account for the greatest proportion of variance in recent suicidal ideation among OEF/OIF era veterans.

Participants

A total of 449 participants accessed the online survey via Qualtrics. Of these participants, a total of 120 (27%) were omitted from the final sample. Participants were omitted from the final study sample if they did not complete the survey, had missing data, or indicated that they were not post 9/11 veterans. The final sample of 329 was included in all analyses for the current study.

The sample of 329 participants included 263 male (80%) and 66 female (20%) OEF/OIF era veterans that served in the United States military subsequent to September 11, 2001. All participants were recruited on social media. Participants were aged 18-24 (2.1%), 25-34 (50.8%), 35-44 (31.3%), 45-54 (13.4%), 55-64 (1.5%), and 65-74 (0.9%). Participants were Black/African American (3.6%), White/Caucasian (89%), Asian (1.5%), Native Hawaiian/ Other Pacific Islander (0.3%), Native/American Indian/Alaskan Native (2.1%), and Other (3%). Most participants identified as Not of Hispanic, Latino, or Spanish origin (88.1%); a smaller number identified as Hispanic, Latino, or Spanish origin (10.6%). Participants were largely comprised of Army (53.2%) veterans, but all branches of the military, except Coast Guard, were represented: Navy

(5.5%), Air Force (16.7%), Marines (15.5%), Coast Guard (0%), and National Guard (9.1%). See Table 3 for complete demographics.

Instruments

The instruments utilized in this study included a Demographic Questionnaire, a Premilitary Suicidal Ideation and Recent Suicidal Ideation Questionnaire, the Combat Exposure Scale, and the Posttraumatic Stress Disorder Checklist-Military Version.

Demographic Questionnaire. This questionnaire was used to obtain information from participants including their age, sex, marital status, race, ethnicity, level of education, branch of military, military rank, years of service, age of joining military, and number of deployments.

Premilitary Suicidal Ideation and Recent Suicidal Ideation Questionnaire. Suicidal ideation was assessed using three self-report items to measure severity, duration, and frequency of suicidal ideation. The same three questions were used to assess both premilitary and recent suicidal ideation, with only changing present and past tense. Each item is rated on a 5-point Likert scale. Severity of suicidal ideation was assessed using the following question, “Have/Had you ever thought about or attempted to kill yourself?” Duration of suicidal ideation was assessed using the following question, “When having thoughts of killing yourself or not wanting to live, how long do/did those thoughts generally last?” Frequency of suicidal ideation was assessed using the following question, “How often do/did you have thoughts of killing yourself or not wanting to live?”

The three items selected for this questionnaire were selected based on a conceptualization of suicidal ideation being expressed in three dimensions: severity (degree of seriousness), duration (amount of time spent ideating), and frequency (how

often these thoughts occur; Lewinsohn, Rohde, & Seeley, 1996). The severity and frequency items were selected from the Suicide Behaviors Questionnaire-Revised (SBQ-R) and slightly modified for the purpose of this study (Osman et al., 1999). The duration item was selected and modified from a question on the Scale of Suicide Ideation (SSI; Beck, Kovacs, & Weissman, 1979).

Combat Exposure Scale (CES). Veterans' degree of combat exposure was measured with the Combat Exposure Scale (CES; Keane et al., 1989). The CES is a 7 item self-report scale for measuring previous combat exposure in terms of frequency, intensity, and duration of combat experiences. The 7 items are rated on a 5-point frequency, 5-point duration, 4-point frequency, or a 4-point degree of loss scale. The total CES score (ranging from 0-41) is calculated by using a sum of weighted scores, which can be classified into one of five categories of combat exposure ranging from "light" to "heavy" (U.S. Department of Veterans Affairs, 2007). Higher scores indicate great combat exposure, with a high combat exposure being defined as a score of greater than 24. The CES has been shown to have acceptable validity and excellent test-retest and internal reliability with the Cronbach's alpha on CES items as 0.93 (Brenner et al., 1992; Keane et al., 1989).

Posttraumatic Stress Disorder Checklist-Military Version (PCL-M).

Symptoms of posttraumatic stress disorder was measured by the Posttraumatic Stress Disorder Checklist-Military Version (PCL-M; Weathers et al., 1993). The PCL-M is a 17 item self-report screening instrument based on DSM-IV diagnostic criteria for PTSD. This brief inventory is designed to assess PTSD symptomology in veterans. Items correspond with PTSD criterion: 5 items measure re-experiencing symptoms, 7 items

measure numbing and avoidance symptoms, and 5 items measure hyperarousal symptoms. Participants rate the extent to which they have been bothered by symptoms over the past month on each of the 17 items on a 5-point Likert scale ranging from 1 “Not at all” to 5 “Extremely.” The total symptom severity score ranges from 17-85 and is calculated by summing the scores from each of the 17 items. Total severity scores will be compared to a normative threshold. The PCL–M has been shown to have excellent concurrent validity ($r = .93$; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Wilkins, Lang, & Norman, 2011) and test–retest reliability ($r = .96$; Weathers et al., 1993; Wilkins, Lang, & Norman, 2011).

The PCL-M has a range of proposed cutoff scores that vary according to sample and setting. A cutoff score of 34 is identified as the optimal score for maximizing efficiency for a PTSD diagnosis (Bliese et al., 2008; Walker, Newman, Dobie, Ciechanowski, & Katon, 2002).

Procedure

The Institutional Review Board (IRB) at a large public university approved this study (Appendix I). To recruit military veterans the researcher used convenience sampling methods by posting a recruitment flyer to various military and veteran Facebook groups. The recruitment flyer explained the nature of the study and encouraged veterans who served in the military subsequent to September 11, 2001 to follow the link provided in order to participate. This link directed them to a password-protected Qualtrics account. To ensure confidentiality, no identifying information was collected, the IP addresses of the respondents were not collected, and the researcher assigned a numerical value to each case. The link directly guided the veterans to an electronic informed

consent statement. The informed consent statement (Appendix C) provided a description of the study and information regarding procedures, confidentiality, time involvement, benefits, risks, and an explanation of the voluntary nature of participation. Veterans provided consent to participate by clicking “yes.”

Subsequently, after consenting to participate, veterans were directed to the electronic measures. After participants completed the measures, the researcher provided participants with mental health resources for veterans, which included the National Suicide Prevention Hotline and links to finding local services through the U.S. Department of Veteran Affairs. The researcher encouraged participants to call the National Suicide Prevention Hotline if they had recently experienced suicidal ideation or to contact a nearby VAMC to set up an appointment if they were experiencing distress. Following information on seeking help and mental health resources, the researcher provided a debriefing statement (Appendix H) that thanked participants for their military service and their participation in this study. The researcher gathered data on demographics, combat exposure, posttraumatic stress disorder, premilitary suicidal ideation and recent suicidal ideation.

Data Analysis

The dependent variable (recent suicidal ideation) was measured using three questions that assessed severity, duration, and frequency of suicidal ideation on the Recent Suicidal Ideation Questionnaire. These three items, each answered on a 5 point rating scale, were aggregated into a continuous measure of recent suicidal ideation. Internal consistency among the items was adequate, $\alpha = .91$. Therefore, the dependent variable was analyzed as a continuous variable.

Similarly, the independent variable premilitary suicidal ideation was measured using three questions that assessed severity, duration, and frequency of suicidal ideation on the Premilitary Suicidal Ideation Questionnaire. These three items, each answered on a 5 point rating scale, were aggregated into a continuous measure of recent suicidal ideation. Internal consistency among the items was adequate, $\alpha = .96$. Therefore, premilitary suicidal ideation was analyzed as a continuous variable.

When examining the variance of PTSD and combat exposure severity it appeared normally distributed and therefore were used as continuous variables. Upon visual inspection of the demographic variable race, it was clear that there was not enough heterogeneity among racial groups to test effectively. Therefore, race was collapsed into two categories: White/Nonwhite. Similarly, gender, having no participants identifying as transgender, remained two categories: Male/Female. Both race and gender were analyzed as dichotomous variables. See Table 1 for variable coding.

Data on age was collected categorically (e.g., 18-24, 25-34) with seven different age groups identified on the demographic questionnaire. Of these seven age groups, participants only identified with six groups, having no participants identifying in the “75-older” group. Due to the number of age groups, initial analysis was conducted to determine if there were any statistically significant differences between groups. A one-way between subjects ANOVA revealed no main effect on current suicidal ideation, $F_{(5,323)} = .651, p = .661$, signifying no significant differences between age groups. Therefore, the variable age was not significant and was not included in the regression models.

The first research question was tested using a simple linear regression and simultaneous multiple regression. A simple linear regression analysis was used to determine the relationship between recent suicidal ideation and each independent variable separately as a single predictor. A simultaneous multiple regression analysis was used to examine how the overall model and individual effects among independent variables (demographic variables, premilitary suicidal ideation, PTSD, and combat exposure) predicted recent suicidal ideation when included together simultaneously. The interpretation of findings for the multiple regression consisted of two parts: (1) examination of the overall model's significance in predicting recent suicidal ideation among OEF/OIF era veterans, and; (2) examination of each predictor variable independently when accounting for the relationship of all other variables.

The second research question was tested using a hierarchical multiple regression, allowing for stepwise inclusion of independent variables in the model. This enables examination of how the inclusion of one or more variables alters the effects of the variables included as predictors in a previous step. This type of analysis also involves (1) examination of overall model predictive ability and significance (R^2), (2) examination of change in model predictive ability (ΔR^2), and (3) examination of individual effects of variables upon inclusion of new variables in hierarchical steps. Specific to the current research question, this model was used to determine (1) whether premilitary suicidal ideation significantly predicted recent suicidal ideation. Second, the model was used to determine whether premilitary suicidal ideation accounted for unique and additional variance in the explanation of recent suicidal ideation above and beyond the effects of gender, race, PTSD severity, and combat exposure severity. Lastly, the model was used

to determine whether the addition of premilitary suicidal ideation increased the predictive power of the model. This was done using three steps: Step 1 = entry of gender and race (demographics); Step 2 = entry of PTSD and combat exposure severity; Step 3 = entry of premilitary suicidal ideation.

Lastly, to address the third research question, the squared semipartial correlation was analyzed for each predictor variable in the hierarchical multiple regression model. This was done to identify the proportion of all the variance in the dependent variable that is associated with a single predictor variable, but not with any other predictor variables.

CHAPTER III

RESULTS

The purpose of the following analyses and results is to examine factors that contribute to higher levels of recent suicidal ideation among a sample of OEF/OIF era veterans. Specifically, initial models utilize a simultaneous regression to examine whether demographic variables (age, gender, and race), posttraumatic stress disorder, combat exposure, and premilitary suicidal ideation predict recent suicidal ideation while included together in the model. Specifically, this analysis allowed for examination of whether pre-military suicidal ideation is a reliable predictor of recent suicidal ideation while controlling for the effects of the other important variables in the model (i.e., PTSD and combat exposure). Lastly, this study sought to better understand and recognize which variable was identified as the greatest risk factor for suicidal ideation among OEF/OIF era veterans.

Descriptive Statistics and Bivariate Correlations

All statistical analyses were performed using SPSS 23.0. Findings were considered statistically significant at $p < .05$ (95% confidence interval). Prior to conducting analyses, several steps were taken to ensure the accuracy of the data and that

all assumptions had been met. A frequency distribution analysis was conducted to identify missing data, cases that fell outside the range of possibility, and appropriateness of the mean, range, and standard deviations of each variable. In order to assess whether data were normally distributed, skewness and kurtosis values were calculated for each continuous variable and indicated that data were dispersed within normal range (skewness/kurtosis not to exceed 1.5). Malhalanobis distance was calculated to assess for multivariate outliers. One multivariate outlier was identified (MAH = 23.89, cut off 20.25) who reported no premilitary suicidal ideation and severe recent military suicidal ideation; however, the case was retained in analysis given that linear regression is a robust technique especially at large sample sizes ($N = 329$). Associations between continuous independent variables and the dependent variable were found to be linear by visual inspection of a scatterplot. Predicted and residual values were plotted and confirmed that the estimated model met the assumption of homoscedasticity of the residuals. Collinearity diagnostics were calculated (Tolerance = .729-.993; VIF = 1.01-1.37), and multicollinearity was determined not to be problematic given that tolerance values were greater than .10 and VIF values were less than 10. In summary, the estimated model complied with the parametric assumptions of general linear modeling.

Regarding descriptive demographics, the final sample consisted of 329 OEF/OIF era veterans. Descriptive statistics for gender revealed 80% ($n = 263$) identifying as male and 20% ($n = 66$) identifying as female. Demographic information of race show that 89% ($n = 294$) of participants identified as White and 11% ($n = 35$) identified as a racial minority. See Table 2 for descriptive statistics of demographics. Regarding premilitary suicidal ideation description for the current sample, 46% ($n = 150$) endorsed having some

level of premilitary suicidal ideation, whereas 54% ($n = 179$) reported never having premilitary suicidal ideation. Regarding recent suicidal ideation, 68% ($n = 225$) endorsed having some level of suicidal ideation within the past year. Regarding description of the mental health, this sample demonstrated, on average, clinically significant PTSD symptom severity (PCL-M score, $M = 43.8$, $SD = 17.1$, range = 7 – 82). Bliese et al. (2008) indicates that PCL-M scores that exceed 34 indicate the presence of clinically significant PTSD symptoms. Reporting of combat exposure indicated that the majority of participants experienced at least light-moderate exposure to combat-related trauma (CES score, $M = 16$, $SD = 11.1$, range = 0 to 38; U.S. Department of Veterans Affairs, 2007). See Table 3 for descriptive statistics for PTSD, combat exposure, premilitary suicidal ideation, and recent suicidal ideation.

Bivariate correlations are reported in Table 4. All correlations were in expected directions. Specifically, independent variables of interest (i.e., PTSD severity, combat exposure severity, gender, race, and premilitary suicidal ideation) had significant individual relationships with recent suicidal ideation. Recent suicidal ideation was positively correlated with higher PTSD severity, $r = .63$, $p < .01$, higher combat exposure severity, $r = .16$, $p < .01$, and premilitary suicidal ideation, $r = .57$, $p < .01$. Regarding demographic variables, recent suicidal ideation was positively correlated with race (i.e., Nonwhite), $r = .13$, $p < .05$, and gender (i.e., Female), $r = .13$, $p < .05$. Other significant correlations included the following: Premilitary suicidal ideation was positively correlated with PTSD, $r = .36$, $p < .01$, and gender (i.e., Female), $r = .14$, $p < .05$; PTSD was positively correlated with combat exposure, $r = .39$, $p < .01$; and Combat exposure was negatively correlated with gender (i.e., Male), $r = -.30$, $p < .01$.

Research Question 1

Will the independent variables age, race, gender, posttraumatic stress disorder, and combat exposure independently predict recent suicidal ideation in OEF/OIF era veterans? Hypothesis one predicted that the variables posttraumatic stress disorder and combat exposure will independently predict recent suicidal ideation in OEF/OIF era veterans, and the demographic variables age, gender, and race will not independently predict recent suicidal ideation in OEF/OIF era veterans.

The first research question is addressed by both a simple linear regression and a simultaneous multiple regression analysis. The simple linear regression analysis revealed that gender, $\beta = .125, t = 2.29, p < .05$, race, $\beta = .131, t = 2.38, p < .05$, combat exposure severity, $\beta = .157, t = 2.88, p < .05$, and PTSD severity, $\beta = .626, t = 14.52, p < .001$, were all significant single predictors of recent suicidal ideation, such that identifying as female, being of racial minority status (i.e., Nonwhite), higher combat exposure severity, and higher PTSD severity predicted higher levels of recent suicidal ideation.

