

Gender Differences in Military Psychiatric Inpatients Admitted for Suicide Ideation

by

Brianne J. George

Master's Thesis submitted to the faculty of the
Department of Medical and Clinical Psychology
Graduate Program at the
Uniformed Services University
in partial fulfillment of the requirements for the
degree of Masters of Science
2011

ACKNOWLEDGEMENTS

There are a number of individuals who have contributed to this research. While they deserve more credit and thanks than I can possibly articulate, I would like to attempt to extend my appreciation to as many as I can.

First, to my family for believing I could reach beyond my wildest dreams and for being an amazing source of encouragement during this journey. To my sister, we forge our own paths, but I still follow in your footsteps. You have inspired me more than I can ever say here. I thank each of you for your military service and am proud to be listed among your ranks.

To my husband, Nathan, and my children, Elijah and Emily, thank you for all the many sacrifices you've made to support me in this journey. Each of you is a joy to me and your love is the most treasured gift I could ask for. I love you all!

To the members of my cohort, you have all impacted my success in so many ways. Each of you is so inspiring and bring such gifts to the learning process we've shared for so long. Thanks to each of you for your advice, support, and friendship. I wish you all the best and look forward to sharing our careers in the future.

To Cara Olsen, Ph.D., your guidance and assistance in my statistical needs is treasured. Thank you for making the process less painful than I worried it would be. The open door and compassion was an additional help in times of confusion or frustration.

To Michael Feuerstein, Ph.D., MPH and Jeffrey Goodie, Ph.D., thank you for your patience and thoughtful input during this process. I know what a time consuming effort agreeing to be on a thesis committee is and your support encourages me to finish strong. Each of your suggestions improved the final product, and I thank you for that.

To the lab members and staff of the Suicide Behavior and Prevention Laboratory, I owe you more thanks than I can possibly convey here. You offered wonderful advice and suggestions throughout this process and improved the final product far beyond my expectations without complaint -- thank you! You are the spearheads of the battle against suicide!

To the staff of Walter Reed Army Center, especially to the Department of Psychiatry leadership and Mr. John Garza at the Essentris/Clinical Informatics Office, your graciousness to all of our many questions, needs, and concerns is greatly appreciated. This project would not have been possible without your training and support.

Last, but not least of all, to my advisor, Marjan Holloway, Ph.D. Thank you for your support, encouragement and advocacy over the last three years. Your support for my well-being, personal and professional growth, and compassion go far beyond the scope of your duties. I hope to serve

the military as meaningfully as you already have. I look forward to the next steps of our journey together and wish you the best in the many projects you are undertaking.

Finally, to the men and women of the United States Armed Forces. For each of these brave men and women, this research is in honor of your service and sacrifice. It is my hope that by identifying better ways to prevent suicide and to reach out to those in need, we may reduce the number of patriots lost too soon.

APPROVAL SHEET

Title of Thesis: Gender Differences in Military Psychiatric Inpatients Admitted for Suicide Ideation

Name of Candidate: Brianne J. George
Department of Medical and Clinical Psychology
Master of Science
2011

Thesis and Abstract Approved:

Marjan G. Holloway, Ph.D.
Committee Chairperson

Date

Michael Feuerstein, Ph.D., MPH
Committee Member

Date

Jeffrey Goodie, Ph.D., ABPP
Committee Member

Date

The author hereby certifies that the use of any copyrighted material in the thesis manuscript entitled:

“GENDER DIFFERENCES IN MILITARY PSYCHIATRIC INPATIENTS ADMITTED FOR SUICIDE IDEATION”

beyond brief excerpts is with the permission of the copyright owner, and will save and hold harmless the Uniformed Services University from any damage which may arise from such copyright violations.

The opinion expressed in this Master Thesis reflects the view of the author and committee and do not reflect the opinion of the Department of Defense or the United States Government.

Brianne J. George
Department of Medical and Clinical Psychology
Uniformed Services University

ABSTRACT

Title of Thesis: GENDER DIFFERENCES IN MILITARY PSYCHIATRIC
INPATIENTS ADMITTED FOR SUICIDE IDEATION

Author: Brianne J. George

Thesis Director: Marjan G. Holloway, Ph.D.

Background: Suicide ideation (SI) is a risk factor for suicide and may manifest differently in men and women. SI can be accompanied with varying levels of intent to die. Most often, the accepted clinical practice for the management of individuals with SI and imminent intent to die is psychiatric hospitalization. Yet, there is minimal research on the characteristics of this patient population and potential gender differences, particularly in the U.S. Military, despite the recent increase in this problem with the active duty community.

Purpose: This investigation was designed to address three objectives: (1) describe the demographic, military service, and psychiatric history variables in a sample of active-duty Service Members hospitalized for SI; (2) examine gender differences across a number of available data categories; and (3) identify mediators of the relationship between gender and length of hospitalization.

Method: A retrospective chart review was conducted. Electronic medical records (EMR) of active duty military, reserve, and National Guard members ($N = 410$) psychiatrically hospitalized for SI at a military hospital between 2001 and 2006 were reviewed. Data on demographic, military service and psychiatric characteristics were extracted from the EMR by trained coders.

Results: The sample was comprised of 305 men (74.4%) and 105 women (25.6%) from all military branches with an average age of 27 ($SD = 9.07$; range 17-60). The most commonly

documented primary psychiatric diagnostic category was mood disorders with almost one-third diagnosed with at least one other psychiatric category as the primary diagnosis. Prior suicide attempts were documented for up to 35% of the sample with the average number of attempts equaling 1.7 ($SD = 1.12$, range = 1-6). The length of psychiatric hospitalization averaged approximately 8 days. Company grade officers (O1-O3) were significantly more likely to be women. Men and women did not differ on the types of Axis I psychiatric categories and diagnoses. Men compared with women had a significantly higher number of Axis I diagnoses, but were significantly less likely to have a prior suicide attempt. In comparison to men, women were significantly more likely to be diagnosed with Borderline Personality Disorder, to have documented histories of trauma, prior suicide attempts, and/or psychiatric treatment. Moreover, women were significantly more likely than men to have medical documentation of adjustment related issues pertaining to their military service whereas men were significantly more likely to report end of military service stressors. Both genders were hospitalized for the same length of time and were returned to duty with the same frequency. Absence of prior psychiatric hospitalization was related to a shorter length of psychiatric hospitalization for both genders. Type of psychiatric diagnosis or history of prior suicide attempt were not related to psychiatric hospitalization length of stay.

Conclusions: Women endorsed a more severe psychiatric profile history with regards to trauma, prior psychiatric hospitalization and previous suicide attempts; however, there were no differences in the length of their hospitalization compared with their male counterparts. Future research and clinical attention must be paid to the gender-specific treatment needs of military personnel hospitalized for suicide ideation.