Model tests from the simultaneous multiple regression revealed that the full model, including PTSD severity, combat exposure severity, gender, and race accounted for 42% of variance in predicting recent suicidal ideation, $R^2 = .42, F_{(4,324)} = 57.90, p < .01$. Direct effects from this simultaneous multiple regression indicated that only race, $\beta = .106, t = 2.49, p < .05$, and PTSD severity, $\beta = .113, t = 13.82, p < .001$, were significant predictors of recent suicidal ideation, such that being of racial minority status (i.e., Nonwhite) and higher PTSD severity predicted higher levels of recent suicidal ideation. Gender and combat exposure did not have significant direct effects on recent suicidal ideation in the simultaneous model. The first hypothesis was partially met.

Research Question 2

Will premilitary suicidal ideation independently predict recent suicidal ideation and significantly increase the predictive power of the model, after controlling for demographic variables, posttraumatic stress disorder, and combat exposure? Hypothesis two predicted that premilitary suicidal ideation will independently predict recent suicidal ideation and significantly increase the predictive power of the model, after controlling for demographic variables, posttraumatic stress disorder, and combat exposure.

Research question 2 was tested using a hierarchical multiple regression analysis (see Tables 5 and 6 for summary of results). In step 1, demographic variables (race and gender) were entered, significantly predicting recent suicidal ideation, $R^2 = .031$, $F_{(2, 326)} = 5.135$, $p < .01$, albeit accounting for only 3% of variance (see Table 5). In the first step of this model, both race, $\beta = .122$, $t = 2.32$, $p < .05$ and gender, $\beta = .116$, $t = 2.22$, $p < .05$ were significant independent predictors of recent suicidal ideation, such that being of racial minority status and identifying as female predicted higher levels of recent suicidal ideation (see Table 6).

In step 2, PTSD and combat exposure severity were added to the model. Together, demographic variables, PTSD severity, and combat exposure severity provided a reliable model for predicting suicidal ideation, $R^2 = .417$, $F_{(4, 324)} = 57.90$, $p < .001$, and accounted for 42% of the variance explained in recent suicidal ideation (see Table 5). The addition of PTSD severity and combat exposure severity significantly added to the model, $\Delta R^2 = .386$, $\Delta F_{(2, 324)} = 107.32$, $p < .001$, adding an additional 39% of variance explained. In the second step of this model, only race, $\beta = .106$, $t = 2.49$, $p < .05$ and PTSD severity, $\beta = .648$, $t = 13.818$, $p < .001$ significantly predicted recent suicidal

ideation, such that being of racial minority status and higher PTSD severity predicted higher levels of recent suicidal ideation (see Table 6). Gender and combat exposure did not have significant direct effects on recent suicidal ideation. With the addition of PTSD and combat exposure added into the model, gender was no longer a significant predictor.

In Step 3, premilitary suicidal ideation was added to the model. Together, premilitary suicidal ideation, PTSD severity, combat exposure severity, and demographic variables provided a significant model for predicting recent suicidal ideation, $R^2 = .542$, $F_{(5, 323)} = 76.49$, $p < .001$, and accounted for 54% of the variance explained in recent suicidal ideation (see Table 5). The addition of premilitary suicidal ideation significantly added to the model, $\Delta R^2 = .125$, $\Delta F_{(1, 323)} = 88.38$, $p < .001$, adding an additional 13% of variance explained. In the third step of the model, race, $\beta = .105$, $t = 2.77$, $p < .01$, PTSD severity, $\beta = .511$, $t = 11.580$, $p < .001$, and premilitary suicidal ideation, $\beta = .382$, $t = 9.401$, $p < .001$, significantly predicted suicidal ideation, such that being of minority racial status, higher PTSD severity, and higher levels of premilitary suicidal ideation predicted higher levels of recent suicidal ideation (see Table 6). Gender and combat exposure did not have significant direct effects on recent suicidal ideation. These findings supported the hypothesis that pre-military suicidal ideation would independently predict and provide additional variance in the prediction of recent suicidal ideation.

Research Question 3

Which of the six predictor variables (age, race, gender, posttraumatic stress disorder, combat exposure, and suicidal ideation) will account for the greatest proportion of variance in recent suicidal ideation among OEF/OIF era veterans? Hypothesis 3

predicted that posttraumatic stress disorder will account for the greatest proportion of variance in recent suicidal ideation among OEF/OIF era veterans.

The third research question is addressed by analyzing the squared semipartial correlation for each predictor variable in the hierarchical multiple regression model. Of the variance in recent suicidal ideation, PTSD accounted for the greatest proportion of variance explained, followed by premilitary suicidal ideation and race. PTSD ($sr^2 = .29$) accounted for 29% of the variance explained in recent suicidal ideation that was not associated with any other variable. Premilitary suicidal ideation ($sr^2 = .13$) accounted for 13 % of variance explained and race ($sr^2 = .01$) accounted for 1% of variance explained in recent suicidal ideation. Gender ($sr^2 = .000$) and combat exposure ($sr^2 = .003$) accounted for an insignificant amount of variance explained. The third hypothesis was met.

CHAPTER IV

DISCUSSION

The purpose of this study was to further the research on the relationship between PTSD, combat exposure, premilitary suicidal ideation, and demographic variables (i.e., gender, race, and age) with recent suicidal ideation among OEF/OIF era veterans. This study also sought to identify which risk factors place veterans at the highest risk of experiencing suicidal ideation. The major interest of the study was to gather more knowledge on the effects of suicidal ideation prior to entering the military and its impact on veterans mental health. Specifically, this study sought to identify whether having suicidal ideation before joining the military predicted suicidal ideation in OEF/OIF era veterans after separation from the military. This is the second known study to examine the effects of premilitary suicidal ideation on veterans.

Demographic Variables

Within the literature, there are conflicting results on the association between veteran demographics and suicidal ideation. Research examining each of the demographic variables studied (i.e., race, gender, age) among veterans has found results both indicating an association with suicidal ideation and results indicating no association

with suicidal ideation. These mixed results make it difficult to have a clear understanding of the association between demographic factors and suicidal ideation. The results of this study are reported with an explanation based on the understanding of current literature.

Race. Results from this study revealed that being of racial minority status, when compared to White veterans, predicted higher levels of recent suicidal ideation. This was the only demographic variable whose relationship with suicidal ideation remained significant after accounting for the relationships of all other variables, which signifies the strength and importance of this association. As previously stated, these results both coincide and contrast with current literature on OEF/OIF era veterans. Among the studies that have found an association, these results are most similar to Corson et al. (2013) who also found that race/ethnicity was the only demographic variable among OEF/OIF veterans significant across models. Additionally, these results fit studies examining the general population, which show that racial minorities experience greater risk of suicidal ideation (Cheref et al., 2015). Despite these similarities, there is an equal amount of research, if not more, that has found no relationship between race and suicidal ideation among OEF/OIF veterans (Guerra & Calhoun, 2011; Jakupcak, et al., 2009; Lemaire & Graham, 2011; Pietrzak et al., 2010).

Although this study found an association between recent suicidal ideation and racial minorities, the study was unable to differentiate this association among specific racial groups. Due to the low number of participants in each racial group, this study was unable to determine whether this association existed across each racial group or whether specific racial groups have a stronger/weaker association with suicidal ideation. This

study was only able to conclude that veterans being of racial minority status, when compared to White veterans, are at an increased risk of suicidal ideation.

Past research on racial differences as a risk factor for suicidality does not provide a unified theory on this association, especially among veterans. Without further studies examining different factors among racial groups, it is difficult to declare the underlining meaning of these results. However, several studies have presented two different approaches for understanding this relationship. The first approach would presume that these results indicate that racial minority veterans are at an increased risk for suicidal ideation because they are exposed to different risk factors (McKenzie et al., 2003). For example, these different risk factors may include unique stressors (e.g., discrimination, racism, increased harassment), poor mental health, substance abuse, or having fewer protective factors (e.g., social/family support). The second approach recognizes that cultural differences between racial groups influence how they interpret, perceive, and are affected by the same stressors (Lorenzo-Luaces & Phillips, 2014). This approach would explain these results by concluding that White and racial minority veterans are exposed to the same risk factors, but do not process these strains in the same way based on different social arrangements and cultural values (Lorenzo-Luaces & Phillips, 2014). Therefore, although facing the same experiences and risk factors, racial minority veterans are at an increased risk of suicidal ideation due to how they manage and process stressors based on their cultural beliefs and values.

With both approaches identifying important aspects, we believe that these two approaches are not mutually exclusive. The association between race and suicidal ideation is likely best explained by accounting for both the different risk factors racial

minorities are exposed to and the impact that cultural values and social arrangements have on their mental health. It is the combination of these factors that may increase the risk of suicidal ideation among racial minority veterans.

Gender. This study found that as a single independent predictor, when not accounting for the relationship of other variables, identifying as female was associated with increased suicidal ideation among OEF/OIF era veterans. However, when accounting for the relationship of other variables, gender was no longer a reliable predictor of recent suicidal ideation. These results indicate that when only examining the differences between male and female veterans, while not examining any other factors, there is an increased risk of suicidal ideation among female veterans. However, when also examining PTSD and other factors, this association no longer exists, indicating that there is an equal risk of suicidal ideation among both male and female veterans.

These results are similar to several studies that also found a relationship between female veterans and higher rates of suicidal ideation (Kline et al., 2011; Lemaire & Graham, 2011). Ironically, these results may also be similar to other studies that found no relationship between gender and suicidal ideation due to the inclusion of other variables, such as PTSD, in their model (Guerra & Calhoun, 2011). With these studies examining this relationship differently and including different variables in their study, it is difficult to gain an understanding or determine if similarities exist across studies.

A possible explanation to these results was demonstrated in a study that examined predictors of suicidal ideation in OEF/OIF female veterans (Gradus et al., 2013). This study found that female veterans reported higher rates of sexual harassment and general harassment than male veterans. Moreover, it was found that both sexual harassment and

general harassment were associated with suicidal ideation in female veterans. However, Gradus found that the association between sexual harassment and suicidal ideation decreased by 70.8% and the association between general harassment and suicidal ideation decreased by 94.3% when accounting for mental health symptoms (i.e., PTSD, depression, alcohol use).

The results of this study suggest, as indicated by Gradus et al. (2013), that female veterans experience an increased risk of suicidal ideation, which may be related to experiencing more distressing harassment. However, the results suggest that these experiences are also related to PTSD symptomology, indicating that these female harassment experiences are perceived as traumatic. Therefore, when PTSD severity is taken into account, identifying as female is no longer associated with increased suicidal ideation. These findings provide evidence that OEF/OIF era male and female veterans are at similar risk for suicidal ideation.

Age. This study examined six different age groups, with age groups ranging from 18-24 to 65-74, and found no significant difference between these groups. Ultimately, results from this study found no significant relationship between age and recent suicidal ideation. These results are consistent with the bulk of previous literature among OEF/OIF veterans (Corson et al., 2013; Lemaire & Graham, 2011). Similar to other demographic variables among veterans, the association between suicidal ideation and age is difficult to determine due to conflicting results within the literature. Among the studies that have found an association, there were no specific age groups identified. These studies only found that veterans with suicidal ideation were older than veterans without suicidal ideation (Jakupcak et al., 2009; Pietrzak et al., 2011). The authors for these studies

provided no explanation for this association, which further adds to the difficulty in understanding age and its relationship with suicidal ideation. The results of this study suggest that although there are many risk factors for suicidal ideation, being in specific age groups does not increase the risk of suicidal ideation among OEF/OIF era veterans.

Combat Exposure

Similar to the results found with gender, this study found that as a single independent predictor, when not accounting for the relationship of other variables, combat exposure severity was associated with increased suicidal ideation among OEF/OIF era veterans. However, when accounting for the relationships of other variables (e.g., PTSD), combat exposure severity was no longer a reliable predictor of recent suicidal ideation. This indicates that suicidal ideation is less likely a direct result of combat exposure severity and more likely the result of mental health symptoms developed during or after severe combat experiences.

These results are similar to most of the current literature that has examined this relationship. The majority of studies have found an association between increased combat exposure and suicidal ideation (Boehmer et al., 2004; Pietrzak et al., 2010; & Thoresen & Mehlum, 2008). However, other studies have suggested that it may not be general combat exposure in itself that leads to suicidal ideation, but rather specific combat factors experienced during or as a result of combat. Examples of these specific combat factors include witnessing atrocities, killing, mental health symptoms (e.g., guilt, PTSD, depression), or aftermath experiences (e.g., substance abuse; Bryan et al., 2013b; Gradus et al., 2013; Lemaire & Graham, 2010; Maguen et al., 2012; Sareen et al., 2007). This study examined combat exposure severity as a combined experience and did not

independently assess for exposure to specific dimensions of combat. Although these results are unable to identify the impact of specific combat factors (e.g., killing in combat, guilt associated with combat, witnessing atrocities), it does lend further evidence that these severe combat experiences are related to suicidal ideation.

The results of this study are further explained by Gradus et al. (2013), who researched the relationship between combat exposure and suicidal ideation in veterans after accounting for mental health symptoms (e.g., PTSD, depression). Gradus et al. found that a substantial part of the association between combat exposure and suicidal ideation was accounted for by mental health symptoms. Specifically, this association decreased by 86.8% among female veterans and 120.1% among male veterans when accounting for mental health symptoms. Similar to Gradus et al. (2013), this study revealed that the relationship between combat exposure and recent suicidal ideation is no longer significant when accounting for PTSD severity. This signifies that severe combat exposure plays a role in the likelihood of whether veterans experience mental health symptoms (e.g., PTSD, suicidal ideation); however, suicidal ideation among veterans is less likely attributed to general combat exposure and more likely attributed to mental health symptoms as a result of specific or severe combat experiences.

Posttraumatic Stress Disorder

Within the literature of suicidality among the veteran population, increased PTSD symptoms is reliably found to have a significant relationship with suicidal ideation (Jakupcak et al., 2009; Marshall et al., 2008). As expected, this study found coinciding results in which PTSD severity was found to be a significant predictor of increased recent

suicidal ideation. These results indicate that the risk of suicidal ideation increases as PTSD severity increases.

In addition to this significant relationship, among all the risk factors examined, PTSD severity was identified to be the greatest risk factor for suicidal ideation. PTSD severity was found to account for 29% of unique variance explained in recent suicidal ideation. Further, PTSD severity also accounts for a large portion of the association between suicidal ideation and other factors. In particular, this study found that gender (i.e., identifying as female) and combat exposure severity were no longer associated with suicidal ideation when PTSD severity was included in the model. These results suggest that although certain factors and experiences increase the risk of suicidal ideation among veterans, the greatest determinant of suicidal ideation is whether veterans perceive experiences as traumatic and develop mental health symptoms.

The strength of this association is demonstrated in the high percentage of veterans with PTSD who experience recent suicidal ideation. In this study, 64% of participants met diagnostic criteria for PTSD. Among these veterans, 85% reported having some degree of recent suicidal ideation. These results help to explain the growing and high percentage of OEF/OIF era veterans experiencing suicidal ideation. Due to PTSD now being the most commonly diagnosed disorder among OEF/OIF veterans (Corson et al., 2013), we can better understand the association between increased PTSD diagnoses and increased suicidal ideation among veterans.

Premilitary Suicidal Ideation

As predicted, premilitary suicidal ideation was found to be a significant predictor of recent suicidal ideation. This relationship remained significant even after accounting

for the relationship of several other risk factors (e.g., PTSD severity, combat exposure severity, demographic variables). These results suggest that veterans who experienced suicidal ideation prior to joining the military are at an increased risk of having suicidal ideation after separation from the military. In fact, this newly identified risk factor among veterans was not only shown to increase the risk of recent suicidal ideation, but also was identified to be the second greatest risk factor of suicidal ideation among the factors studied. Premilitary suicidal ideation, which was only second to PTSD severity, accounted for 13% of unique variance in veterans suicidal ideation.

Within the literature, little is known about the impact of premilitary suicidal ideation and its effect on veterans mental health. Although several studies have examined premilitary experiences (i.e., childhood adversities) and its relationship with postmilitary suicidal ideation (Griffith, 2014; Perales et al., 2010; Youssef et al., 2013), only one prior study has specifically examined the relationship between premilitary suicidality and suicidality in service members and veterans during and after their military service (Bryan et al., 2014). Bryan et al. studied each severity level of premilitary suicidality (i.e., suicidal ideation, suicide plan, nonsuicidal self-injury, suicide attempt) and found that only premilitary suicide attempts predicted more severe recent suicidal ideation in service members. The current study approached premilitary suicidality differently by recognizing that all severity levels of suicidality begin with and include suicidal ideation. Therefore, this study examined suicidality on a severity spectrum of suicidal ideation. This is the first known study to demonstrate a relationship between premilitary suicidal ideation and recent suicidal ideation in the veteran population.

In comparison to Bryan et al. (2014), who found that 17% - 22% of military personnel and veterans experienced premilitary suicidal ideation, this study found that 46 % of the sample veteran population endorsed some level of premilitary suicidal ideation. It is not clear as to why this veteran sample reported much higher rates of premilitary suicidal ideation, but it is possible that a portion of the sample are at an increased risk of mental health problems based on recruitment. When examining the severity spectrum of endorsed premilitary suicidal ideation, 25% reported having brief passing suicidal thoughts, 12% reported thoughts and having a plan, 4% reported having thoughts and the intention to kill themselves, and 5% reported past suicide attempts.

This study also found that 68% of veterans endorsed recent suicidal ideation. When examining the severity spectrum of endorsed recent suicidal ideation, 34% reported having brief passing suicidal thoughts, 21% reported thoughts and having a plan, 5% reported having thoughts and the intention to kill themselves, and 9% reported past suicide attempts. This study found a much higher percentage of veterans endorsing recent suicidal ideation (i.e., 68%) when compared to past studies (Jakupcak et al., 2009; Pietrzak et al., 2010). This may be due to examining recent suicidal ideation as defined as over the past year versus other studies that only examined the past two weeks or prior month. Of the veterans who endorsed recent suicidal ideation, 62% reported having premilitary suicidal ideation. This high percentage points to further significance in the relationship between veteran's mental health before entering the military and their mental health after serving in the military.

This study demonstrated that premilitary suicidal ideation is a significant risk factor for experiencing suicidal ideation after military service. Additionally, this study

suggests that a larger percentage of veterans experience suicidal ideation prior to joining the military than previously found. With this being only the second study to estimate the prevalence of premilitary suicidal ideation and explore the relationship between premilitary suicidal ideation and current suicidal ideation among veterans, it is clear that these findings highlight the need for further understanding and additional research. This study also found a significant relationship between premilitary suicidal ideation and PTSD severity, which suggests that premilitary suicidal ideation may be predictive of other mental health concerns among OEF/OIF era veterans.

Limitations

There are several limitations to this study that must be considered when interpreting the results. The first limitation of this study may include limited generalizability of the findings to the general OEF/OIF era veteran population due to convenience sampling. For example, this study sample only included those with a social media account. Therefore, the study excluded veterans who do not utilize computers or have access to the internet or social media. Generalizability to the general OEF/OIF era veteran population may be limited due to other factors as well, such as higher percentages of Army veterans, male veterans, and White veterans. Additionally, due to recruitment measures, veterans with higher mental health problems may be over represented in the sample population. Although this is not known for sure, it was indicated that the study survey was shared on several veteran mental health support group pages that include veterans with increased mental health problems. In addition, using convenient sampling with an online survey allows participants to freely choose whether or not they want to

respond to the survey. Therefore, it is possible that the associations identified in this study could differ between responders and nonresponders.

A further limitation is that all data were collected via self-report measures. Response bias may have impacted research results due to potential individual factors such as participants' current mood, desire to complete the survey quickly, motivation, or reporting in a socially desirable way. Additionally, suicidal ideation has been shown to be underreported in some studies (Nock et al., 2008b); therefore, despite having high percentages of premilitary and recent suicidal ideation, the current study may not have captured all accurate information on the spectrum of suicidal ideation. Furthermore, recall memory bias may have impacted the veteran's ability to accurately recall premilitary suicidal ideation and combat exposure experiences. In particular, premilitary suicidal ideation may have been more difficult to recall and accurately identify the prevalence of severity, duration, and frequency.

This study examined suicidality on a spectrum of suicidal ideation severity. Therefore, suicidal thoughts, plans, intent, and attempts were all grouped into suicidal ideation. Previous studies that examined these as separate factors, found that only suicide attempts, and not suicidal ideation or suicidal plans, were significantly related to recent suicidal ideation in OEF/OIF veterans (Bryan et al., 2014). The current study was only interested in suicidal ideation and specifically grouped these factors together in the belief that suicidal ideation plays the most important role in each of these factors. However, results to this study may have been different if these factors were examined separately, or if suicide attempts, which is most widely distinguished from suicidal ideation, was not included in the suicidal ideation sample.

Due to the limited number of racial minority participants, caution is needed when interpreting the results pertaining to the relationship between recent suicidal ideation and racial minority veterans. Additionally, this study primarily focused on broad risk factors (e.g., race, gender, combat exposure) for suicidal ideation. Therefore, a limitation to this study is that important factors specific to several different risk factor (e.g., specific racial groups, specific combat experiences), which may have had a stronger association with suicidal ideation, were not examined.

Finally, it should be noted that a mistake on the demographic questionnaire assessing for number of deployments, which had categorical options (i.e., 1, 2, 3, 4, 5, 6 or more), did not provide an option for zero deployments. Although many participants left the question unanswered, presumably signifying zero deployments, this may have persuaded veterans with zero deployments and no combat exposure to stop and abandon the survey. A final limitation is related to how data on age was gathered. Collecting age categorically (e.g., 18-24, 25-34) in age groups may have limited the possibilities of accessing for a relationship with recent suicidal ideation and in hindsight should have been collected as a continuous variable. Despite these limitations, this study provides a preliminary examination of the relationship between premilitary suicidal ideation and recent suicidal ideation. This study also provides a unique contribution to the literature on suicidal ideation risk factors among OEF/OIF era veterans.

Implications

The current study adds to the relative lack of research on premilitary suicidal ideation and the impact it has on OEF/OIF era veterans. This study also expands upon the existing literature of impactful experiences prior to military service. Study findings offer

new knowledge about the significance of premilitary suicidal ideation and its relationship with recent suicidal ideation among veterans. Premilitary suicidal ideation not only shared a relationship with recent suicidal ideation, but also a relationship with PTSD severity.

This study also provided further empirical data and clarity on several other suicidal ideation risk factors. While nearly all variables examined, except age, demonstrated a single independent relationship with recent suicidal ideation, these results primarily illustrate the significant role of mental health symptoms on suicidal ideation. This information is important for clinicians to understand, that although certain risk factors (e.g., identifying as female, combat exposure) may be related to suicidal ideation, the greatest risk of increased suicidal ideation is related to increased mental health symptoms. Therefore, one of the best approaches for the prevention of suicidal ideation is treatment to lower other mental health symptoms, in particular PTSD symptoms. These results not only implicate the importance of PTSD treatment among OEF/OIF era veterans, but also suggest ways in which PTSD symptoms develop. Ultimately, these results help clinicians to have a better understanding of suicidal ideation risk factors and an indication as to which veterans are at the highest risk of suicidal ideation.

The clinical utility of these results, in regards to the findings on premilitary suicidal ideation, are relevant in several areas. First, these findings have direct clinical implications for assessing risk for suicide within veteran populations. Clinical interviews and suicidal risk assessments should emphasize the importance of evaluating premilitary suicidal ideation and difficulties in military personnel and veterans. This assessment should be considered for both military personnel and veterans presenting with or without

current mental health concerns. Assessing premilitary suicidal ideation and the impact of experiences prior to entering the military could lead to a more comprehensive understanding of the etiology of current suicidality or other mental health concerns. Further, this information is important in informing treatment planning. Second, these results highlight the importance and need of taking suicidal preventative measures during military service. Mental health services should be offered and emphasized during all aspects of the military, especially upon entrance, and not only during pre and post-deployment screenings. Third, these results suggest that routine screening of new military recruits for past suicidal ideation should be encouraged. These screenings should encourage honesty and offer treatment and other support services if needed, rather than be a way to exclude recruits from joining or staying in the military. Better screening measures for premilitary suicidal ideation in military personnel and veterans may have implications for decreasing later suicidality.

Future Directions and Conclusion

This study has found promising results and have important implications on the wellbeing of veterans. The following suggestions for future areas of research are informed by the lack of literature on premilitary suicidal ideation, the results of this study, and the limitations of this study. First, further studies should endeavor to replicate these findings in larger, more representative samples of OEF/OIF era veterans. With generalizability limitations in this study, future studies are needed to better understand the role of premilitary suicidal ideation on recent suicidal ideation among other groups of veterans. Future studies should also consider using new recruits as participants to gain a more accurate prevalence rate of premilitary suicidal ideation. Additionally, longitudinal

studies should be considered to further clarify how premilitary suicidal ideation translates into increased risk of mental health problems (i.e., suicidal ideation, PTSD, depression) for service members during and after military service.

A relationship was identified between premilitary suicidal ideation and PTSD severity. This lends further support to the suggestion that premilitary suicidal ideation increases the risk of developing mental health symptoms during and after military service. Future studies should examine the relationship between premilitary suicidal ideation and PTSD to determine whether preexisting mental health problems prior to military service increase the risk of PTSD severity or other mental health problems. Although this study added to the literature on demographic variables, many questions still remain. Additional research is needed to provide greater clarity on the association between demographic variables and recent suicidal ideation. The literature, along with this study, demonstrates that specific aspects of combat exposure (e.g., killing, viewing atrocities, PTSD) are more related to suicidal ideation than general combat exposure. Additional research is required to better understand which aspects place veterans at the highest risk of suicidality. Other factors, such as differences in rank, differences in military branches, and other military related factors should also be explored when examining recent suicidal ideation.

In future studies, premilitary suicidal ideation should also be studied along with other risk factors (e.g., depression, substance use, childhood adversities, adolescent adversities) to determine its significance when controlling for other factors. These studies would also help determine whether premilitary suicidal ideation is better accounted for by other premilitary experiences or mental health problems. Future studies are also needed

to determine which factors (i.e., severity, duration, frequency) of premilitary suicidal ideation lead to the greatest effect on recent suicidal ideation. Lastly, structural equation modeling is needed to explore possible interactions between the variables examined in this study, as well as other variables suggested. This might allow for the possible development of a causal model that extends the research beyond looking at relationships.

In conclusion, the study findings suggest that comprehensive assessment of both premilitary experiences and premilitary suicidal ideation can contribute to the understanding of veterans clinical status in terms of current and/or potential suicidality risk. These findings support the importance of factors that precede military service. The results to this study both coincide and conflict with other studies that have examined similar variables, but lend further empirical evidence to understanding which risk factors place OEF/OIF era veterans at the greatest risk of suicidal ideation. In particular, this study identified PTSD severity as the factor that contributes to the highest levels of recent suicidal ideation among veterans. This study adds to the depth of current literature on veteran suicidality and sets forth a new direction for future research that will aid in the mental health and safety of our nation's military service members and veterans. Lastly, these findings demonstrate that mental health concerns (i.e., PTSD, premilitary suicidal ideation), which may be related to demographic stressors or specific experiences, are likely implicated in the rise of suicidal ideation among OEF/OIF era veterans.

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APPENDICES

APPENDIX A

Extended Literature Review

There has been an alarming increase in suicidal ideation and completed suicides among active duty service members and veterans. (Blow et al., 2012; Kang & Bullman, 2008; McCarthy et al., 2009). Since the commencement of Operation Enduring Freedom (OEF) in Afghanistan and Operation Iraqi Freedom (OIF) in Iraq in October 2001 and March 2003, the suicide rate for military members and veterans who have seen combat has increased beyond that of the general population, now making suicide the second leading cause of death among military personnel (Bush et al., 2013; Department of Defense, 2011; Kang & Bullman, 2008). The military suicide rate surpassing the general population suicide rate is the first time this has occurred since the Vietnam War (Alvarez, 2009). Between 2001 and 2008, the suicide rate for active duty military personnel has increased by 50%, with the rate rising from 10.3 suicides per 100,000 individuals in 2001 to 15.8 per 100,000 individuals in 2008 (Jobes, Lento, & Brazaitis, 2012). In fact, the number of U.S. soldiers who have died by suicide is now estimated to be greater than the number who died in combat in Iraq and Afghanistan (Bryan et al., 2014; Hyman, Ireland, Frost, & Cottrell, 2012).

Our nation's active and reserve military service members are experiencing great consequences from the war on terrorism. However, our nations veterans, those who have proudly served their country and have since discharged from the military, are experiencing the most tragic effects. In 2008, military veterans completed approximately 20% of all suicides in the United States; however, military veterans only accounted for 10% of the U.S. adult population (Kaplan, McFarland, Huguet, & Newsom, 2012). Recent statistics from the U.S. Department of Veterans Affairs (2013) indicates that 22 veterans per day commit suicide. That's approximately 660 veteran suicides per month and 8,030 per year. Research indicates that military veterans, both men and women, are at an increased risk of suicide when compared to nonveterans (Kaplan, Huguet, McFarland, & Newsom, 2007; McCarthy et al., 2009; McFarland, Kaplan, & Huguet, 2010). In addition to actual deaths by suicide, research indicates that veterans and service members report an even greater percentage of suicidal ideation and suicidal behaviors that do not result in death (Kinn et al., 2011).

These statistics are unquestionable disturbing and indicate that not only are a large number of veterans committing suicide each day, but an even greater number of veterans are experiencing suicidal ideation. In response to the epidemic of suicides and reports of suicidal ideation, great efforts have been made to both gain a better understanding of this phenomenon and identify factors that increase the risk of veterans experiencing suicidal ideation and suicidal behaviors. Since the onset of OEF/OIF the Department of Defense (DOD) and the Veterans Administration (VA) has conducted countless studies to identify specific factors that have been identified to increase the risk of experiencing suicidal ideation in veterans. Additionally, each military department has implemented suicide

prevention initiatives aimed largely at targeting early identification of manifest risk factors (e.g., suicidal ideation; Hyman, Ireland, Frost, & Cottrell, 2012).

Research indicates that suicidal ideation is the single best predictor of suicide (Mann et al., 2008). In addition, suicidal ideation, when compared to suicidal behaviors and completed suicides, affects a greater percentage of OEF/OIF veterans (Mann et al., 2008). Suicidal ideation is a mental health issue that is having a devastating effect on veterans. Several studies have suggested that the majority of individuals who make a suicide attempt do so within a year of the first onset of suicidal ideation (Bryan, Bryan, May, & Klonsky, 2015; Kessler, Borges, & Walters, 1999; Nock et al., 2008a).

Therefore, it has become imperative that steps be taken to identify suicidal ideation risk factors. The identification of risk factors for suicidal ideation plays a vital role in identifying those veterans who are at the greatest risk of experiencing suicidal ideation or attempting suicide. Understanding and identifying these risk factors can potentially lead to the prevention of suicidal ideation all together, or the prevention of suicidal ideation leading to suicidal behaviors.

The Institute of Medicine has labeled suicide prevention a national imperative (Goldsmith, Pallmer, Kleinman, & Bunnery, 2002). Therefore, a focus for the Department of Defense, the Department of Veterans Affairs, and the research community has been the identification of risk factors and predictors of suicidal ideation. The collaboration of research has identified several factors (i.e., combat exposure, posttraumatic stress disorder) that have been shown to increase the risk of suicidal ideation in OEF/OIF veterans. In addition, premilitary suicidal ideation and behaviors has recently been shown to be a significant predictor of current veteran suicidality (Bryan,

Bryan, Ray-Sannerud, Etienne, & Morrow, 2014). However, further research is needed to identify which risk factors place veterans at the greatest risk of experiencing suicidal ideation.