Table of Contents

Title Page	1
Acknowledgements	2
Approval	3
Copyright Statement	5
Abstract	6
Table of Contents	9
Introduction	13
Epidemiological Findings on Suicide Ideation	14
Risk Factors for Suicide Ideation	15
Suicide Ideation and Gender Differences	19
Purpose and Significance	21
Hypotheses	21
Method	23
Sample	23
Human Subjects Protection	23
Procedure	24
Measures	25
Research Design	26
Results	26
Discussion	34
Limitations	40

Strengths	40
Recommendations and Implications	41
Tables	43
Figures	54
References	57

List of Tables

Table 1. Sample Demographics and Military Service Characteristics of Psychiatric Inpatients Hospitalized for Suicide Ideation (SI)	41
Table 2. Psychiatric Characteristics of Inpatients Hospitalized for SI	43
Table 3. Gender Differences on Demographic and Military Service Characteristics of Psychiatric Inpatients Hospitalized for SI	45
Table 4. Gender Differences on Psychiatric Characteristics of Inpatients Hospitalized for SI	47
Table 5. Factors Related to Length of Hospitalization in a Sample of Psychiatrically Hospitalized Men with SI	49
Table 6. Factors Related to Length of Hospitalization in a Sample of Psychiatrically Hospitalized Women with SI	50
Table 7. Factors Related to Length of Hospitalization in a Sample of Psychiatrically Hospitalized Men with Suicide Ideation	51
Table 8. Factors Related to Length of Hospitalization in a Sample of Psychiatrically Hospitalized Women with Suicide Ideation	52
Table 9. Statistically Relevant Clinical Factors in terms of Gender Differences in a Sample Psychiatrically Hospitalized for Suicide Ideation	53

List of Figures

- Fig. 1. Mediatonal Analysis of Relationship Between Gender and Length Hospitalization **54**
- Fig. 2. Psychiatric Diagnostic Categories in a Sample Psychiatrically Hospitalized with SI **55**
- Fig. 3. Axis II-related Diagnoses Noted in a Sample Psychiatrically Hospitalized for SI **56**

Gender Differences in Military Psychiatric Inpatients Admitted for Suicide Ideation

Suicide is a preventable public health problem that annually claims the lives of nearly 35,000 (11.5 per 100,000) Americans (Centers for Disease Control, 2011). In 2007, an estimated 27,269 (78.8%) men and 7,329 (21.2%) women died by suicide (WISQARS, 2011). Suicide is the 4th leading cause of death among individuals between the ages of 18 and 45 years old (WISQARS, 2010) and the 2nd leading cause of death among military personnel who are typically within this age group (Ritchie, Keppler, & Rothberg, 2003).

Suicide ideation (SI) is one of the most clinically relevant and robust risk factors for suicide-related behaviors, including eventual death by suicide (Beck, Brown, Steer, Dahlsgaard, & Grisham, 1999; Beck, Covacs, & Weissman, 1979; Maris, Berman, & Silverman, 2000). In suicide nomenclature, SI is defined as thoughts of suicide that may have: (1) no suicidal intent, (2) an undetermined degree of suicidal intent, or (3) some suicidal intent (Silverman et al., 2007). A suicidal individual may experience causal, transient, passive, active, and/or persistent cases of ideation. One can reasonably assume that thoughts about suicide serve as a precursor to suicide-related behaviors. Yet, not every person who experiences SI moves in a predictable trajectory that leads to future occurrence(s) of suicide-related behaviors. More specifically, some individuals who experience SI may have had these thoughts in a persistent and chronic manner, yet displayed no intent and/or plan to die by suicide. However, for some, SI may serve as an activating internal cognitive event that precipitates a subsequent suicide attempt or death by suicide.

Epidemiology of Suicide Ideation

In general, the suicide epidemiology literature has paid closer attention to suicide-related behaviors (i.e., suicide and suicide attempts). However, several studies have addressed the prevalence of SI and the conditional probability of suicide attempts following SI. In the United

States (U.S.), approximately 8.3 million adults report having serious thoughts of suicide (SAMHSA, 2009). Kessler and colleagues (2006) have reported a 12-month SI prevalence of 2.8% (SE = 0.3) for the U.S. based on the National Comorbidity Survey. Nock and colleagues (2008) have reported a SI life-time prevalence of 9.2% (SE = 0.1) based on the World Health Organization's multi-national survey of suicide behaviors. Both studies address the conditional probability of suicide attempts among individuals with SI, with or without a suicide plan. For those individuals with SI and no suicide plan, the conditional probability of a later suicide attempt has been estimated as 7.3% (SE = 2.8) for the U.S. (Kessler et al., 2006) and as 15.4% (SE = 0.6) globally (Nock et al., 2008). For those individuals with SI and a suicide plan, the conditional probability of a later suicide attempt has been estimated as 32.8% (SE = 7.9) for the U.S. (Kessler et al., 2006) and as 56% (SE = 1.2) globally (Nock et al., 2008). Therefore, those individuals with SI and a suicide plan are significantly more likely to make a future suicide attempt compared to their counterparts without a suicide plan.

Sampson and Kessler (2009) found that severe anxiety (e.g., Post-Traumatic Stress Disorder [PTSD]) and poor impulse control (e.g., substance abuse) were predictors of subsequent suicide attempt in individuals with SI. Hopelessness was a predictor of eventual suicide in a 10-year study of patients who had been initially hospitalized for SI (Beck, Steer, Kovacs, & Garrison, 1985). The study was replicated in an outpatient setting with similar results (Beck, Brown, Berchick, Stewart, & Steer, 2006), highlighting the role of hopelessness in suicide. Socio-demographic predictors of first onset SI and first onset attempt shared only one common factor – i.e., individuals who were no longer in paid employment with SI were predicted by living alone (without a partner or recently separated) and having a significant decrease in household income (Borges et al., 2008).

Risk Factors for Suicide Ideation

The onset of SI is impacted by a number of biopsychosocial variables. Stressors related to one's interpersonal relationships, academic and/or occupational functioning, childhood adversity, psychological and physical health, and financial security may individually or cumulatively contribute to the onset of SI. A number of demographic and psychiatric risk factors have been identified (Nock et al., 2008) for the first onset of SI. Women (OR = 1.4; CI 95% [1.3-1.4]) and adults between the ages of 18 and 34 years old (OR = 9.5, CI 95% [8.1-11.0]) are recognized to be at a higher risk for first onset of SI. Additionally, psychiatric factors including classifications of anxiety, mood, or substance-related disorders convey a greater risk for the first onset of SI (ten Have et al., 2009). Yet, these disorders are also associated with subsequent episodes of SI and interact with each other to increase SI risk. For instance, a diagnosis of Major Depressive Disorder predicts a greater risk of SI among adults who also have a documented comorbid psychiatric condition such as anxiety, social phobias, or panic disorder (Corna et al., 2010; Legleye, Beck, Peretti-Watel, Chau, & Firdion, 2010).

Moreover, substance-related disorders appear to serve as a risk factor for SI as well. In a study examining the role of drug abuse in the development of SI in twins, cannabis dependent members of the dyad had increased odds (2.89) of SI (Lynskey et al., 2004). Kessler and colleagues (1999) found a 4.6 times greater risk for SI among those with alcohol dependence. Personality disorders and traits, such as a perceived need for perfectionism or Borderline Personality Disorder also appear to be risk indicators for SI (Paris, 2002). Individuals with at least one incident of self injurious behavior report SI more frequently than those without such behaviors (Whitlock, Eckenrode, & Silverman, 2006).

Interpersonal loss appears to play a significant role in SI. Individuals whose close friends or relatives have attempted or died by suicide are at an increased risk for SI (Lee et al., 2010). The ending of important relationships or events in life can confer a greater risk for SI – divorce and unemployment have been significantly associated with subsequent SI (Lee et al., 2010). Other than losing one’s job, significant professional difficulties may also contribute to SI. Professional burnout, low perceived quality of life, and increased depressive symptoms have also been identified as predictive of SI, as noted in a sample of U.S. medical school students (Dyrbye et al., 2008).

Childhood adversity also serves as a risk factor for SI. Individuals with a history of childhood emotional, physical, and/or sexual abuse are at an increased risk of SI later in life (Bayatpour, Wells & Holford, 1992; Read, Agar, Barker-Collo, Davies & Moskowitz, 2001). This finding is also reported in other cultures – for instance, Korean medical students with a history of childhood emotional abuse show a risk for lifetime SI. Further, low child-parent bonding, both maternal and paternal, appears to be associated with SI in later adult life (Heider, Bernert, Matschinger, Haro, Alonso, & Angermeyer, 2007).