Suicidal Ideation

Suicidal ideation is defined as thoughts, fantasies, ideas, or images related to committing suicide, or ending one's own life. Suicidal ideation varies in degree and can be classified as being either active or passive. Active suicidal ideation commonly refers to thoughts about harming oneself, while passive suicidal ideation refers to thoughts that life is not worth living or that one would be better off dead (Raue, Meyers, Rowe, Heo, & Bruce, 2006). Lewinsohn, Rohde, and Seeley (1996) explain that suicidal ideation can be conceptualized as being expressed along two dimensions: severity (degree of seriousness) and duration (amount of time spent ideating). In addition to severity and duration, it is also important to consider frequency (how often these thoughts occur) as an important factor. Individuals who spend a great deal of time preoccupied with thoughts of their own death also tend to have more frequent and severe suicidal ideation (Lewinsohn, Rohde, & Seeley, 1996).

It is important to understand the distinction between suicidal ideation, suicidal behaviors, and suicide. In contrast to suicidal ideation, suicide refers to death from self-inflicted injury where the individual intended to kill himself/herself. Suicidal behaviors refers to the potential self-injurious behaviors for which the individual intended to kill themselves, or use the appearance of intending to kill oneself (O'Carroll et al., 1996). "Suicidal ideation is believed to represent the early stage of a continuum that begins with low mood and moves to passive death wishes, suicidal thoughts, plans and finally acts of

self-harm or suicide” (Casey et al., 2008, p. 299). Suicidal ideation, at its least severe, may only consist of a fleeting thought. However, suicidal ideation at its most serious, may lead to suicidal plans and acts (Kessler, Borges, & Walters, 1999).

Suicidal ideation is far more common than suicidal behavior or completed suicides due to the fact that it precedes more serious suicidal acts (Fong, Shah, & Maniam, 2012; Gliatto & Rai, 1999). This is simply because one must think about or contemplate suicide before acting upon the urge. Although suicidal ideation may or may not lead to an actual suicide attempt, it is strongly associated with increased risk of suicidal behaviors (Beck, Brown, Steer, Dahlsgaard, & Grisham, 1999; Brown, Beck, Steer, & Grisham, 2000; Kessler, Borges, & Walters, 1999; Kuo, Gallo, & Tien, 2001). “Suicidal ideation frequently functions as the first warning sign of the potential for more serious suicide-related behavior” (Langhinrichsen-Rohling, Snarr, Slep, Heyman, & Foran, 2011, p. 601). In fact, suicidal ideation is perhaps the best single predictor of suicide attempts (Britton et al., 2012; Mann et al., 2008; Szanto et al., 2003). Lewinsohn, Rohde, and Seeley (1996) found that,

Suicidal ideation becomes increasingly predictive of future suicide attempts as it increases in frequency of occurrence. The relationship appears to be almost linear, with the risk of a suicide attempt in the near future increasing as a function of frequency of suicidal ideation. Importantly, however, even mild and relatively infrequent thoughts increase the risk for an attempt (p. 29).

The transition from suicidal ideation to first onset of suicide plan or attempt is extremely elevated within the first year (Kessler, Borges, & Walters, 1999; Miranda & Shaffer, 2013; Nock et al., 2008a; Nock et al., 2013). In other words, the highest risk of

suicide attempt is in the first year, following the onset of suicidal ideation. It was found that suicide attempts occurred within the initial onset of suicidal ideation more than 60% of the time (Nock et al., 2008a). However, despite the association between suicidal ideation and suicide, suicidal ideation should remain to be interpreted as a distinct phenomenon since the majority of individuals who experience suicidal ideation may not ever attempt suicide (Blonsnich, Gordon, & Bossarte, 2014).

Prevalence of Suicidal Ideation. “It is not unusual for ‘normal’ individuals to experience occasional suicidal thoughts” (Ruddell & Curwen, 2002, p. 367). However, frequency and severity varies depending on the individual. Severity of suicidal ideation can vary greatly from a single fleeting thought, to occasional curiosity, to extensive thoughts, to detailed planning. Although suicidal ideation is a risk factor of suicide, the majority of individuals who experience suicidal ideation do not go on to attempt suicide (Gliatto & Rai, 1999). In a cross-national study that examined the prevalence of suicidal ideation, plans, and attempts, they found that lifetime prevalence of suicidal ideation was 9.2%, suicidal plans was 3.1%, and suicidal attempts was 2.7% (Nock et al., 2008a). However, other studies have found lifetime rates of suicidal ideation to vary between 2.09 and 25.4% depending on age, culture and geographic location (Bertolote et al., 2005; Casey et al., 2008; Lewinsohn, Rohde, & Seeley, 1996; Weissman et al., 1999). Among those who experienced suicidal ideation, it was figured that the conditional probability of ever making a suicide plan was 33.6% and of ever making a suicide attempt was 29.0%. Of those with suicidal ideation with a plan, the probability of attempting suicide was 56.0% (Nock et al., 2008a).

In the United States, suicidal ideation and behaviors are important public health concerns. In 2008, suicide claimed the lives of 36,035 total individuals (Centers for Disease Control and Prevention [CDC], 2015). Additionally, approximately 666,000 individuals visited hospital emergency departments for nonfatal, self-inflicted injuries. Although these numbers may seem astonishing, they do not compare to the number of individuals who experience suicidal ideation. In 2008, in the United States, an estimated 8.3 million adults 18 and older reported experiencing suicidal ideation in the past year. This accounts for 3.7% of the adult U.S. population (Crosby, Gfroerer, Han, Ortega, & Parks, 2011).

A large number of studies have examined suicidal ideation risk factors in the general population. Generalizing risk factors can be difficult due to the variety of subgroups within the population. However, many studies have found similar results in identifying suicidal ideation risk factors. Nock et al. (2008a) found that the prevalence of having suicidal ideation differs by sociodemographic factors (i.e., age, sex, race/ethnicity, education). These researchers found that young adults, aged 19-29 years, are most likely to have suicidal ideation. When considering gender, females were found to be more likely than males to report having suicidal ideation (Nock et al., 2008a). While examining race/ethnicity, non-Hispanic Whites had the highest prevalence of having suicidal ideation, with non-Hispanic Asians having the lowest prevalence of suicidal ideation (Crosby, Gfroerer, Han, Ortega, & Parks, 2011). Lastly, individuals with less than a high school education were more likely to have had suicidal ideation, as compared to college graduates (Crosby et al., 2011; Daniel et al., 2006; Nock et al., 2008a).

Bae et al. (2013) investigated the relationship between suicidal ideation and associated factors in a community population and found that subjective depressive mood, abnormal sleep duration, high anger, and a family history of psychiatric illness were related to suicidal ideation. Other studies found similar results indicating that anger (Engin, Gurkan, Dulgerler, & Arabaci, 2009; Lamb & Pusker, 1991; Lee, Choi, Kim, Park, & Shin, 2009), sleep disturbances (Goodwin & Marusic, 2008; Krakow, Ribeiro, Ulibarri, Krakow, & Joiner, 2011; Pigeon, Pinquart, & Conner, 2012; Ribeiro et al., 2012) and a family history of psychiatric illness (Brent & Mann, 2005) was significantly associated with an increased risk of suicidal ideation.

Depression or the presence of a psychiatric illness has been found to be one of the strongest predictors of suicidal ideation (Chang et al., 2014; DeVlyder et al., 2012; Dugas et al., 2012; Farabaugh et al., 2012; Garlow et al., 2008; Guerra & Calhoun, 2011; Nock et al., 2008a; Pietrzak et al., 2010). It is also well established that past suicidal ideation and behaviors are extremely strong and reliable risk factors for future suicidal ideation and behaviors (Bryan & Rudd, 2006; Cavanagh, Owens, & Johnstone, 1999; Fong, Shah, & Maniam, 2012; Joiner et al., 2005). An additional factor that is often associated with the occurrence of suicidal ideation is alcohol consumption (Hintikka et al., 2001; Vilhjálmsón, Sveinbjarnardóttir, & Kristjansdóttir, 1998). Other common risk factors of suicidal ideation include identifying as gay or lesbian (O'Donnell, O'Donnell, Wardlaw, & Stueve, 2004), suffering from chronic pain (Racine, Choinière, & Nielson, 2014; Tank & Crane, 2006), hopelessness (Beck, Steer, Beck, & Newman, 1993; Beck, Steer, Kovacs, & Garrison, 1985), and physical and sexual assault (Stephenson, Pena-Shaff, & Quirk, 2006). Lastly, Gvion, Horesh, Levi-Belz, and Apter (2015) found that mental pain

(hopelessness, depression, and mental pain experience), negative life events, communication difficulties (loneliness, schizoid tendencies), and aggressive-impulsive tendency (anger-in, anger-out, violence, and impulsivity) were significantly correlated with current suicidal ideation. Despite the many different factors already identified, there are still many other risk factors that have been linked to suicidal ideation. The identification of all suicidal ideation risk factors is out of the scope of this literature review.

Suicidal Ideation in Veterans

Suicidal ideation and suicide is nothing new to our nation's veterans. As long as the United States of America has had a military, we've had veterans experiencing suicidal ideation. Veterans have always faced a number of unique factors and obstacles that have increased the probability of veterans facing psychological issues, including suicidal ideation. Although previous wars have resulted in a large number of veterans experiencing suicidal ideation and behaviors, the recent and ongoing war in Iraq and Afghanistan are resulting in the return of a significant percentage of veterans dealing with suicidal ideation, posttraumatic stress disorder, depression, and other psychological problems that increase the risk of suicide (Tanielian & Jaycox, 2008). "The increased rates of suicidality recently noted in veterans may be due to the occurrence of extended and concurrent wars and the concomitant heavy strain placed on military members" (Langhinrichsen-Rohling, Snarr, Slep, Heyman, & Foran, 2011, p. 600).

Prevalence of suicidal ideation among service members and veterans has been identified to range from 6.5% to 45.9% in clinical samples and from 2.3% to 21.2 % in nonclinical samples (Bossarte et al., 2012; Corson et al., 2013; Jakupcak et al., 2009;

Lemaire & Graham, 2011; Mavandadi, Rook, Newsom, & Oslin, 2013; Pietrzak et al., 2010; Schinka, Schinka, Casey, Kaspro, & Bossarte, 2012). These statistics indicate that up to nearly half of veterans who seek help have experienced suicidal ideation and up to one fifth of nontreatment seeking veterans have experienced suicidal ideation. The truth is that even these alarming statistics may not fully capture the number of veterans that experience suicidal ideation. This is largely due to the stigma placed on having suicidal ideation, which causes many veterans not to openly share these thoughts. In research studies, all studies are dependent on self-report measures, which without the honesty of veterans, these numbers only capture those who are willing to admit to having these thoughts (Corson et al., 2013).

Suicidal Ideation Risk Factors Among Veterans. Research on veteran suicidality has identified several factors that have been associated with an increased risk of suicidal ideation and/or attempts. These factors include PTSD (Guerra & Calhoun, 2011; Ilgen et al., 2010; Kessler et al., 1999; Pietrzak, Russo, Ling, & Southwick, 2011), combat exposure (Boehmer et al., 2004; Bush, Skopp, McCann, & Luxton, 2011; Thoresen & Mehlum, 2008), active duty versus Reserve/National Guard Service (Kang & Bullman, 2008), physical problems, (Braden & Sullivan, 2008; Ratcliffe, Enns, Belik, & Sareen, 2008), depression, PTSD, and substance abuse problems (Harris & Barraclough, 1997; Kang & Bullman, 2008; Kessler et al., 1999; Wilcox, Conner, & Caine, 2004).

A recent study by Pietrzak and colleagues (2010) examined risk factors associated with suicidal ideation in OEF/OIF veterans and found similar results to previous research. Results to this study indicated that “respondents who endorsed suicidal ideation were more likely to screen positive for PTSD, depression, and alcohol problems, scored higher

on measures of combat exposure, psychological difficulties, stigma, and barriers to care” (p. 105). Furthermore, positive screens for depression, PTSD, and increased psychosocial difficulties emerged as positive predictors of suicidal ideation. One study found that one of three OEF/OIF veterans who screened positive for depression acknowledged possible suicidal ideation (Corson et al., 2013). A similar study found that in addition to a positive screen for depression and PTSD, higher scores on measures of cognitive-social avoidance coping and self-punishment were positively associated with suicidal ideation among veterans (Pietrzak, Russo, Ling, & Southwick, 2011).

Although several sociodemographic traits are associated with a greater risk of suicidal ideation in the general population, there are mixed conclusions on whether these factors are predictive of suicidal ideation among veterans (Corson, et al., 2013). These mixed conclusions are due to several studies examining the same demographic factors and all finding different results. Although not found in every study, some studies have found that demographic factors such as age, gender, and ethnicity do increase the risk of suicidal ideation among OEF/OIF veterans (Corson et al., 2013; Jakupcak et al., 2009; Lemaire & Graham, 2011).

Research now indicates that veterans at the highest risk of suicidal ideation may be those diagnosed with two or more psychiatric disorders (Corson et al., 2013). Corson et al. (2013) found that OEF/OIF veterans with bipolar disorder/schizophrenia diagnoses and depression diagnoses were significantly more likely to report suicidal ideation as compared to veterans without these diagnoses. It was also found that having two psychiatric disorders significantly increased the odds of suicidal ideation and having three disorders more than doubled the odds.

Recent studies have also indicated that experiences prior to military enlistment may increase the risk of suicidal ideation in veterans. Specifically, veterans who have traumatic experiences before enlisting may be more vulnerable to suicidal ideation and behaviors when coping with combat deployments (American Psychological Association, 2014). Additionally, studies have found that suicidal ideation prior to military enlistment (i.e., premilitary suicidal ideation) can lead to suicidality in veterans. Premilitary suicidal ideation has only been studied in a few studies and is still in the process of determining how premilitary suicidal ideation currently affects veterans.

Premilitary Suicidal Ideation

Premilitary suicidal ideation is defined as having suicidal ideation, as previously described as having thoughts, fantasies, ideas, or images related to committing suicide, or ending one's own life, at any point in the individual's life before joining the U.S. military. Therefore, the term premilitary refers to the time period ranging from birth to the day an individual leaves for military basic training. Of course the time period before joining the military will be different for each individual, depending on the age in which they join the military.

Premilitary suicidal ideation identifies suicidal thoughts that are unrelated to military experience. The identification of these premilitary thoughts recognizes that veterans have pre-existing mental health issues before enlisting in the Armed Forces. All service members and veterans have premilitary life experiences, however, when examining veteran issues (i.e., suicidal ideation, suicide, PTSD, depression) they are rarely taken into account. An individual's life before joining the military is a factor that has only recently been considered in suicidality research (Griffith, 2014; Perales,

Gallaway, Forys-Donahue, Spiess, & Millikan, 2012; Youssef et al., 2013). However, only one known study has directly examined the association between premilitary suicidal ideation and current suicidality in active duty service members and veterans (Bryan et al., 2014).

Childhood and Suicidal Ideation. To date, there has been very little research conducted on premilitary mental health and life experiences and how these factors affect service members and veterans. Although we know that childhood and adolescent experiences can have a grave impact on an adult's personality and mental health, researchers, until recently, have largely failed to take into account this vital period of life for service members and veterans. Now, however, a few recent studies have found a link between premilitary trauma, abuse, and suicidal ideation with suicidality among military personnel and veterans (Bryan et al., 2014; Griffith, 2014; Perales, Gallaway, Forys-Donahue, Spiess, & Millikan, 2012; Youssef et al., 2013).

Research on childhood adversities (i.e., sexual abuse, physical abuse, emotional abuse, parental lack of care, parental mental disorders) and its association with adult suicidality is not new. A wealth of empirical evidence has demonstrated a strong connection between childhood adversity and an increased prevalence of adult mental illnesses (i.e., suicidal ideation, suicide attempts; Afifi et al., 2008; Enns et al., 2006; Kessler, Davis, & Kendler, 1997; MacMillan et al., 2001; Mandelli, Carli, Roy, Seretti, & Sarchiapone, 2010; Nelson et al., 2002; Sarchiapone, Carli, Cuomo, & Roy, 2007). Brown, Cohen, Johnson, and Smailes (1999) found that adolescents who reported childhood abuse and neglect were 1.5 to 4.0 times more likely to have suicidal behaviors as adults than those who had no childhood abuse or neglect. Another study found that

children who experienced sexual abuse, violence, or harsh punishment were associated with increased suicide attempts (Hardt et al., 2008). Enns et al.'s (2006) study indicated “a substantial and statistically significant association between childhood adversities, particularly childhood abuse, and future suicidal ideation” (p. 6-7). There have been several other studies that have also shown an association between early childhood trauma or negative experiences and suicidal ideations, behaviors, and attempts in later adulthood (Dube et al., 2001; Mironova et al., 2011; Read, Agar, Barker-Collo, Davies, & Moskowitz, 2001).

Although the link between childhood adverse experiences and adult suicidality has been shown, only three known studies have examined this association with military and veteran populations. The first study, conducted by Perales, Gallaway, Forsy-Donahue, Spiess, and Millikan (2010), examined childhood abuse and its association with suicidal behavior in active duty Army soldiers who attempted or completed suicide as identified by the Department of Defense Suicide Event Report. The results concluded that 43.3% of completed suicide cases and 64.7% of suicide attempt cases reported childhood trauma. The second study was conducted by Griffith (2014) and examined the relationship between childhood abuse (self-reported early childhood harsh punishment and physical abuse from parents) and adult suicidal behavior among Army National Guard soldiers. Data was obtained from the Unit Risk Inventory (N=12,567 soldiers in 180 company-sized units), which is routinely administered. Results indicated that 16% of soldiers reported harsh punishment during childhood and 8% reported physical abuse. These findings were found to be consistent with past studies that investigated childhood abuse among civilian and active duty military populations. Further results indicated that

soldiers who reported childhood abuse were 3 to 8 times more likely of reporting suicidal ideation, suicidal intent, or previous suicide attempts. The third study, conducted by Youseff et al. (2013), evaluated the effect of childhood trauma on the severity of suicidal ideation in OEF/OIF era military personnel and veterans. This study found that 33.9% endorsed childhood physical assault, 12.8% endorsed childhood sexual assault, and 38.8% endorsed other childhood psychological trauma. Results indicated that each childhood trauma type (i.e., physical sexual, and other) was significantly associated with severity of suicidal ideation in adult OEF/OIF era veterans.

It is important to consider childhood adversities when examining premilitary suicidal ideation, because research shows that children who experience childhood adversities are at an increased risk of experiencing childhood or adolescent suicidal ideation (Bruffaerts et al., 2010). Afifi et al. (2008) stated,

Childhood adversity may influence an individual's coping strategies and abilities to manage distress. Research has indicated that individuals who have experienced childhood abuse often use disengagement coping strategies such as denial, emotional suppression, and cognitive and behavioral avoidance. It also has been suggested that distress creates a desire to promptly escape severe emotional pain. Without the use of positive coping mechanisms, abused individuals may have difficulty managing distress and turn to thoughts and behaviors of suicide as a means of escape (p. 950).

As Griffith (2014), Perales et al. (2010), and Youseff et al. (2013) demonstrated in their studies, veterans, just like the general population, are experiencing childhood adversities. Research would then suggest that veterans who experienced childhood

adversities are at an increased risk of experiencing premilitary suicidal ideation. Additionally, research studies suggest that veterans who experience childhood adversities are at an increased risk of experiencing adult suicidal ideation, regardless of their military experiences. Therefore, these previous studies would suggest that veterans who experience premilitary suicidal ideation, due to childhood adversities, are at an increased risk of experiencing adult suicidal ideation.

Adolescents and Suicidal Ideation. Adolescence is a stage of life that every service member has either already gone through, or is currently still in. According to Merriam-Webster (2015) adolescence is defined as “the period of life when a child develops into an adult” (para. 1). The age of adolescence typically “begins between 11 and 13 years of age with the appearance of secondary sex characteristics and spans the teenage years, terminating at 18 to 20 years of age with the completion of the development of the adult form” (Medical Dictionary, 2015, para. 10). This developmental stage is imperative to discuss when considering premilitary life experiences seeing that a large percentage of individuals joining the military are still considered being in the adolescent stage.

According to data from the U.S. Military Entrance Processing Command (MEPCOM) for the fiscal year (FY) 2009, 52% of all service members across all branches of the military enlisted in the military between ages 16-19 (Rostker, Klerman, & Zander-Cotugno, 2014). Additionally, 21% of the service members who enlisted in the military were between ages 20-21. This estimates that approximately two thirds of all individuals joining the military are in the mid to late stages of adolescence. The Marine Corps had the highest percentage of individuals joining between the ages of 16-19 (67%),

placing the highest priority on recruiting high school students. However, this is not exclusive to the Marine Corp, all military branches place a high priority on attempting to enlist adolescents right after they graduate from high school (Rostker, Klerman, & Zander-Cotugno, 2014).

Suicidal ideation is a factor that threatens all ages. However, research has found that adolescents are at a particularly high risk of experiencing suicidal ideation. Nock et al. (2008a) found that the initial onset of suicidal ideation highly increases during adolescence. The rate of suicidal ideation among adolescents has been found to be higher than compared to suicidal ideation rates of adults (Weissman, Bruce, Leaf, Florio, & Holzer, 1991). A past study conducted on adolescents found that up to 60% of high school students have experienced some degree of suicidal ideation or behavior (Fiedman, Asnis, Boeck, & DiFiore, 1987). These statistics indicate that experiencing thoughts about one's own death is quite common among adolescents. These statistics also clearly demonstrates that adolescence is a time period in which all individuals, including veterans, are at increased risk of experiencing suicidal ideation.

It is well established that past suicidal ideation and behaviors are the most robust and reliable risk factors for future suicide risk (Bryan & Rudd, 2006; Cavanagh, Owens, & Johnstone, 1999; Joiner et al., 2005). This suggests that adolescents who experience suicidality before joining the military are at a much higher risk of re-experiencing suicidal ideation and behaviors either while in the military or as a veteran. Several longitudinal studies have shown the impact and lasting effects of experiencing childhood or adolescent suicidal ideation. These longitudinal studies have offered some insight on how the long-term course of suicidal ideation may be affecting veterans.

Several follow up studies that examined suicidal ideation in adolescents found that suicidal ideation and depressive symptoms persisted into young adulthood 2-4 years later (Goldney, Smith, Winefield, Tiggeman, & Winefield, 1991; Reinherz et al., 1995; Wichstrøm, 2000). Dhossche, Ferdinand, van der Ende, Hofstra, and Verhulst (2002) conducted a study that at the time was the longest suicidal ideation follow-up study examining whether adolescent suicidal ideation would predict adult suicidal ideation eight years later. These researchers concluded that self-reported adolescent suicidal ideation was not associated with suicidal ideation at the 8-year follow up. However, although this study did not find an association, a more recent longitudinal study did find a relationship (Reinherz, Tanner, Berger, Beardslee, & Fitzmaurice, 2006).

Reinherz and colleagues (2006) study examined whether suicidal ideation in adolescents was predictive of psychopathology, suicidal ideation and behaviors, and compromised functioning in adults. This study evaluated the long-term effect of adolescent suicidal ideation by following a community sample of 378 adolescents with a mean age of 15 in 1987. Fifteen years later, in 2002, 377 of these adolescents were assessed at the mean age of 30. Results indicated that both male and female adolescents who reported suicidal ideation had greater overall levels of psychopathology, suicidal ideation and suicide attempts by age 30 compared to those who reported no suicidal ideation. When participants “with and without adolescent suicidal ideation were compared on specific disorders at age 30, significant differences emerged for anxiety disorders: those with suicidal ideation were more likely than those without to have experienced an anxiety disorder in the past year” (Reinherz et al., 2006, p. 1228). Results also found that when participants with and without adolescent suicidal ideation were

compared on suicidal ideation and attempts at age 30, adolescents who reported suicidal ideation were 15 times more likely to have experienced suicidal ideation in the past 4 years and almost 12 times more likely to have attempted suicide at least once from ages 15 to 30 than adolescents who reported no suicidal ideation. Lastly, adolescents who reported suicidal ideation reported more problem behaviors at age 30 than adolescents who reported no suicidal ideation. These adolescents also reported significantly poorer functioning at age 30 than those adolescents without suicidal ideation.

Similar to these results, Reinherz et al. (1995) found evidence “that suicidal ideation at age 15 was a marker of distress with multiple longterm implications” (p.607). These studies highlight the relationship between adolescent suicidal ideation and adult suicidal ideation. These studies also point out the need for accessing premilitary suicidal ideation in veterans with suicidal ideation and psychopathology.

Premilitary Suicidal Ideation and Veteran Suicidality. Veterans are no different from the general population when considering childhood or adolescents (i.e., premilitary life experiences). As demonstrated, research shows that many individuals experience suicidal ideation during childhood, adolescents, or both. Therefore, it is reasonably understood that a percentage of service members and veterans have experienced premilitary suicidal ideation; however, with little research on this topic it is still unknown what percentages of veterans have had these early thoughts. It is also known that early childhood or adolescent suicidal ideation can have a grave impact on adult mental health. However, once again, with little research on the veteran population, it is relatively unknown what effect premilitary suicidal ideation has on veterans current mental health and whether it is associated with recent suicidal ideation in veteran.

Only one known study has directly examined the association between premilitary suicidal ideation and behaviors and current suicidal ideation and behaviors in active duty service members and veterans (Bryan et al., 2014). This study sought to provide preliminary data on the prevalence of premilitary suicidal ideation, suicide planning, and suicide attempts among military personnel and veterans. This study also aimed to determine the relationship of premilitary suicidal ideation, suicide planning, and suicide attempts with suicidal ideation, suicide planning, and suicide attempts that occurred during or after military service. In this study, two separate samples were used.

In the first sample, participants included 374 military personnel (34.0%) and veterans (60 %) who were enrolled in college classes. Of the 374 student veterans, 82 (21.9%) participants reported premilitary suicidal ideation, 22 (5.9%) reported premilitary suicide planning, 33 (8.8%) reported premilitary nonsuicidal self-injury, and 12 (3.2%) reported a premilitary suicide attempt. Results indicated that participants who made a suicide attempt after joining the military were more likely to have experienced suicidal ideation and suicide attempts prior to enlisting in the military. After controlling for several variables (i.e., gender, age, posttraumatic stress symptoms, depression symptoms), premilitary suicidal ideation and premilitary suicide attempts continued to be associated with an increased risk for suicide attempts after joining the military (Bryan et al., 2014).

In the second sample, participants included 151 active duty military personnel who were seeking outpatient treatment at an Air Force mental health clinic. Of the 151 participants, 25 (16.6%) participants reported premilitary suicidal ideation, 9 (6.0%) reported making a premilitary suicide plan, 9 (6.0%) reported engaging in premilitary

nonsuicidal self-injury, and 5 (3.3%) reported making a premilitary suicide attempt.

Results indicated that participants who made a suicide attempt while in the military were more likely to have experienced premilitary suicidal ideation, suicide planning, and suicide attempts. Additional results showed that participants who had some premilitary suicidality (nonsuicidal self-injury, suicide attempt) reported significantly more severe suicidal ideation during the past week.

Several recent studies have now demonstrated a link between premilitary suicidality and recent suicidality in veterans. Results of Bryan et al.'s (2014) study indicated that between 16.6%-22% of military personnel and veterans experienced suicidal ideation at some point in their lives prior to joining the military. Although their study did not find an association between premilitary suicidal ideation and recent severe suicidal ideation, it did demonstrate that premilitary self-injurious behaviors and premilitary suicide attempts were significant predictors of recent suicidal ideation. Additionally, findings from the study suggest that 50% of military personnel and veterans who engage in suicidal behaviors while in the military or after leaving the military have a history of premilitary suicidal behaviors. These findings "highlight the importance of screening at the earliest stages of military enlistment (e.g., military entrance processing stations)" (Bryan et al., 2014, p. 7).

Findings from Bryan et al. (2014), as well as the previous research described on childhood and adolescent suicidal ideation, brings awareness that premilitary suicidal ideation is an important factor to consider in both research and treatment of veterans. Premilitary suicidal ideation combined with the difficult experiences and consequences of

military service (i.e., combat exposure, posttraumatic stress disorder) may place certain veterans at the highest risk of experiencing recent suicidal ideation.

Combat Exposure

Combat exposure refers to conflict with legitimate armed forces, guerilla forces, or terrorist organizations, and/or the exposure to wartime casualties. These experiences range from being engaged in firefights to dealing with or observing the injured or dead bodies killed in action. Due to the pace of deployments and the nontraditional combat tactics of the Afghanistan (OEF) and Iraq (OIF) war many veterans are being exposed to combat experiences, many of which are exposed to high rates of traumatic events (Edwards, 2012; Hoge et al., 2004; Killgore, Stetz, Castro, & Hoge, 2006). As of 2012, an estimated 2.3 million American service members have served in Iraq or Afghanistan, with 800,000 of those members having served multiple combat deployments (Riggs & Sermanian, 2012; Swofford, 2012). Hoge, Auchterlonie, and Milliken (2006) found that 46% of OEF soldiers and 65.1% of OIF soldiers reported a history of combat.

Since the onset of OEF/OIF research on combat exposure has seen a dramatic spike. Countless studies have looked at the effects of combat exposure and how returning combat service members are integrating back into their lives. Many of these veterans are not only returning home with medical and physical complications (i.e., gunshot wounds, missing limbs, traumatic brain injury), but also returning home with mental health issues (Osório et al., 2013). “Exposure to combat zones has been shown to increase rates of somatic symptoms, psychological distress, impaired health status, and greater health related physical and social impairment in functioning” (Selby et al., 2010, p. 301). Hoge

et al. (2004) indicated that one in six returning combat service members have reported symptoms of negative mental health.

La Bash, Vogt, King, and King (2008) explained that OEF/OIF veterans “have been exposed to circumstances of traditional combat, including experiences such as being in firefights, dealing with injured soldiers, observing the bodies of those killed in action, and the horror and helplessness that often accompany such experiences” (p. 6). However, a more unique component of the Iraq and Afghanistan war that is causing military personnel difficulties is insurgency warfare. Unlike Vietnam, the World Wars, and traditional warfare where combat is fought face-to-face on a front line, insurgents are often impossible to identify because they mix into the population to infiltrate enemy line and also use organize guerilla-type ambushes to wear away at our troops (Krepinevich, 2014). Therefore, the OEF/OIF campaigns have both been very complicated and difficult wars due to the lack of an obvious frontline. With no frontline, this has left all service members deployed to these campaigns vulnerable to combat events. Service members engaged in OEF/OIF operations are frequently exposed to insurgent tactics such as using Improvised Explosive Devices (IEDs) to attack military personnel and vehicles, exposure to atrocities, suicide bombers, constant ambushes, and direct gunfire coming from every direction (Hoge et al., 2004; La Bash et al., 2008).