Health-related difficulties and physical impairment impact quality of life and can lead to SI among individuals dealing with such challenges. Individuals dealing with chronic pain, head pain, and permanent injury due to accidents may all be at greater risk for SI (Ilgen, Zivin, McCammon, & Valenstein, 2009; Jurisic & Marusic, 2009). Physical impairment difficulties extend to those in later life, thus affecting quality of life. Limitations to activities of daily living (i.e., functional disability) shows a strong association to increased SI, especially among older individuals with low perceived social support and greater numbers of limitations in activities of daily living (Dennis, Baillon, Brugha, Lindsay, Stewart, & Meltzer, 2009). As an individual

deals with limitations in daily life, thoughts of dying and death may occur. A survey of nursing home residents (ages 65 and older) found that almost 31% had thoughts of dying or SI in the month prior and those above age 85 years reported more frequent ideation about death or suicide (Scocco, Fantoni, Rapattoni, de Girolamo, & Pavan, 2009).

Suicide Ideation and Gender Differences

If men and women differ in their presentation of SI, a gained understanding of such differences can enhance our targeted suicide prevention efforts. Gender differences in suicide-related behaviors have been well documented, with men dying more frequently by suicide and women attempting suicide with greater frequency (Beautrais, 2006). However, gender differences in SI are not as clear. Some studies (e.g., Fawcett, Clark, & Bush, 1993) indicate that women are more likely to report SI. In particular, Hispanic, Latino, and Asian women are found to be more likely to endorse SI than their male counterparts (Baca-Garcia, Perez-Rodriguez, Mann, & Oquendo, 2010; Cheng et al., 2010; Fortuna, Perez, Canino & Alegria, 2007). Harlow and Newcomb (1986) found that men were more likely to use substances to cope with depression or self-derogation while women are more likely to experience SI; however, when analyzing the response to lack of purpose in life, women were more likely to use substances and men reported SI. Furthermore, recent scientific evidence suggests that men and women differ in the trajectory from SI to suicide attempts; for example, Baca-Garcia and colleagues (2010) found that the occurrence of SI without subsequent attempts was higher in women than in men; specifically, Caucasian women between 18-64 years of age had the highest comparative risk of SI without a subsequent attempt when compared to other groups.

For men, demographic factors such as age (26-30) and living alone, adverse childhood events such as parental domestic violence and/or marital discord, sexual orientation factors such

as homosexual and bisexual identity sexual activity have been described as predictors of SI (Legleye et al., 2010, add citation for DV). Furthermore, psychiatric diagnoses including PTSD and Panic Disorder in particular are predictive of risk for both suicide ideation and suicide attempt (SA) in men (Coulgle, Keough, Riccardi, & Sachs-Ericsson, 2009). In comparison, other types of risk indicators for SI have been identified for women. For instance, women with a history of forced sexual intercourse (lifetime), illegal drug use (other than cannabis), and exposure to violence are recognized to be at most risk for SI (Legeye et al., 2010). Women who are younger, who experience perceived workplace harassment, and who are working with inadequate resources, and who experience professional burnout are also at risk for SI (Fridner et al., 2009). Finally, psychiatric diagnoses that are most predictive of SI in women include PTSD, social anxiety, generalized anxiety, and panic disorders (Coulgle, Keough, Riccardi, Sachs-Ericsson, 2009). For women with PTSD, a greater prevalence of SI is noted with co-morbid depression (Coulgle, Resnick, & Kilpatrick, 2009).

For individuals with chronic medical problems, risk for SI may be mitigated by feelings of happiness despite the medical conditions (Hirsch, Duberstein, & Unutzer, 2009); however, it appears that social support and healthy interpersonal relationships seems to attenuate SI for both men and women. Perceived social support appears to lessen SI or protect against SI (Chioqueta & Stiles, 2007; Hovey, 1999). Satisfaction in personal relationships and sense of usefulness to one's family and friends are also associated with lower SI risk (Rowe, Conwell, Schulberg, & Bruce, 2006). Sense of belonging and perceived social support are reported to weaken the relationship between depression and SI in men (McLaren & Challis, 2009). In a sample of female physicians, meetings to discuss stressful workplace situations predicted lower risk of SI (Fridner et al., 2009).

Suicide Ideation in the U.S. Military

Similar to the civilian literature, research on the topic of SI is sparse among the military population. However, recent efforts have aimed to identify the prevalence of SI in the military. Hoge et al. (2006) assessed a sample of Marine Corps and Army Service Members ($N = 220,620$) returning from deployment to Operation Iraqi Freedom (OIF). Using the Post-Deployment Health Assessment (PDHA), findings indicated that 1.1% of the members endorsed “some” SI, while 0.2% reported “a lot” of SI. Similarly, Milliken and colleagues (2007) examined SI endorsement on the PDHA, particularly within an Army sample of active duty OIF returnees ($N = 56,350$). In this sample, 1.2% of the soldiers reported experiencing SI. Given that participants in both of these studies were completing the PDHA prior to their return home from deployment, reports of SI may have been an underestimate of the true population prevalence. If a service member indicates a positive response for SI on the deployment health assessments, he or she may be placed on medical hold and not be allowed to return home as scheduled (Fairweather, 2006).

Military personnel have unique service-related experiences (e.g., exposure to trauma, combat) that may be associated with the onset and maintenance of SI. For instance, Hill et al. (2006) examined in-theater mental health records of soldiers ($n = 425$) deployed in support of OIF and found 30% of the patients reported SI to their mental health providers while in theater. A random sampling of junior enlisted (E1-E4) Army soldiers ($n = 2,894$) found that 15.2% of this group endorsed some SI (Mental Health Advisory Team V, 2008). In addition, Service Members who have witnessed atrocities or massacres during their deployment are more likely to report SI than those who have been exposed only to peacekeeping operations or combat (Sareen et al., 2007). There is also some evidence to suggest that medical-related duty limiting factors

(e.g. weapons restriction), medical evaluation boards and administrative discharge processing are additional risk indicators associated with SI in military personnel (DoD Task Force Report, 2010; Fragala & McCaughey, 1991; Mahon, Tobin, Cusack, Kelleher, Malone, 2005).

Military personnel may also begin or continue to experience SI as Veterans once their service has ended. In one study, the re-experiencing of the traumatic event as a symptom cluster of Posttraumatic Stress Disorder (PTSD), showed a significant association with SI among a sample of Vietnam Veterans (Nye & Bell, 2007). OIF/OEF Veterans are reported to be four times more likely to endorse SI if positive for PTSD; among those with PTSD, comorbid disorders conveyed a 5.7 times greater risk for SI than a PTSD diagnosis alone (Jakupcak, Cook, Imel, Fontana, Rosenheck, & McFall, 2009). In a recent study of OIF/OEF Veterans, 12.5% of the Veterans reported SI within two weeks prior to being surveyed (Pietrzak, Goldstein, Malley, Rivers, Johnson, & Southwick, 2010). Further, Pietrzak and colleagues found those with SI were more likely to screen positive for PTSD, depression, substance abuse and demonstrated lower perceived social support and resilience compared to those without SI.