Service members who are deployed in a combat role are “frequently exposed to severe traumatic events including being wounded, opening fire at the enemy and seeing or handling human remains” (Osório et al., 2013, p. 71). Additionally, Friedman (2006) explains that other OEF/OIF war-zone stressors for returning veterans include:

Feeling helpless to alter the course of potentially lethal events; being exposed to severe combat in which buddies were killed or injured; having personally killed enemy combatants and, possibly, innocent bystanders; being exposed to uncontrollable and unpredictable life-threatening attacks such as ambushes or roadside bombs; experiencing postcombat exposure to the consequences of combat, such as observing or handling the remains of civilians, enemy soldiers, or U.S. and allied personnel; being exposed to the sights, sounds, and smells of dying men and women; and observing refugees, devastated communities, and homes destroyed by combat (p. 586).

Research indicates that extended periods of exposure to combat experiences such as these is often linked to an increased risk of mental health issues such as posttraumatic stress disorder, suicidal ideation and behaviors, and depression (La Bash et al., 2008; Ramchand et al., 2010). Studies suggest a strong relationship between amount of combat exposure and severity of mental health issues (Dohrenwend et al., 2006). Therefore, more increased frequency or intensity of combat exposure may better predict negative psychological outcomes in veterans (Hoge & Castro, 2006). This is troublesome for OEF/OIF veterans in that the sheer length of these two wars have created unique circumstances in which multiple deployments of individual soldiers are very common (Riggs & Sermanian, 2012). Approximately one-third of the 2.3 million active-duty and reserve soldiers who have been deployed since the events of September 11, 2001 have served a minimum of two tours in combat zones (Johnson et al., 2007). Of that number, 70,000 have had three deployments, and 20,000 have had five deployments. Research indicates that military personnel who have been deployed three or four times are at a

significantly higher risk for mental health problems than those who have been deployed one or two times (Hoops, 2012).

These circumstances are creating more opportunities for service members to experience and be exposed to highly stressful situations, traumatic events, prolonged time away from their loved ones, posttraumatic stress symptoms, and service related injuries. Repeatedly facing these conditions and risk factors may demonstrate why recent combat veterans are experiencing more suicidal ideation and behavior than those experienced by earlier war veterans.

Combat Exposure and Suicidal Ideation. Many studies that have examined previous wars have identified suicidal risk factors among veterans and service members. Through these studies it has been shown that combat exposure has been identified as a risk factor for veteran suicidality (Bullman & Kang, 1996; Hendin & Haas, 1991; Keespies et al., 2011). In fact, studies show that “war zones and exposure to combat have been associated with suicide risk or suicide behaviors across a variety of locations, conflicts, and nationalities” (Bush, Skopp, McCann, & Luxton, 2011, p. 1215). When examining previous conflicts, a positive association between combat deployments and suicidality has been demonstrated among World War II, Korean, and Vietnam War veterans (Boehmer, Flanders, McGeehin, Boyle, & Barrett, 2004; Fontana & Rosenheck, 1994). According to Selby et al. (2010), combat exposure is believed to be a risk factor that has the most profound impact on suicidality.

The alarming increase in the suicide rate since the start of OEF and OIF suggests that exposure to combat is likely an important factor that contributes to suicidality in veterans. Combat exposure has been linked to not only completed suicides and suicide

attempts, but has also been shown to be associated with suicidal ideation among OEF/OIF military personnel and veterans (Bryan et al., 2015; Maguen, Metzler, Bosch, & Neylan, 2012; Thoresen & Mehlum, 2008). In fact, recent studies have found a stronger association between combat exposure and suicidal ideation than combat exposure and suicide attempts (Maguen et al., 2012; Sareen et al., 2007).

Jakupcak et al. (2011) studied suicidal ideation in 336 Iraq and Afghanistan War Veterans and found that combat exposure levels were significantly higher among those with suicidal ideation. Several other studies have found similar associations between general combat exposure and suicidal ideation (Pietrzak et al., 2010). Some studies have looked beyond general combat exposure and have looked to identify if particular types of combat exposure are more highly associated with suicidal ideation. Fontana, Rosenheck, and Brett (1992) found that failing to prevent death or injury during combat was associated with suicidality. In a recent study Maguen et al. (2012) examined 2,854 OIF soldiers who recently returned from a combat deployment and found that veterans who had higher killing experiences were twice as likely to report suicidal ideation, compared to those with lower or no killing experiences. This association remained even after accounting for PTSD, depression, and substance use disorder diagnoses.

Another study that examined the role of direct and indirect killing in combat found similar results (Kline et al., 2016). This study found that suicidal ideation “in war veterans approximately doubled with each unit increase in combat-related killing exposures” (p.5). This risk remained even after adjusting for psychological disorders and exposure to general combat. This study also found that killing exposure exacerbated the threat of other suicide risk factors, which increased the risk of suicidal ideation in

depressed soldiers by approximately 50% over that of depressed soldiers with no killing exposures. “Similarly, combat-related killing increased the probability of suicidal ideation associated with alcohol dependence by 195% and readjustment stress by 230%” (p. 6). Research shows that there are numerous ways in which combat exposure may contribute to suicidal ideation among OEF/OIF veterans, this includes: “witnessing violence against others and against one’s fellow service members, enacting violence against others, and experiencing multiple and/or service injuries in combat” (Selby et al., 2010, p. 302).

Evidence for a relationship between combat exposure and suicidal ideation has also been indirectly inferred through guilt (Bryan et al., 2013c). It is very common for combat veterans to return home having had experienced a traumatic event and now have feelings of guilt. Bryan, Morrow, Etienne, and Ray-Sannerud (2013b) suggest that guilt may be an important contributor to suicidality among military personnel and veterans. “Guilt is typically conceptualized as a controllable psychological state that is linked to a specific action or behavior, and often entails a sense of regret or remorse” (Bryan et al., 2013c, p. 41). Research on guilt and combat exposure has shown that combat-related guilt was the most significant predictor of suicidal ideation among Vietnam combat veterans (Hendin & Haas, 1991). Guilt was also significantly correlated with suicidal ideation in OEF/OIF combat veterans with combat-related PTSD (Bryan et al., 2013c). A recent study found among active duty Air Force personnel guilt was significantly associated with more severe suicidal ideation and most pronounced among those military personnel with direct combat exposure (Bryan et al., 2013c). This same study also found that hopelessness had a stronger relationship with suicidal ideation among veterans with

direct combat than veterans without direct combat exposure. These studies demonstrate not only how difficult combat exposure can be on veterans mental health, but also reveal how issues related to combat exposure can lead to suicidal ideation.

Similarly to the other studies that have shown an indirect association between combat exposure and suicidal ideation, Gradus, Street, Suvak, and Resick (2013) examined this relationship before and after accounting for mental health symptoms. In the initial analysis they found that combat exposure had a significant association with suicidal ideation. However, through further analysis it was found that the association between combat exposure and suicidal ideation was almost fully accounted for by mental health symptoms including PTSD, depression, and alcohol use among veterans. In fact, the association between combat exposure and suicidal ideation decreased by 86.8% among female veterans and 120.1% among male veterans. These results imply that OEF/OIF veterans who are experiencing suicidal ideation “are not necessarily those identified as having the most severe deployment experiences, but those who have the most severe mental health symptomatology following deployment experiences” (p. 585).

Although many studies have found a relationship between combat exposure and suicidal ideation, a few recent studies did not find a relationship (Bryan, Hernandez, Allison, & Clemans, 2013a; Guerra & Calhoun, 2011). In a study that examined two military personnel samples, combat exposure was neither directly nor indirectly related to suicide risk (Bryan et al., 2013a). Bryan et al. (2013a) suggest, “indirect evidence of the proposed link between combat exposure and suicide risk arise from studies investigating the link among posttraumatic stress disorder (PTSD) and suicide risk” (p. 65). This study, as well as several others suggests that PTSD may be a more significant predictor of

suicidal ideation than combat exposure. Although the relationship between combat exposure and PTSD is well established (Bull & Kang, 1994; Richardson, Frueh, & Acierno, 2010), the bulk of literature still indicates that whether direct or indirect, combat exposure is associated with suicidal ideation. Further research is needed to better understand and clarify the relationship between combat exposure and suicidal ideation, as well as the psychological impact of combat exposure (e.g., guilt, PTSD) and suicidal ideation.

Posttraumatic Stress Disorder

According to the Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5; American Psychiatric Association [APA], 2013), posttraumatic stress disorder (PTSD) is the direct or indirect exposure of a traumatic event that involves actual or threatened death, serious injury or sexual violation. This traumatic event can be experienced directly, witnessed in person as it occurs to others, learned that it occurred to a family member or close friend, or experienced repeated or extreme exposure to aversive details of the traumatic event. As a result of the traumatic event, an individual begins to experience behavioral and emotional symptoms that, according to the DSM-5, are divided into four symptom clusters: intrusion, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity (APA, 2013). Each of these four symptom clusters is characterized by several possible symptoms (APA, 2013). Intrusion symptoms include intrusive thoughts, recurrent dreams, flashbacks, or distress and marked psychological reactions to cues that resemble the traumatic event. Avoidance symptoms include efforts to avoid traumatic reminders (e.g., places, smells, people, activities, conversations) or efforts to avoid distressing thoughts, feelings, or memories

about the traumatic event. Symptoms of Negative alterations in cognitions and mood include the inability to recall an important aspect of the traumatic experience, negative beliefs or expectations about oneself, distorted cognitions that cause the individual to blame himself/herself, constant negative emotional state (e.g., anger, guilt fear, or shame), loss of general interest or participation in activities, incapability of experiencing positive emotions, or feeling distant from others. Alterations in arousal and reactivity symptoms include sleep difficulties, concentration problems, irritability and anger, hypervigilance, exaggerated startle, or self-destructive behavior.

Prevalence of Posttraumatic Stress Disorder. In the general population, the lifetime prevalence of PTSD has been estimated to be 5-6% for men and 10-11% for women (Breslau, Davis, Andreski, & Peterson, 1991; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Although PTSD affects both civilian and veteran populations, veterans are exposed to unique experiences and stressors, such as deployments and combat exposure, which can cause psychological issues resulting in symptoms of posttraumatic stress disorder (Hoge et al., 2004; Schlenger, Kulka, Fairbank, & Hough, 1992). Decades of research have shown that military personnel and veterans are both highly vulnerable and at risk groups for developing PTSD (Dohrenwend et al., 2006; Gates et al., 2012; Hoge, Auchterlonie, & Milliken, 2006; Hoge et al., 2004). In OEF/OIF veterans, studies have shown “that the incidence of posttraumatic stress disorder (PTSD) is 2 to 3 times higher among those exposed to combat compared with those who did not report significant combat exposure” (Thomas et al., 2010, p. 614).

PTSD is a serious issue among veterans and is now the most commonly diagnosed disorder among OEF/OIF veterans (Corson et al., 2013; Seal, Bertenthal,

Miner, Sen, & Marmar, 2007). Gates et al. (2012) estimated that approximately 226,000 individuals who served in OEF/OIF through October 31, 2007 currently have PTSD. This, however, only accounts for approximately the first 6 years of this recent war. The war has since continued for another 8 years. This indicates that PTSD is currently affecting an enormous amount of veterans. PTSD can have a substantial impact on not only the veteran, but also on their immediate family and society at large. Prevalence of PTSD among OEF/OIF veterans is estimated to range from as low as 4% to as high as 23% (Gates et al., 2012; Hoge et al., 2004; Hoge, Terhakopian, Castro, Messer, & Engel, 2007; Kang, 2009; Milliken, Auchterlonie, & Hoge, 2007; Morrow et al., 2014; Richardson, Frueh, & Acierno, 2010; Seal et al., 2009; Tanielian & Jaycox, 2008; Thomas et al., 2010). There is no clear answer to the actual prevalence of PTSD, as many different studies have resulted in varies rates.

In a recent study, Haskell and colleagues (2010) performed a cross-sectional data analysis on the electronic medical records of 1129 OEF/OIF veterans who received treatment between 2001 and 2006. Results revealed that 21% of women screened positive for PTSD and 33% of men screened positive for PTSD. These percentages are some of the highest prevalence rates found for both men and women in studies conducted on OEF/OIF veterans. This study suggests that the prevalence of PTSD may differ between male and female veterans. However, research suggesting higher rates of PTSD for a particular gender is mixed. While research may suggest that PTSD is more prevalent in civilian women (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), there is no clear research to indicate that there is a significant difference between male and female veterans. In fact, studies have found that men and women deployed during Operation

Enduring Freedom may have similar rates of PTSD (Rona, Fear, Hull, & Wessely, 2007; Seal et al., 2007). In a recent study of 2,341 U.S. military OEF/OIF veterans, King, Street, Gadus, Vogt, & Resick (2013) found that although men reported more frequent nightmares, emotional numbing and hypervigilance, and women reported more frequent concentration difficulties and distress from trauma reminders, both male and female veterans show overall similar profiles of PTSD symptoms and severity.

PTSD is a condition that can be, and is often chronic and quite debilitating (Bolton et al., 2004). Individuals with PTSD are more likely to experience job instability (Smith, Schnurr, & Rosenheck, 2005), marital and family problems (Jordan et al., 1992), poor physical health (Boscarino, 2004; O'Toole, Catts, Outram, Pierse, & Cockburn, 2009; Zayfert, Dums, Ferguson, & Hegel, 2002), decreased work productivity (Kessler & Frank, 1997), and have a high comorbidity with other psychiatric disorders (Breslau, 2001). Veterans with a history of PTSD also have “a higher risk of cardiovascular, respiratory, gastrointestinal, infectious, nervous system, and autoimmune disease and are more likely to experience anxiety, depression, substance abuse, and other psychiatric disorders” (Gates et al., 2012, p. 362). Additionally, many studies have shown a clear relationship between PTSD and suicidality in military personnel and veterans.

Posttraumatic Stress Disorder and Suicidal Ideation. Given the high prevalence of PTSD and the high rates of suicidality among veterans, decades of research has sought to better understand this link. Since suicidal ideation has been identified as one of the greatest predictors of suicide (Mann et al., 2008), studies have attempted to identify if PTSD or specific PTSD symptoms predict suicidal ideation. Many studies have now found PTSD to be associated with suicidal ideation (Calabrese, et al., 2011;

Guerra & Calhoun, 2011; Ilgen et al., 2010; Kessler et al., 1999; Kline et al., 2011; Lemaire & Graham, 2011; Pietrzak et al., 2010). Haney et al. (2012) concluded in an evidenced based synthesis that PTSD should be considered a risk factor for suicidal ideation, attempts and completion among military and veteran populations.

Two recent studies have found that OEF/OIF veterans reporting symptoms of a posttraumatic stress disorder diagnosis are at an increased risk of suicidal ideation. In a study that examined PTSD as a risk factor for suicidal ideation among 407 OEF/OIF veterans, it was found that veterans who screened positive for PTSD were more than four times as likely to have experienced suicidal ideation compared to non-PTSD veterans (Jakupcak et al., 2009). In a similar study that examined risk factors associated for suicidal ideation in 272 Iraq and Afghanistan veterans, it was found that veterans who endorsed suicidal ideation were more likely to screen positive for PTSD (Pietrzak et al., 2010).

PTSD ranges in severity and symptoms, which in order to be diagnosed with PTSD, as described above, an individual must meet full criteria. Much of the research on PTSD and suicidality has only focused on PTSD that meets full criteria. However, relatively little attention has been given to individuals with PTSD symptoms that fall short of meeting full criteria (i.e., subthreshold PTSD). Marshall (2001) examined individuals with PTSD symptoms, ranging from 0 to 4 symptoms, and found that subthreshold PTSD was associated with a significantly higher risk for current suicidal ideation. It was also found that current suicidal ideation increased linearly and significantly with each increasing number of subthreshold PTSD symptom. In other words, each additional symptom of PTSD resulted in greater suicidal ideation.