Purpose and Significance

Given the noted variations in severity, frequency, and duration of SI, additional knowledge is needed about the unique characteristics and treatment needs of subgroups of individuals treated for SI. In particular, not much is known about military personnel with SI that is severe enough to warrant psychiatric hospitalization and whether men and women within this highly vulnerable subgroup have different treatment needs. The thesis study presented here addresses this gap in the suicidology literature. The sections below summarize the literature pertaining to SI and set the stage for the study aims and hypotheses.

Hypotheses

This study was designed to address three primary areas of interest. First, we describe the demographic, military service, and psychiatric history variables in the entire sample of active-duty Service Members hospitalized for SI. Second, we examine gender differences across a number of available data categories. Third, we identify mediators of the relationship between gender and length of hospitalization.

For our first aim, we use descriptive statistics to summarize our sample; we did not have any specific testable hypotheses for the first aim. For our second aim, we examined how active-duty military men and women differ on a number of demographic, military service, and psychiatric history factors noted in the electronic medical records (EMRs). We hypothesized the following:

H2a) female ideators, compared to male ideators, are *more* likely to be divorced, separated, or widowed at the time of hospitalization;

H2b) female ideators, compared to male ideators, are *more* likely to have a lower military rank (E1-E4 for enlisted members; O1-O3 for commissioned officers) at the time of hospitalization;

H2c) Female ideators, compared to male ideators, are *more* likely to report difficulties adjusting to the military at the time of hospitalization, as evidenced by clinician report in Axis IV;

H2d) female ideators, compared to male ideators, are *more* likely to demonstrate an interpersonal problem as a primary reason for their psychiatric hospitalization, as evidenced by clinician report in Axis IV;

H2e) female ideators, compared to male ideators, are *more* likely to report a prior history of suicide attempt(s);

H2f) female ideators, compared to male ideators, are *more* likely to have engaged in behavioral health services prior to their psychiatric hospitalization; and

H2g) female ideators, compared to male ideators, are *less* likely to be returned to full duty status upon discharge from the hospital.

For our third aim, to examine how certain psychiatric factors mediate the relationship between gender and length of psychiatric hospitalization for active-duty Service Members hospitalized for SI, we hypothesized the following:

H3a) A substance disorder diagnosis (given at admission and/or discharge) will serve as a mediator in the relationship between gender and length of psychiatric hospitalization;

H3b) history of trauma will serve as a mediator in the relationship between gender and length of psychiatric hospitalization;

H3c) an anxiety disorder diagnosis (given at admission and/or discharge) will serve as a mediator in the relationship between gender and length of psychiatric hospitalization; and

H3d) history of previous suicide-related behaviors will serve as a mediator in the relationship between gender and length of psychiatric hospitalization.

Method

Sample

The sample ($N = 410$) was drawn from the inpatient medical records of military Service Members psychiatrically hospitalized at the Inpatient Psychiatric Unit of the Walter Reed Army Medical Center (WRAMC) from January 2001 to December 2006. Demographic, medical, and psychiatric information for each patient was obtained from Essentris, the electronic medical record used at WRAMC to document all inpatient hospitalization clinical information (Defense Health Information System, 2011). Inclusion criteria for the sample was: (1) inpatient psychiatric

hospitalization due to documented suicide ideation at the time of admission, and (2) status of active-duty, reserve, or National Guard at the time of admission.

Human Subjects Protection

Appropriate regulatory approvals were obtained from the WRAMC Department of Clinical Investigations and the Uniformed Services University of the Health Sciences (USUHS) Institutional Review Boards.

Procedure

Selection of cases. Each psychiatrically hospitalized WRAMC patient has an electronic medical record (EMR) within Essentris that details the care provided at the hospital as well as other military medical facilities. To identify EMRs of individuals admitted to WRAMC inpatient psychiatry, an Essentris data technician produced a list of patients hospitalized for psychiatric care from January 1, 2001 to December 31, 2006. Consecutive records were then reviewed by study coders who then determined the reason for hospitalization by conducting a review of the EMR (more specifically, the admission and discharge note) of each psychiatrically hospitalized patient. This review resulted in the identification of 410 patients admitted due to SI. Individuals who had more than one psychiatric hospitalization only had the first episode of their hospitalization records examined.

Training of study coders. Study coders included doctoral graduate students in the Laboratory for the Treatment of Suicide Ideation and Behavior. All coders received an introduction to the study and training on how to use and navigate the Essentris system and coding manual dependent on familiarity with the military and psychiatric information in the EMR. Each coder participated in the first coding session under supervision by a senior coder and this training was approximately for two hours. The four hour Essentris system training was

conducted at WRAMC, was led by the Essentris program manager and consisted of an orientation to the EMR, patient confidentiality and record security. Coding was conducted in the Essentris classrooms and in the inpatient psychiatry ward based on coder and computer availability. While collecting data, coders were able to reference the coding manual to clarify what information was needed for database entry, what format was required and where the information could be found within the EMR.

Study coders were instructed to extract data from the EMRs. Prior to each session, coders signed out a numerical tracking sheet of 10 EMRs listed on the master list and obtained a flash drive containing the coding template. Coders performed a brief initial review of the EMR and entered data into a Microsoft Access coding template during the second viewing. If a coding variable was not annotated in the EMR, coders were instructed to assume that it was not present and code accordingly. Coding meetings were held as needed to train study personnel and discuss potential coding questions. Coding decisions made in these meetings were documented to assist coders in their decision making process, such decisions were documented in the coding template and manual for further use. Additionally, these meetings were used to improve interrater reliability.

Measures

Electronic Medical Record - Coding Template (EMR-CT) and Accompanying Coding Manual. The coding manual was developed in consultation with a number of suicidology and military mental health care experts and served as the basis for the development of the EMR-CT. The coding template, created in Microsoft Access format, is a multi-variable form that includes several basic demographic descriptors for all patients such as age, ethnicity, religious affiliation, marital status, and gender. In addition, the template was designed to include

information on each individual's military service history; this service history was used to make the determination of including cases based on military service status. Comprehensive information regarding suicide-related ideation and behaviors, suicide event information, and previous medical and psychiatric history were captured in the database by extracting information as it was entered into the EMR during the patient's hospitalization. Finally, an inclusive trauma history was recorded in the EMR-CT based on a number of potentially traumatizing experiences that may have been listed in the inpatient EMR. This template provided a clear view of EMRs that were suitable for inclusion in the study based on examination of the research aims and sample design. No HIPAA identifiers (e.g., SSN) were recorded on these forms. Once eligible EMRs were identified, a unique study subject identification number was assigned to each record.

Interrater reliability. Interrater reliability for the EMR-CT was checked on a regular basis by using a SPSS program, version 18 to calculate a kappa coefficient. Approximately 9% of cases (n = 38) were coded twice to ascertain the reliability between coders. A kappa coefficient of 0.70 was set as the target reliability index. The interrater reliability ranged from 0.55 to 1.00.

Research Design

The current study used a retrospective chart review research design. It was conducted in the context of ongoing data collection efforts for a larger study that aims to characterize the differences between patients admitted for suicide attempts, suicide ideation, versus non-suicide related events.

Results

Aim 1. Demographic, Military, and Psychiatric Characteristics of the Sample

Demographic Characteristics. The sample was comprised of 410 military Service Members psychiatrically hospitalized for inpatient care due to SI at WRAMC from 2001-2006.

Demographic and military characteristics of the sample were determined based on information recorded in the EMR (see Table 1). Almost three-quarters (74.4%, n = 305) of the sample were men and 25.6% (n = 105) were women. The mean age of the sample was 27.1 years (SD = 9.07; range 17-60). The majority of the sample was Caucasian, followed by African American, Hispanic/Latino, Asian and other races. At the time of hospitalization, in terms of marital status, the majority of the sample was never married or married, a small percentage of patients was either divorced or separated, and only two patients were widowed.

Military Service Characteristics. All active duty, National Guard, and reserve personnel were included in the retrospective chart review. The following distribution was noted: Army (72%), Air Force (16%), Navy (7%), Marine Corps (4%), and Coast Guard (<1%). The majority of those hospitalized were junior enlisted (E1-E4; 65%), followed by junior non-commissioned officers (E5-E6; 18%). The remaining rank categories consisted of senior non-commissioned officers (E7-E9; 5%), company grade officers (O1-O3; 4%), field company officers (O4-O6; 2%) with only one warrant officer (W1-W5; 1%) in the sample. Rank at the time of hospitalization was unknown for 5% of the sample.

Psychiatric Characteristics. Psychiatric characteristics for the sample are provided in Table 2. The most common diagnostic categories for Axis I disorders were Mood Disorder and Adjustment Disorders with Substance-related Disorders and Anxiety Disorders comprising the other predominant diagnostic categories. Approximately 34% of patients had more than one Axis I diagnosis, with 10.5% of the sample having greater than two Axis I diagnoses. The most common psychiatric diagnoses in the EMR included: Adjustment Disorder, Major Depressive

Disorder, PTSD and Alcohol Dependence (see Table 2). In terms of Axis II pathology, 12.9% of the sample was given an Axis II personality disorder diagnosis and 24.9% of the sample had personality disorder traits listed in the EMR. The remainder of the sample had either no diagnosis information (45.1%) or deferred diagnosis (42.0%) on Axis II (see Table 2).

Further information related to the hospitalization was analyzed for the entire sample, such information included length of hospitalization and disposition at discharge. The mean length of hospitalization was 7.92 days ($SD = 6.98$). At discharge, 33.3% were returned to full duty, whereas 24.8% were recommended for administrative separation, 10.4% were recommended for medical evaluation boards, 10% released to locations other than the patient's home (e.g. released to law enforcement, partial hospitalization program), and 4.4% were discharged to their homes. Disposition was unknown or not annotated in the EMR for 12% of the sample.

To determine interpersonal and military-related stressors, the providers' entries on Axis IV for each EMR were examined. Interpersonal stressors were noted in 51.6% of all EMRs while military stressors were annotated for 58.3% of the sample. Pending military separation, retirement, or other end of military career stress was noted on Axis IV for 5.4% of the sample and military adjustment stressors were present in the EMR for 4.4% of the sample.

Approximately 35.4% of the sample had a documented history of prior suicide attempt (SA) and 53.4% of the sample denied previous SA prior to the index hospitalization. History of SA was unknown or not noted in the EMR for the remaining 11.2% of the sample. Of the portion of the sample who disclosed prior SA, there was an average of 1.71 SA ($SD = 1.12$, range = 1-6). For psychiatric hospitalization history, approximately 51.0% of the sample denied prior psychiatric hospitalization while 17.3% reported one prior psychiatric hospitalization and 10.2%

reported two or more previous psychiatric hospitalizations. Previous hospitalization information was unknown for the remaining 21.5% of the sample.

Aim 2. Gender-Related Differences on Demographic, Military, and Psychiatric Characteristics

Demographic and Military Service Characteristics. Gender differences were examined across all of the demographic and military characteristics (refer to Table 3). Men had a mean age of 27.2 ($SD = 9.26$) years while women had a mean age of 26.8 ($SD = 8.50$) years which did not significantly differ by gender when calculated using an independent samples t-test, $t(408) = -.406, p = .69$. Chi-square statistics were calculated for race and marital status with no significant differences. Further analyses of rank categories were conducted by gender using Chi-square statistics. For cells with fewer than five entries, Fisher's Exact Statistics were calculated. Only the company grade officer (O1-O3) category showed a significant gender difference, with a significantly higher percentage of women represented in the sample, $\chi^2(1, N = 410) = 5.199, p < .05$.

Psychiatric Characteristics. Table 4 provides a summary of gender related differences on psychiatric characteristics. The most common diagnostic categories on Axis I for men were Mood Disorders (43.0%), Adjustment Disorders (33.4%), Substance-Related Disorders (9.2%), and Anxiety Disorders (6.9%). In comparison, the most common diagnostic categories on Axis I for women were Mood Disorders (39.0%), Adjustment Disorders (34.3%), Anxiety Disorders (8.6%), and Substance-Related Disorders (3.8%). Using Chi-square statistics, none of the analyses on the Axis I psychiatric diagnostic categories showed a significant gender difference, as shown in Table 4.

Primary Axis I psychiatric diagnoses were analyzed to identify potential gender differences. The most common diagnoses for men were Adjustment Disorder (33.4%), Major Depressive Disorder (29.2%), and PTSD (5.6%). For women, the most common diagnoses on Axis I were also Adjustment Disorder (34.3%), Major Depressive (25.7%), and PTSD (7.6%). There were no significant gender differences when comparing the sample on the Axis I psychiatric diagnoses using Chi-square statistics (see Table 4). Axis I diagnostic categories were examined to determine gender differences. There was a trend towards significance with men having a higher percentage (9.2%) of substance-related diagnoses compared to women (3.8%), $\chi^2 (1, N = 410) = 3.131, p = .08$. Further, using the Fisher's Exact Test, the presence of eating disorders noted for women trended towards significance, as 1.9% of the women received such diagnoses upon admission compared to none of the men, $\chi^2 (1, N = 410) = 5.838, p = .07$. No significant differences were noted among the sample upon examination of individual Axis I diagnoses, as shown in Table 4.

Next, the average numbers of psychiatric diagnoses were examined to identify gender differences and basic information provided in Figure 3. Men had an average of 1.49 ($SD = .88$; range = 0-6) admission diagnoses on Axis I compared to women, who had an average of 1.28 ($SD = .71$; range = 0-3). Using an independent samples t-test, it was determined that the total number of Axis I admission diagnoses for men was significantly higher than that for women, $t(408) = -2.237, p < .01$. In terms of Axis II admission diagnoses, 11.1% of the men were given a personality disorder diagnosis compared to 18.1% of women. This difference showed a trend towards significance for women having a greater percentage of Axis II pathology noted in the EMR at admission, $\chi^2 (1, N = 410) = 3.350, p = .067$. For men, the most common Axis II diagnoses were Personality Disorder Not Otherwise Specified (6.2%), Borderline Personality

Disorder (2.6%) and Schizoid Personality Disorder (1.0%) with the majority of patients having either no diagnosis on Axis II (39.4%) or a deferral of diagnosis (42.0%). Women were most commonly given a diagnosis of BPD (12.4%) followed by Personality Disorder Not Otherwise Specified (5.7%) with 35.3% of patients receiving no diagnosis and 41.9% having a deferred diagnosis on Axis II. Women were significantly more likely to have received a diagnosis of Borderline Personality Disorder compared to men, $\chi^2(1, N = 410) = 15.305, p < .001$. There were no other significant differences by gender for personality diagnoses as shown in Table 4.

Suicide Attempt History. After examining using a Chi-square statistic, prior suicide attempt was significantly different compared by gender with a greater number of women reporting SA history prior to the index hospitalization, $\chi^2(1, N = 410) = 13.383, p = .04$. More detailed examination of suicide attempt history using Chi-square statistics showed significant differences between men and women. More men (57.3%) reported no SA history compared to women (44.7%); $\chi^2(1, N = 410) = 4.929, p = .03$. However, women were found to be significantly more likely to have reported one previous suicide attempt prior to the period preceding the index hospitalization, $\chi^2(1, N = 410) = 9.868, p < .01$.