Similar research has studied specific PTSD symptoms and found that certain cluster symptoms are associated with suicidal ideation. Bell and Nye (2007) studied Vietnam combat veterans and assessed three PTSD symptom clusters described in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), that is, cluster B (re-experiencing symptoms), cluster C (avoidance/numbing), and cluster D (hyperarousal). The results of this study found that re-experiencing PTSD symptoms were significantly associated with suicidal ideation, but the other two PTSD symptom clusters were not. Another more recent study that examined these same PTSD symptom clusters in OEF/OIF veterans found that meeting criteria for the avoidance PTSD symptom cluster was significantly associated with suicidal ideation, with the re-experiencing PTSD symptom cluster trending towards significance (Lemaire & Graham, 2011). Different from both of the previous studies, Surís, Link-Malcom, and North (2011) found that hyperarousal symptom severity independently predicted suicidal ideation in veterans. These studies indicate that all DSM-IV PTSD symptom clusters have been shown to be independently associated with suicidal ideation.

While some studies have found PTSD or PTSD symptoms to be independently associated with suicidal ideation, other studies have shown that PTSD comorbidity may better explain this association (Campbell et al., 2007). Jakupcak et al. (2009) found that OEF/OIF veterans with PTSD and two comorbid disorders (i.e., depression, anxiety) were 5.7 times more likely to have suicidal ideation than veterans with PTSD only. Another study found that military personnel with PTSD and 2 or more comorbid disorders were 7 times more likely to report suicidal ideation as compared to those with only PTSD (Calabrese, 2011). Other studies suggest that the co-occurrence of PTSD with

other psychiatric conditions, mainly depression, contribute to veteran suicidality, but not PTSD by itself. Bryan and Corso (2011) found an association between PTSD symptoms and suicidal ideation; however, the relationship did not remain statistically significant when depression symptoms were simultaneously considered. This suggests that the relationship between PTSD and suicidal ideation was explained by depression. Several other studies have also failed to find a direct relationship between PTSD and suicidality when factoring in depression (Fordwood et al., 2007; Surís, Link-Malcom, & North, 2011; Zlotnick, Mattia, & Zimmerman, 2001). This suggests that:

Suicidal ideation emerges from heightened desire for suicide, which is more strongly associated with depressive symptoms, whereas traumatic experiences contribute to the capability for suicide, which simultaneously lowers an individual's fear of death and elevates his or her pain tolerance. Consistent with this conceptualization of suicide risk, depression would be expected to be significantly associated with suicidal ideation, whereas PTSD would be expected to be associated with suicidal intent (Bryan & Corson, 2011, p. 100).

However, there is still no consensus on the interrelations among PTSD, PTSD comorbidity, and suicidal ideation (Calabrese et al., 2011). Marshall et al. (2008) found a positive association between PTSD and suicidal ideation, even when controlling for other psychiatric disorder. Similarly, Guera and Calhoun (2011) found that PTSD was associated with suicidality among OEF/OIF veterans, but the increase of comorbid conditions among those with PTSD was not associated with suicidality.

In contrast to most studies, a few studies have found that PTSD was not associated with suicidal ideation (Corson et al., 2013). Despite these few studies, most

research suggests that there is indeed a relationship between PTSD and suicidal ideation. However, the broad range of research results and the different conceptualization of this relationship lead to a lack of clarity that suggests further research is needed to better understand the association between suicidal ideation and PTSD.

Demographic Factors and Suicidal Ideation

In the general population, there have been many studies that have demonstrated that certain demographic factors do increase the risk of suicidal ideation (Kessler et al., 2005; Klerman, 1987; Nock et al., 2008a; Pirkis, Burgess, & Dunt, 2000). When considering demographic factors, age, gender, and ethnicity have been found to be among those with the strongest relationship with suicidal ideation (Crosby, Gfroerer, Han, Ortega, & Parks, 2011; Fairweather-Schmidt, Anstey, Salim, & Rodgers, 2010). This relationship has been examined thoroughly with the general population; however, there have been far fewer studies that have sought to identify the relationship of suicidal ideation and demographic factors with military service members and veterans.

Identifying a relationship between veteran suicidal ideation and demographic factors (i.e., age, gender, ethnicity) has been difficult. Although some studies have identified demographic factors to be associated with suicidal ideation among veterans, some studies have found no relationship and other studies have only identified an association with a single demographic factor (Corson et al., 2013; Guerra & Calhoun, 2011; Lemaire & Graham, 2011; Pietrzak, Russo, Ling, & Southwick, 2011). To make matters even more difficult in the identification of these relationships, many of the studies that have looked at these associations within military and veteran populations have produced conflicting results. In fact, in three recent studies that examined the relationship

between demographic factors and suicidal ideation in OEF/OIF veterans, each study identified a relationship with only a single demographic variable that was different from the other two studies (Corson et al., 2013; Jakupcak et al., 2009; Lemaire & Graham, 2011).

Age. When examining demographic factors, age has been found to be one of the more significant predictors of suicidal ideation and suicidality in the general population (Crosby et al., 2011; Pirkis, Burgees, & Dunt, 2000). Crosby et al. (2011) found that the prevalence of suicidal ideation was highest among adults aged 18-29 years when compared to the overall U.S. adult population. Several other studies have found similar results indicating that young adults have the highest prevalence of having suicidal ideation (Borges et al., 2006; Crosby, Chelton, & Sacks, 1994; Kessler et al., 2005). The risk for this age range seems troublesome since those aged 20-29 represent the majority of returning OEF/OIF veterans who seek care within the VA system (Brenner et al., 2008). However, despite this risk, many studies among OEF/OIF veterans have indicated that there is no relationship between age and suicidal ideation (Corson et al., 2013; DeBeer et al., 2014; Guerra & Calhoun, 2011; Lemaire & Graham, 2011).

Although rare, a few studies have found some general relationships between age and suicidal ideation. A study that examined sociodemographic variables (gender, age, race/ethnicity, years of education, marital status) between veterans with and without suicidal ideation found the only significant variable to be age (Jakupcak et al., 2009). These results found that subjects in the suicidal ideation group were older than those in the no suicidal ideation group. Pietrzak, Russo, Ling, and Southwick (2011) found similar

results indicating that OEF/OIF veterans who have suicidal ideation were older than non-contemplators.

Although unrelated to a specific age, studies have shown that veterans are at the highest risk of suicidality within two years of being discharged from the military (Kapur et al., 2009). Studies on age and suicidality have primarily focused on suicide attempts. Therefore, we still do not fully understand the link between age and suicidal ideation. Further research is warranted to identify if veterans in a specific age range are at an increased risk of suicidal ideation.

Gender. In an analysis of years of research on the association of gender and suicidal ideation and behaviors, Canetto and Sakinofsky (1998) concluded that the gender paradox of suicidal behaviors is in fact a real phenomenon. The gender paradox is the finding that women experience higher rates of suicidal ideation than men and men are at higher risk of completed suicides than women. This phenomenon, which women report higher rates of suicidal ideation than men, has been shown in many different studies (Cleary, 2000; Stephenson, Pena-Shaff, & Quirk, 2006; Warheit, Zimmerman, Khoury, Vega, & Gil, 1996). These studies have concluded that cultural expectations had a large influence on gender and suicidality.

When considering gender, it has also been found that there are gender specific predictors for suicidal ideation and behaviors (Cutright & Fernquist, 2003; Edwards & Holden, 2003; Rich, Kirkpatrick-Smith, Bonner, & Jans, 1992; Stephenson, Pena-Shaff, & Quirk, 2006; Webster Rudmin, Ferrada-Noll, Skolbekken, 2003). For example, studies have shown that low self-esteem, antisocial behavior, family dysfunction, chronic recent alcohol consumption, and reports of sexual assault were all unique predictors of suicidal

ideation among women (Kelly, Lynch, Donovan, & Clark, 2001; Stephenson, Pena-Shaff, & Quirk, 2006; Wannan & Fombonne, 1998). In men, studies have found that chronic stress and being physically assaulted were unique predictors of suicidal ideation (Kelly, Lynch, Donovan, & Clark, 2001; Stephenson, Pena-Shaff, & Quirk, 2006).

Much like the general population, most studies with veterans demonstrate that males are at a higher risk of suicide completion than females, although female veterans attempt suicide more often (Allen, Cross, & Swanner, 2005; Zivin et al., 2007). However, there is very little evidence to suggest a relationship between gender and suicidal ideation among veterans. Most recent studies on suicidal ideation among veterans found no association between suicidal ideation and a specific gender (DeBeer et al., 2014; Guerra & Calhoun, 2011; Pietrzak et al., 2010). There have, however, been a few exceptions to this, which has only added to the further difficulty of identifying whether gender is associated with suicidal ideation in military and veteran populations. In several recent studies a relationship between suicidal ideation and gender was found; however, the results were conflicting. Lemaire and Graham (2011) found results that replicated the gender paradox. This study reviewed the records of 1740 OEF/OIF veterans from the Houston Veteran's Affairs Medical Center and found that individuals of female gender were associated with higher rates of suicidal ideation. Similarly, Kline et al. (2011) also found that women were at an elevated risk of suicidal ideation. In contrast, Bush, Skopp, McCann, and Luxton (2011) reviewed electronic screening measures of 5,302 military personnel, primarily Army (97.5%), and found that the male gender was associated with higher suicidal ideation.

In the previous mentioned studies, gender was only studied as a small aspect of the study. These studies focused on other risk factors and included gender as one of many variables measured. However, two studies were found that specifically addressed gender difference as predictors of suicidal ideation. In the first of these two studies, Langhinrichsen and colleagues (2011) examined risk factors from four ecological levels as they relate to suicidal ideation among military men and women. It was found that all four ecological levels of influence (individual, family, organization/workplace, and community) were significantly associated with suicidal ideation in both genders. These results indicate that both men and women veterans are at an equal risk of suicidal ideation. This study did, however, find a few gender specific risk factors. In military men, personal coping, personal well-being, dissatisfaction with military way of life, and community unity was related to suicidal ideation. In women, financial stress and workplace relationship satisfaction was related to suicidal ideation. In the second of these studies, researchers examined gender differences in predictors of suicidal ideation among homeless veterans. Results indicated that homeless female veterans are more likely to experience suicidal ideation than homeless male veterans. Much like previous studies, which either found no association between suicidal ideation and gender or conflicting results, these studies highlight the need for clarity. Further research is needed to identify if male or female veterans are at a greater risk of experiencing suicidal ideation.

Race/Ethnicity. There have been many studies that have looked at the relationship between demographic factors (i.e., gender, age) and suicidal ideation (Kessler, Borges, Walters, 1999; Spicer & Miller, 2000). However, there are very few studies that have examined the association between race and/or ethnicity and suicidal

ideation (Perez-Rodriguez, Baca-Garcia, Oquendo, & Blanco, 2008). Most of the literature on race/ethnicity and suicidality addresses suicide attempts/completions and fails to include suicidal ideation. However, among the studies that have included suicidal ideation, two have indicated that there is no significant relationship between ethnicity and suicidal ideation when compared to other ethnicities (Kessler, Borges, & Walters, 1999; Kessler et al., 2005).

Research on specific racial groups has found that the prevalence of suicidal ideation varies widely across these groups (Perez-Rodriguez et al., 2008). LeMaster, Beals, Novins, & Manson (2004) reported a high prevalence of suicidal ideation among American Indians. Similarly, studies on African Americans have reported high rates of suicidal ideation (Ialongo et al., 2002; Joe, Baser, Breeden, Neighbors, & Jackson, 2006). Research on Hispanics and suicidal ideation has found very conflicting results. While some studies have suggested that suicidality among Hispanics are less common than in other ethnic groups (Sorenson & Golding, 1988), other studies have found that rates of suicidal ideation are similar to White populations or even higher among some subgroups of Hispanics (Fortuna, Perez, Canino, Sribney, & Alegria, 2007; Oquendo, Lizardi, Greenwald, Weissman, & Mann, 2004). Additionally, while some studies have indicated that suicidal ideation rates are different across Hispanic subgroups (Oquendo et al., 2004; Ungemack & Guarnaccia, 1998), other studies have found no significant difference between Hispanic subgroups in rates of suicidal ideation (Fortuna et al., 2007).

While studies have addressed suicidal ideation within specific ethnicities and have established prevalence rates, identifying whether there is a statically significant difference across ethnicities is harder to find. Crosby et al. (2011) found that the

racial/ethnic group with the highest prevalence of suicidal ideation was non-Hispanic Whites. This study also found that the racial/ethnic group with the lowest prevalence for suicidal ideation was non-Hispanic Asians. During 2008-2009 in the United States, an estimated 6.0 million non-Hispanic White adults (3.9% of the adult non-Hispanic White population), 911,000 non-Hispanic Black adults (3.5% of the adult non-Hispanic Black population), 933,000 Hispanic adults (3.0% of the adult Hispanic population), and 208,000 non-Hispanic Asian adults (2.1% of the adult non-Hispanic Asian population) had suicidal ideation in the past year (Crosby et al., 2011). Although this study established racial/ethnic prevalence's of suicidal ideation, none of the racial/ethnic differences were found to be statistically significant.

A more recent study found that among emerging adults, racial and ethnic minorities experience greater risk of suicidal ideation than White individuals (Cheref, Lane, Polanco-Roman, Gadol, & Miranda, 2015). Specifically among racial minorities, American Indian's were found to have significantly higher rates of current suicidal ideation and suicidality than other ethnicities (Goldston et al., 2008; Novins, Beals, Roberts, & Manson, 1999; Yoder, Whitbeck, Hoyt, & LaFromboise, 2006). Other studies have found that suicidal ideation is more prevalent among individuals of more than one race/ethnicity (Olvera, 2001; Wong, Sugimoto-Matsuda, Change, & Hishinuma, 2012).

When evaluating race/ethnicity among OEF/OIF veterans, many studies have found no relationship between race and/or ethnicity and suicidal ideation (DeBeer et al., 2014; Guerra & Calhoun, 2011; Jakupcak et al., 2009; Lemaire & Graham, 2011; Pietrzak et al., 2010). However, Corson et al. (2013) found that the only demographic variable significant across models was race/ethnicity. Similar to some general

populations studies (Crosby et al., 2011), this study demonstrated that suicidal ideation was less likely among non-Hispanic White veterans compared to other ethnicities. Corson et al. (2013) believed that “this finding may reflect an emergence of post-deployment distress that varies by ethnicity similar to that documented among Vietnam and Gulf War veterans” (p. 296). Research on the association between race and/or ethnicity and suicidal ideation among veterans is still inconclusive, further research is necessary in identifying whether certain veteran ethnic or racial groups are at an increased risk of suicidal ideation.

Purpose of the Study

Suicidal ideation and suicide rates have been increasing in military and veteran populations since the start of Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF; Lorge, 2008; Selby et al., 2010). It is vital that preventative measures be taken to address the epidemic of suicides that has occurred since the onset of OEF/OIF in 2001. Since suicidal ideation has been identified as the strongest predictor of a suicide attempt, it is, therefore, important that we seek to better understand its impact on U.S. veterans. Additionally, it is imperative that research identifies the strongest predictors of suicidal ideation. This study did just that by examining different risk factors that research has already shown to be linked to suicidal ideation. Research has demonstrated that posttraumatic stress disorder, combat exposure, and several different demographic factors (i.e., gender, race/ethnicity, age) are associated with suicidal ideation. However, with studies producing mixed results, further research is needed. This study provides further empirical evidence of these factors and its association with suicidal ideation. Additionally, this study examined premilitary suicidal ideation, a variable with little

empirical data, to determine if there is an association between premilitary suicidal ideation and recent suicidal ideation in veterans. Furthermore, this study evaluated which of these risk factors is shown to be the strongest predictor of recent suicidal ideation in OEF/OIF era veterans.