Previous Psychiatric Treatment. In terms of previous psychiatric treatment, a significantly higher percentage of women reported any form of psychiatric treatment (i.e. inpatient or outpatient), $\chi^2(1, N = 410) = 22.273, p < .001$. In terms of the number of documented previous inpatient psychiatric hospitalizations, 49 men had at least one and 30 had two or more. In comparison, 22 women had at least one and 12 had two or more. Among the cases where information for previous psychiatric hospitalization was available, 68% of the men denied previous hospitalization compared to 59% of women. Using an independent samples t-test, men were significantly less likely to have endorsed previous psychiatric hospitalization history than

women, $t(318) = -1.424, p < .05$. Additionally, two women reported six previous psychiatric hospitalizations, while no men reported that many psychiatric hospitalizations. A Fisher's Exact Test revealed that this difference approached, but did not reach statistical significance ($\chi^2(1, N = 410) = 5.838, p = .07$).

Psychosocial and Environmental Stressors Using the information entered into Axis IV regarding psychosocial and environmental problems, entries for interpersonal problems and adjustment issues related to military stressors were compared. Interpersonal issues were noted for 57% of the men, which was not significantly different from the 46% of instances noted for women, $\chi^2(1, N = 410) = 2.609, p = .106$. Military-related stressors were present in over half of all EMR and did not differ significantly by gender (Table 5). Military stressors were further examined by military adjustment issues, namely those related to early career adjustment and end of career issues (i.e., medical or administrative separation, retirement). There was a significant gender difference in terms of the military adjustment issues (Table 5). Men had a higher percentage of stressors related to end of career (pending retirement, separation, or MEB), while women had a higher percentage of stressors relating to adjustment to military life. An examination of the gender-based adjustment issues was statistically significant with a Chi-square statistic, $\chi^2(1, N = 410) = 12.452, p = .002$.

Hospitalization and Disposition. The average length of hospitalization for men was 8.23 days (SD = 7.34, range = 1- 56) and for women the average length of hospitalization was 7.02 days (SD = 5.76, range = 1-30). There were no significant differences among males and females regarding length of hospitalization, $t(391) = -1.499, p = .51$ (Table 6). Men and women were returned to duty at a similar rate, followed by a similar percentage of recommendations for administrative separation. Disposition at the time of discharge for men was most frequently a

return to full duty status (34.4%), followed by recommendation for administrative separation (25.5%). While the next most common dispositions for men were discharge to locations other than home (e.g., released to law enforcement, outpatient treatment at WRAMC), recommendation for medical evaluations board (MEB) and discharge to home (4.9%); for women, the remainder of the sample was recommended for MEB, followed by discharge to locations other than home, and discharged to home. Disposition from the inpatient ward was not significantly different when compared in terms of gender, $\chi^2 (1, N = 410) = 1.683, p = .891$ (See Table 6).

Aim 3. Mediation Analyses

The final aim for this study was to determine whether a number of psychological factors would mediate the relationship between gender and length of hospitalization. Using the framework for mediation analysis as described in Baron and Kenny (1986), the first step in the analysis involves the determination of whether or not a significant relationship between the independent variable (X) and the dependent variable (Y) exists. If such a relationship is present, the next step is to conduct a series of regressions to identify if the independent variable (X) affects the potential mediating variables (M), then if the mediating variables (M) affect the dependent variable (Y). Finally, the entire regression is run to determine if the mediators (M) significantly impact the relationship between X and Y. For the purposes of this study, the first step was to examine the relationship between gender and the length of hospitalization for which there was not a significant relationship, $F (1, 392), p = .14$ (see Figure 1). Because this relationship was not significant, further analyses were not expected to address the mediation of psychiatric factors on the relationship between gender and length of hospitalization.

Exploratory Analyses

Separate regression analyses were conducted to examine men and women by the following variables and the relationship with length of hospitalization: marital status, trauma history, substance abuse (current or history), prior psychiatric treatment, and prior suicide attempt. For these analyses, data on length of hospitalization was not available for 13 men and four women, therefore, these cases were excluded. Of the variables examined for men, no prior psychiatric hospitalization significantly predicted a shorter length of hospitalization, $b = -0.186$, $t(290) = -2.175$, $p < .05$ (see Table 7). Similarly for women, there was a significant relationship between no prior psychiatric hospitalization and length of hospitalization $b = -0.383$, $t(99) = 1.519$, $p < .01$ (see Table 8).

Discussion

A retrospective review of 410 randomly selected EMR of military personnel admitted for psychiatric hospitalization due to suicide ideation between 2001 and 2006 aimed to identify gender differences in terms of demographic, military service and psychiatric characteristics. Overall, women were overrepresented in this sample when compared to the general military population; however, the sample did not differ significantly on any other demographic characteristics. A significantly higher percentage of women were company grade officers, and women were more likely to have adjustment issues related to entering military service while men had significantly more end-of-career adjustment issues. Regarding psychiatric variables, women reported significantly more prior trauma and were diagnosed with Borderline Personality Disorder at significantly higher rates than men. In addition, women were more likely to report one prior suicide attempt while men denied history of suicide attempt at a significantly higher rate. Despite these distinct gender differences, there was no difference in the length of psychiatric hospitalization. This lack of apparent difference in treatment highlights the need for a

review of clinical practice and standardization in the treatment of suicide ideation. The sections below provide a critical review and discussion of the study findings.

The most remarkable finding of this study was no significant gender difference in length of hospitalization despite the significant differences on the profile of psychiatric symptoms at admission. These observed psychiatric differences included early military adjustment stressors (women > men), previous psychiatric history including prior suicide attempts and traumatic life events (women > men) and the diagnosis of Borderline Personality Disorder (women > men; Table 9). In general, women's medical documentation clearly indicated more risk indicators for subsequent suicide identified throughout the suicidology literature (e.g., trauma, prior psychiatric hospitalization, suicide attempt history, Borderline Personality Disorder diagnosis). However, despite such observed differences, women were hospitalized for the same amount of time when compared with men who had fewer risk indicators noted in their records. Thus, the treatment length rendered for men and women appears to have been independent of documented risk indicators in the medical charts.

One may argue that in the case of length of psychiatric hospitalization, the amount of time an individual spends in the therapeutic inpatient milieu can be viewed as the treatment "dosage" received by that person. In general, we expect that the dose of treatment would be positively correlated with the severity of the symptomatology presented by a given patient. The findings of the present study suggest that the prescribed length of stay for men and women was not statistically different despite observed differences along a number of psychiatric and historical factors. The average length of hospitalization for suicide ideation has been noted in other studies as shorter than hospitalization for other psychiatric reasons, despite co-morbid psychiatric disorders (Smith, Fisher, & Goldney, 2002; Wagner, Rouleau, & Joiner, 2000).

Although a more severe psychiatric history was noted in the EMR for military women, the length did not differ. If the sample had been compared to individuals hospitalized for suicide attempt or non-suicide related psychiatric reasons, the difference in treatment in days may have been more apparent.

Although a large portion of the psychiatric characteristics were not significantly different when compared by gender, the results of this study highlight potential gender differences in terms of treatment, medical documentation or diagnosis. Although there were no gender differences in terms of Axis I diagnoses, a trend in women being more likely to receive an Axis II diagnosis was noted. Furthermore, women compared with their male counterparts, were significantly more likely to be diagnosed with Borderline Personality Disorder. A Borderline Personality Disorder diagnosis, chronic suicide-related ideation and increased impulsivity convey a greater risk of later suicide attempt or death (Mehlum et al, 1994; Soloff, Lynch, Kelly, Malone, & Mann, 2000). The diagnosis of Borderline Personality Disorder was made within the first 24-48 hours of hospitalization for this sample. In Essentris, there was no indication of which standardized psychiatric assessments gave providers the information necessary to make a diagnosis on Axis II (e.g. Structured Clinical Interview for DSM-IV Disorders- Axis II). Without this information, it is difficult to understand what information led to the more frequent diagnosis of Borderline Personality Disorder in women. Further, there was no information to indicate if providers assessed for Axis II disorders among men and women with equal frequency. This information would provide critical information regarding gender differences in psychiatric treatment and assessment.

Finally, a key finding of this study was the gender differences in prior SA. Prior history of suicide attempt was significantly different between men and women in this sample, with

women reporting a greater number of attempts prior to the index hospitalization. This finding is consistent with existing data that women attempt suicide two to three times more frequently than men (Krug et al, 2002). In the present sample, women were significantly more likely than men to have documented histories of any form of psychiatric treatment (i.e., outpatient or inpatient) prior to the current hospitalization. The American Psychiatric Association (2006) urges clinicians to be aware of history of previous hospitalization and mental illness, as it may be a risk factor for subsequent suicide. In terms of possible risk factors for suicide, these hospitalized women were more likely than their male counterparts to report one of the most robust risk factors for subsequent death by suicide – i.e., a prior suicide attempt. For this sample, the hospitalization is a critical point of intervention for future suicide-related behaviors.

Limitations

There are a number of limitations to consider. First, because the sample was collected retrospectively from computer-based EMRs, we have to rely exclusively on the information that medical providers recalled and chose to document in their patients' medical charts. Often, medical documentation errors are to be expected and our study cannot determine the validity and reliability of the information documented in the patients' records, which is a common challenge for retrospective chart reviews (Pan, Fergusson, Schweitzer, & Hebert, 2005). Second, given the military treatment facility type of setting for this research, the demographic and psychiatric history indicators of risk may not generalize to the general U.S. population who experience SI. Next, the lack of a control group made it impossible to identify differences between those hospitalized for suicide ideation or those hospitalized for a non-suicide related event. Finally, the interrater reliability for this study ranged from 0.55 to 1.00. Therefore, one additional limitation of the study is related to the low agreement between coders on several of the study

variables. Since the presentation of the preliminary data in this manuscript, a number of variables and cases have been recoded to capture data that may have been incorrectly entered or missed in the first coding. Additionally, the coding template has been amended to include more drop-down menus than free-flow text entry options to reduce variance.

Strengths

To the best of our knowledge, this is the first study to examine gender differences in a sample of Service Members psychiatrically hospitalized for suicide ideation. Given the increasing need for understanding suicide in the context of military service, this study makes a timely contribution to the broader DoD suicide prevention efforts by shedding light on a generally neglected group – i.e., those Service Members with suicide ideation severe enough to warrant psychiatric hospitalization. Furthermore, research on gender differences and possible disparities in psychiatric care delivery continue to be lacking. Given the finding that men and women did not differ on length of hospitalization despite having meaningful clinical differences with regards to specific variables that convey risk of suicide, this study provides potential implications for psychiatric research, practice, and policy.

Recommendations and Implications

Given the increasing problem of suicide in the U.S. military over the past decade, research, clinical, and policy must pay attention to suicide but also the problems of suicide-related ideation and behaviors. The literature has consistently shown that suicidal individuals who are psychiatrically hospitalized are at an increased risk for suicide (Beck, Steer, Kovacs & Garrison, 1985; Roy, 1982). Further, as noted by Joiner (2002), a trajectory towards suicide for an individual who may have intense suicide ideation may be a form of mental preparation for future suicide attempt or suicide. There is a critical need for early recognition and treatment of

individuals presenting with suicide-related ideation in order to address the cognitive sensitization that may occur for individuals as they contemplate suicide. This type of early treatment can be offered in an inpatient setting as soon as an individual with suicide ideation is identified and admitted for care.

With regards to psychiatric inpatient delivery of care, standardization improvements are necessary when providing care to individuals hospitalized for suicide-related ideation and/or behaviors. For example, while several suicide nomenclature models have been proposed in the field, psychiatric inpatient facilities have yet to adapt the usage of this nomenclature in their documentation practices for suicidal patients. Therefore, there remains an absence of systematic surveillance efforts within these settings and trained staff members who are knowledgeable about the most appropriate suicide event documentation practices including the correct usage of suicide nomenclature. Overall, psychiatric inpatient facilities can benefit greatly from the implementation of standard documentation templates to be used for their suicidal patients. For example, using a standardized checklist to assess for past suicide-related ideation and behaviors as well as psychiatric hospitalizations will provide a comprehensive picture of who requires assistance with such behavior. Furthermore, such standard documentation practices will allow for a more enhanced delivery of care which can be tailored to the unique treatment needs of each admitted patient.

In terms of policy, a number of issues can be considered. First, there is a need for a mandated system-wide clinical training for inpatient staff. Providing physicians, social workers, psychologists, and psychiatric nurses with targeted training on the required documentation practices for suicidal patients is an important endeavor. Second, there appears to be a need for decision-making guides that clearly outline the factors that must be considered for a patient's

discharge from the unit. Our data clearly show that there is no consistent set of variables that seem to be associated with the length of hospitalization. One would assume that the dose of treatment – in this case length of psychiatric stay – would be associated with factors such as the person’s psychiatric condition and past suicide history. Third, approximately a third of our sample was returned to full duty per the disposition listed in the EMR. However, the course of action listed in the record included primarily a scheduled follow-up with an outpatient mental health provider. Mental health policy makers are encouraged to consider best practices for the aftercare of suicidal military personnel following discharge from the psychiatric hospital unit. An outpatient appointment may need to be offered in the context of a package of care options following discharge.

As future research efforts continue to focus on suicide in the U.S. military, the topic of suicide ideation and hospitalization is one that merits further examination. This study found potential issues in health disparities with regards to gender and psychiatric care provided for the sample. Although women were significantly more likely to have histories of trauma and suicide-related behaviors, their length of hospitalization was not significantly different than men. In addition, women were more significantly more likely to have a documented Axis II diagnosis of Borderline Personality Disorder. The empirical question that must be asked is whether these psychiatrically hospitalized military women are in fact showing a higher prevalence of personality disorders or that behavioral health providers are less likely to document a personality disorder diagnosis for psychiatrically hospitalized military men. If in fact providers were hesitant to document mental health symptoms, diagnoses or history in men’s psychiatric records but not in women’s, the impact of such practices must be considered in the context of career-related

implications. Research on provider perceptions and cognitive biases regarding male and female psychiatric inpatients may provide further information.

Finally, examining the long-term outcomes following a return to duty for this sample can provide valuable information regarding suicide intervention effectiveness, stigma surrounding those who have been hospitalized and career implications. For example, examining gender differences with regards to promotions, deployments, assignments, and awards would provide a picture of the impact of discharge characterizations on men's and women's military careers. Further, following the long term outcomes for this sample would allow researchers to see what happens to an individual following discharge with regards to subsequent psychiatric hospitalizations, outpatient healthcare utilization, or later suicide-related behaviors, to include suicide death.

This study is a timely examination of gender differences in U.S. military personnel psychiatrically hospitalized due to suicide ideation. First, the findings of this study contribute to our understanding of the general demographic, military service, and psychiatric characteristics associated with this highly vulnerable patient population. Second, an examination of gender differences within this sample highlights the unique gender-specific clinical features that require further attention in future research and clinical practice. One of the key study findings indicates that while women have a more severe psychiatric profile compared with their male counterparts, they are receiving the same "dosage" of treatment, as operationalized by length of hospitalization. Suicide prevention efforts within the DoD need to pay closer attention to role of gender in the presentation of SI in hospitalized service members and the dissemination of gender-specific assessment and treatment services to this at-risk population.