APPENDIX B

Tables

Table 1

Coding used for Dependent and Independent Variables

Variable	Coding
Dependent Variable	
Recent Suicidal Ideation	Range: 3-12; higher score = greater severity
Independent Variables	
Gender	Male = 0, Female = 1
Race	White = 0, Nonwhite = 1
Posttraumatic Stress Disorder	Range: 17 to 85; higher score = greater severity
Combat Exposure	Range: 0 to 41; higher score = greater severity
Premilitary Suicidal Ideation	Range: 3-12; higher score = greater severity

Table 2

Descriptive Statistics for Demographics

Demographics	Percent	Frequency
Race		
Black/African American	3.6%	12
White/Caucasian	89.4%	294
Native/American Indian/Alaskan Native	2.1%	7
Asian	1.5%	5
Native Hawaiian/ Other Pacific Islander	0.3%	1
Other	3%	10
Gender		
Male	80%	263
Female	20%	66
Age		
18-24	2.1%	7
25-34	50.8%	167
35-44	31.3%	103
45-54	13.4%	44
55-64	1.5%	5
65-74	0.9%	3
75-older	0%	0
Ethnicity		
Hispanic, Latino, or Spanish Origin	10.6%	35

Not of Hispanic, Latino, or Spanish Origin	88.1%	290
Education		
High School/GED	7.0%	23
Some College	34.3%	113
Technical/Trade College	6.7%	22
Associates Degree	13.4%	44
Bachelor's Degree	15.5%	51
Some Graduate School	8.2%	27
Graduate Degree	14.9%	49
Branch of the Military		
Army	53.2%	175
Navy	5.5%	18
Air Force	16.7%	55
Marine Corps	15.5%	51
Coast Guard	0%	0
National Guard	9.1%	30
Marital Status		
Single	18.2%	60
Married	62.3%	205
Divorced	17%	56
Separated	2.1%	7
Widow	0.3%	1

Table 3

Descriptive Statistics for Recent Suicidal Ideation, Premilitary Suicidal Ideation, PTSD, and Combat Exposure

Variable	Percent	Frequency	Mean	SD
Recent Suicidal Ideation			3.55	2.99
Yes	68%	225		
No	32%	104		
Premilitary Suicidal Ideation			2.30	2.94
Yes	46%	150		
No	54%	179		
PTSD			43.80	17.116
Combat Exposure			15.98	11.056

Table 4

Bivariate Correlations Between Recent SI, PTSD, Combat Exposure, Premilitary SI, Gender, and Race

	Recent SI	PTSD	Combat Exposure	Premilitary SI	Gender	Race
Recent SI	1	.626**	.157**	.565**	.125*	.131*
PTSD	.626**	1	.389**	.359**	.045	.025
Combat Exposure	.157**	.389**	1	.091	-.297**	-.044
Premilitary SI	.565**	.359**	.091	1	.137*	.022
Gender	.125*	.045	-.297**	.137*	1	.073
Race	.131*	.025	-.044	.022	.073	1

Note. ** $p < .01$, * $p < .05$

Table 5

Hierarchical Multiple Regression Model Summary of Recent SI and Demographics, PTSD, Combat Exposure, and Premilitary SI

Step	R2	F	Sig.	ΔR2	ΔF
1	.031	5.135	.006	.031	5.135
2	.417	57.900	.000	.386	107.317
3	.542	76.498	.000	.125	88.380

Table 6

Hierarchical Regression Analysis of Recent SI and Demographics, PTSD, Combat Exposure, and Premilitary SI

Variable	β	t	Sig. (p)
Step 1			
Race	.122	2.232	.026
Gender	.116	2.129	.034
Step 2			
Race	.106	2.491	.013
Gender	.068	1.499	.135
Combat Exposure	-.070	-1.433	.153
Posttraumatic Stress Disorder	.648	13.818	.000
Step 3			
Race	.105	2.772	.006
Gender	.023	.571	.569
Combat Exposure	-.065	-1.492	.137
Posttraumatic Stress Disorder	.511	11.580	.000
Premilitary Suicidal Ideation	.382	9.401	.000

APPENDIX C

Informed Consent Agreement

You are being invited to participate in a research study that is seeking to identify what factors lead veterans to be at the highest risk of suicidal ideation among OEF/OIF era military veterans. This study is being conducted by Alex Alvarez, M.S., under the direction of Al Carlozzi, Ed.D., from the School of Applied Health and Educational Psychology at Oklahoma State University. Mr. Alvarez is currently a graduate student in the Counseling Psychology Ph.D. program at Oklahoma State University, and data gathered in this study will be used in his doctoral dissertation. The study will provide information that may ultimately be used to better understand suicidal ideation risk factors in veterans and may lead to improved screening measures at the earliest stages of military enlistment.

Participation involves completing three measures regarding combat exposure, suicidal ideation, and posttraumatic stress disorder, as well as a demographic questionnaire. The survey will take approximately 15 minutes to complete. Participation is voluntary and there are no direct incentives for participating in the study. You may choose not to participate or discontinue participation at any time without consequence.

Although absolute anonymity cannot be ensured, procedures will be taken to protect confidentiality. Due to the personal nature of some of the questions and to encourage honest responses, you will not be asked to provide your name or facility affiliation. Computer IP addresses will not be collected, and any demographic information (such as your age, ethnicity, or level of education) will be presented in summary form when findings are reported. Please note that Qualtrics has specific privacy policies of its own. You should be aware that this web service may be able to link your responses to your ID in ways that are not bound by this consent form and the data confidentiality procedures used in this study, and if you have concerns you should consult these services directly. Qualtrics' privacy statement is provided at: <http://qualtrics.com/privacy-statement>.

Your individual responses will not be provided to your facility. Please note that the researcher is not affiliated with your facility in any way. The data will be password-protected, and only the researcher and individuals responsible for research oversight will have access to the records. Data collected in the study will be destroyed after 5 years.

Completing the survey may lead you to recalling some traumatic past experiences. Otherwise, there are no risks involved in participating in the study in excess of those you would experience in everyday life.

Your consent to participate is granted by selecting that you are over 18 years old, and by acknowledging that you have been fully informed about the procedures listed here, and you are aware of what you will be asked to do and the benefits and risks of participation. If you have any questions or concerns about this study or feel that you may be in need of

mental health services, you may contact the researcher. If you would like a copy of the results of this study, please contact the researcher and arrangements will be made.

Researcher: Alex Alvarez, M.S.
School of Applied Health and Educational Psychology
Oklahoma State University
434 Willard Hall
Stillwater, OK 74078
Email: Alex.Alvarez@okstate.edu

Advisor: Al Carlozzi, Ed.D.
School of Applied Health and Educational Psychology
Oklahoma State University
Main Hall 2415
700 North Greenwood Avenue
Tulsa, OK 74106
Email: Al.Carlozzi@okstate.edu

If you have questions about your rights as a research volunteer, you may contact the Oklahoma State University Institutional Review Board (IRB) Chair.

IRB Chair: Hugh Crethar, Ph.D.
223 Scott Hall
Oklahoma State University
Stillwater, OK 74078,
Phone: (405) 744-3377
Email: irb@okstate.edu

Thank you for your time and participation. If you would like to participate in this study, please select the link provided below:

APPENDIX D

Demographic Questionnaire

Directions: Please provide the following information:

1. Please select the category that includes your age.
 - 18-24
 - 25-34
 - 35-44
 - 45-54
 - 55-64
 - 65-74
 - 75-older

2. What is your sex/gender?
 - Male
 - Female
 - Transgender

3. Which of the following best describes your current relationship status?
 - Single
 - Married
 - Divorced
 - Separated
 - Widowed

4. What best describes your race?
 - Black/African American
 - White/Caucasian
 - Native/American Indian/Alaska Native
 - Asian
 - Native Hawaiian/Other Pacific Islander
 - Other

5. What is your ethnicity?
 - Hispanic, Latino, or Spanish Origin
 - Not of Hispanic, Latino, or Spanish Origin

6. What is your highest level of education?
 - High School/GED
 - Some College

- Technical/Trade College
- Associate's Degree
- Bachelor's Degree
- Some Graduate School
- Graduate Degree

7. In what branch of the military did you serve?

- Army
- Navy
- Air Force
- Marines
- Coast Guard
- National Guard

8. How many years did you serve in the military? _____

9. At what age did you join the military? _____

10. How many deployments have you served?

- 1
- 2
- 3
- 4
- 5
- 6 or more

11. Did you serve in the U.S. Military after September 11, 2001?

- Yes
- No

APPENDIX E

Premilitary Suicidal Ideation and Recent Suicidal Ideation Questionnaire

Instructions: Please check the number beside the statement or phrase that best applies to you. When answering the next three questions, please only consider **In the past year:**

- 1. Have you ever thought about or attempted to kill yourself?**
 0. Never
 1. It was just a brief passing thought
 2. I thought of a plan of how I would kill myself
 3. I intended to kill myself
 4. I have attempted to kill myself

- 2. How often do you have thoughts of killing yourself or not wanting to live?**
 0. Never
 1. Rarely (1 time)
 2. Sometimes (2 times)
 3. Often (3-4 times)
 4. Very Often (5 or more times)

- 3. When having thoughts of killing yourself or not wanting to live, how long do those thoughts generally last?**
 0. I do not have these thoughts
 1. Brief fleeting periods
 2. Short time periods
 3. Moderate time periods
 4. Longer continuous periods

Instructions: When answering the next three questions, please only consider **Before you joined the military:**

- 4. Had you ever thought about or attempted to kill yourself?**
 0. Never
 1. It was just a brief passing thought
 2. I thought of a plan of how I would kill myself
 3. I intended to kill myself
 4. I have attempted to kill myself

- 5. How often did you have thoughts of killing yourself or not wanting to live?**
 0. Never
 1. Rarely (1 time)
 2. Sometimes (2 times)
 3. Often (3-4 times)

4. Very Often (5 or more times)

6. When having thoughts of killing yourself or not wanting to live or wanting, how long did those thoughts generally last?

0. I did not have those thoughts

1. Brief fleeting periods

2. Short time periods

3. Moderate time periods

4. Longer continuous periods

APPENDIX F

Combat Exposure Scale

Please identify the number that best describes your experience.

1. Did you ever go on combat patrols or have other dangerous duty?

1	2	3	4	5
No	1-3X	4-12X	13-50X	51+times

2. Were you ever under enemy fire?

1	2	3	4	5
Never	<1 month	1-3 months	4-6 months	7 mos or more

3. Were you ever surrounded by the enemy?

1	2	3	4	5
No	1-2X	3-12X	13-25X	26+times

4. What percentage of the soldiers in your unit were killed (KIA), wounded or missing in action (MIA)?

1	2	3	4	5
None	1-25%	26-50%	51-75%	76% or more

5. How often did you fire rounds at the enemy?

1	2	3	4	5
Never	1-2X	3-12X	13-50X	51 or more

6. How often did you see someone hit by incoming or outgoing rounds?

1	2	3	4	5
Never	1-2X	3-12X	13-50X	51 or more

7. How often were you in danger of being injured or killed (i.e., being pinned down, overrun, ambushed, near miss, etc.)?

1	2	3	4	5
Never	1-2X	3-12X	13-50X	51 or more

APPENDIX G

PTSD Checklist-Military Version (PCL-M)

Instructions: Below is a list of problems and complaints that veterans sometimes have in response to a stressful military experience. Please read each one carefully, identifying the number that best describes your experiences in the past 30 days.

1. Repeated, disturbing memories, thoughts, or images of a stressful military experience?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

2. Repeated disturbing dreams of a stressful military experience?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

3. Suddenly acting or feeling as if a stressful military experience were happening again (as if you were reliving it)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

4. Feeling very upset when something reminded you of a stressful military experience?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

5. Having physical reactions (e.g., heart pounding, trouble breathing, or sweating) when something reminded you of a stressful military experience?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

6. Avoid thinking about or talking about a stressful military experience or avoid having feelings related to it?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

7. Avoid activities or talking about a stressful military experience or avoid having feelings related to it?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

8. Trouble remembering important parts of a stressful military experience?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

9. Loss of interest in things that you used to enjoy?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

10. Feeling distant or cut off from other people?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

11. Feeling emotionally numb or being unable to have loving feelings for those close to you?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

12. Feeling as if your future will somehow be cut short?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

13. Trouble falling or staying asleep?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

14. Feeling irritable or having angry outbursts?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

15. Having difficulty concentrating?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

16. Being “super alert” or watchful on guard?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

17. Feeling jumpy or easily startled?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

APPENDIX H

Debriefing Statement

Thank you for participating in this research. In the study, the researcher studied demographics, combat exposure, premilitary suicidal ideation, and posttraumatic stress as it relates to current suicidal ideation. If you would like a copy of the results of the study, please contact the researcher and arrangements will be made.

If you have recently or are currently having suicidal thoughts or experiencing mental health issues, please either call the following number or contact your local Veteran Affairs Medical Center for help.

National Suicide Prevention Lifeline:

1-800-273-TALK (8255) press 2 for veterans

To locate local VA resources, visit:

www.maketheconnection.net (click on Resource Locator at bottom of the page)

Researcher: Alex Alvarez, M.S.
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Email: Alex.Alvarez@okstate.edu

Advisor: Al Carlozzi, Ed.D.
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700 North Greenwood Avenue
Tulsa, OK 74106
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If you have questions about your rights as a research volunteer, you may contact the Oklahoma State University Institutional Review Board (IRB) Chair.

IRB Chair: Hugh Crethar, Ph.D.
223 Scott Hall
Oklahoma State University
Stillwater, OK 74078,
Phone: (405) 744-3377
Email: irb@okstate.edu

THANK YOU FOR YOUR SERVICE TO THIS COUNTRY.

APPENDIX I

IRB Approval

Oklahoma State University Institutional Review Board

Date: Thursday, March 10, 2016
IRB Application No ED1643
Proposal Title: Premilitary suicidal ideation, combat exposure, and posttraumatic stress disorder as predictors of recent suicidal ideation among OEF/OIF era veterans
Reviewed and Processed as: Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 3/9/2019

Principal Investigator(s):
Alexander Alvarez AI Cariozzi
Stillwater, OK 74078 MH 2415, 700 N. Greenwood
Tulsa, OK 74106

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.


- The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms
2. Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of the research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Scott Hall (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,



Hugh Crethar, Chair
Institutional Review Board

VITA

Alexander S. Alvarez

Candidate for the Degree of

Doctor of Philosophy

Dissertation: PREMILITARY SUICIDAL IDEATION, COMBAT EXPOSURE, AND POSTTRAUMATIC STRESS DISORDER AS PREDICTORS OF RECENT SUICIDAL IDEATION IN OEF/OIF VETERANS

Major Field: Counseling Psychology

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Counseling Psychology at Oklahoma State University, Stillwater, Oklahoma in July 2017.

Completed the requirements for the Master of Science in Mental Health Counseling at Oklahoma State University, Stillwater, Oklahoma in May 2013.

Completed the requirements for the Bachelor of Science in Psychology at University of Florida, Gainesville, Florida in December 2008.

Experience:

- Predoctoral Psychology Resident, VA Salt Lake City Health Care System, Salt Lake City, Utah, 2016 – Present
- Doctoral Practicum Student, Veteran Affairs Behavioral Medicine Outpatient Clinic, Tulsa, Oklahoma, 2014 – 2016
- Assistant Director, Oklahoma State University-Tulsa Counseling Center, Tulsa, Oklahoma, 2014 – 2016
- Doctoral Supervisor and Graduate Assistant, Oklahoma State University, Tulsa, Oklahoma, 2014 – 2016
- Clinical Therapist, The Center for Therapeutic Interventions, Tulsa, Oklahoma, 2013 – 2014
- Masters Intern Therapist, Counseling and Recovery Services of Oklahoma, Tulsa, Oklahoma, 2011 – 2012

Professional Memberships:

- American Psychological Association
- Southwestern Psychological Association