Table 1. Sample Demographics and Military Service Characteristics of Psychiatric Inpatients Hospitalized for Suicide Ideation ($N = 410$)

Characteristic	<i>M</i>	<i>SD</i>	Range
Age (in years)	27.1	9.07	17-60
	<i>n (%)</i>		
Gender			
Men	305 (74.4)		
Women	105 (25.6)		
Race			
Caucasian	264 (64.4)		
African American	76 (18.5)		
Hispanic	23 (5.6)		
Asian	9 (2.2)		
Other	37 (8.9)		
Unknown	1 (.2)		
Marital Status			
Never Married	183 (44.6)		
Married	158 (38.5)		
Divorced/Separated	67 (16.4)		
Widowed	2 (.5)		
Service Branch			
Army	297 (72.4)		
Air Force	64 (15.6)		
Navy	28 (6.8)		
Marine Corps	17 (4.1)		

Coast Guard 3 (.7)

Unknown 1 (.2)

Rank

E1-E4 266 (64.9)

E5-E6 74 (18.0)

E7-E9 22 (5.4)

O1-O3 16 (3.9)

O4-O6 9 (2.2)

W1-W5 1 (.2)

Unknown 22 (5.4)

Table 2. Psychiatric Characteristics of Inpatients Hospitalized for Suicide Ideation ($N = 410$)

Characteristic	<i>n</i> (%)
Axis I Diagnostic Categories	
Mood Disorders	172 (42.0)
Adjustment Disorders	138 (33.7)
Anxiety Disorders	30 (7.3)
Substance-related Disorders	32 (7.8)
Other categories	18 (4.4)
None indicated/Unknown	20 (4.9)
Axis I Diagnoses	
Adjustment Disorder	138 (33.7)
Major Depressive Disorder	116 (28.3)
Post-traumatic Stress Disorder	25 (6.1)
Alcohol Dependence	17 (4.1)
Bipolar Disorder	16 (3.9)
Dysthymic Disorder	16 (3.9)
Other Diagnoses	62 (15.1)
None indicated/Unknown	20 (4.9)
Axis II Related Diagnoses	
Axis II Diagnosis	53 (12.9)
Borderline Personality Disorder	21 (5.1)
Personality Disorder NOS	25 (6.1)

Schizoid Personality Disorder	3 (.7)
Other personality disorders	4 (.9)
Diagnosis deferred	172 (42.0)
No diagnosis/Unknown	185 (45.1)
Previous Suicide Attempts	
None reported	219 (53.4)
One	79 (19.3)
Two	44 (10.7)
Three	6 (1.5)
Four	4 (1.0)
Five	4 (1.0)
Six	3 (.7)
Multiple attempts (number unspecified)	5 (1.2)
Unknown	46 (11.2)

Table 3. Gender Differences on Demographic and Military Service Characteristics of Psychiatric Inpatients Hospitalized for Suicide Ideation ($N = 410$)

Characteristic	Men ($n = 305$)		Women ($n = 105$)		Statistics
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> (<i>df</i>)
Age	27.22	9.26	26.80	8.50	-0.406 (408)
	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	χ^2
Race					
White	200	65.6	64	61.0	.728 (1)
Black	51	16.7	25	23.8	2.599 (1)
Hispanic	18	5.9	5	4.8	.192 (1)
Asian	8	2.6	1	1.0	1.015(1)
Other	27	0.6	10	9.5	.078 (1)
Unknown	1	8.8	0	--	.384 (2)
Marital Status					
Never Married	137	44.9	46	43.8	.039 (1)
Married	121	39.7	37	35.2	.648 (1)
Divorced/Separated	46	15.1	21	20.0	1.382 (1)
Widowed	1	0.3	1	1.0	.628 (1)
Military Rank					
E1-E4	197	64.6	69	65.7	.043 (1)
E5-E6	57	18.7	17	16.2	.330 (1)
E7-E9	17	5.6	5	4.8	.101 (1)

Table 3. Gender Differences on Demographic and Military Service Characteristics of Psychiatric Inpatients Hospitalized for Suicide Ideation ($N = 410$)

Characteristic	Men ($n = 305$)		Women ($n = 105$)		Statistics
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> (<i>df</i>)
W1-W5	1	0.3	0	--	.345 (1)
O1-O3	8	2.6	8	7.6	5.199 (1)*
O4-O6	7	2.3	2	1.9	.055 (1)

Note: Sample includes active duty, National Guard, and Reserve Service Members

* $p < .05$

Table 4. Gender Differences on Psychiatric Characteristics of Inpatients Hospitalized for Suicide Ideation ($N = 410$)

Characteristic	Men ($n = 305$)		Women ($n = 105$)		Statistics
	n	%	n	%	χ^2
Axis I Diagnostic Categories					
Mood Disorders	174	57.0	64	61.0	.489 (1)
Adjustment Disorders	102	33.4	36	34.3	.025 (1)
Anxiety Disorders	21	6.9	9	8.6	.327 (1)
Substance-related Disorders	28	9.2	4	3.8	3.131 (1)
Other categories	11	3.6	7	6.7	1.743 (1)
None indicated/Unknown	12	3.9	8	7.6	2.285 (1)
Axis I Diagnoses					
Adjustment Disorder	102	33.4	36	34.3	.025 (1)
Major Depressive Disorder	89	29.2	27	25.7	.463 (1)
Post-Traumatic Stress Disorder	17	5.6	8	7.6	.571 (1)
Bipolar Disorder	10	3.3	6	5.7	1.236 (1)
No diagnosis/Unknown	12	3.9	8	7.6	2.285 (1)
Axis II Related Diagnoses					
Traits only	113	37.0	48	45.7	2.459 (1)
Axis II diagnosis given	34	11.1	19	18.1	3.350 (1)
Borderline Personality Disorder	8	2.6	13	12.4	15.305 (1)***
Personality Disorder NOS	19	6.2	6	5.7	.036 (1)
Schizoid Personality Disorder	3	1.0	0	--	1.040 (1)
Other personality disorders	4	1.3	0	--	1.391 (1)
Diagnosis deferred	128	42.0	22	41.9	.000 (1)
No diagnosis/Unknown	143	46.9	42	40.0	1.495 (1)

Previous suicide attempts

Table 4. Gender Differences on Psychiatric Characteristics of Inpatients Hospitalized for Suicide Ideation ($N = 410$)

Characteristic	Men ($n = 305$)		Women ($n = 105$)		Statistics
	n	%	n	%	χ^2
None reported	173	57.3	46	44.7	4.929 (1)*
One	48	15.9	31	30.1	9.868 (1)**
Two	32	10.6	12	11.7	.088 (1)
Three	5	1.7	1	1.0	.247 (1)
Four	4	1.3	0	--	1.378 (1)
Five	4	1.3	0	--	1.3
Six	2	0.7	1	1.0	.099 (1)
Unknown	34	11.3	12	11.7	.012 (1)

Note: Sample includes active duty, National Guard, and Reserve Service Members

* $p < .05$

** $p < .01$

*** $p < .001$

Table 5. Gender Differences on Interpersonal and Military-Related Stressors ($N = 410$)

Characteristic	Men ($n = 305$)		Women ($n = 105$)		Statistics
	n	%	n	%	χ^2
Interpersonal Stressors					
Noted in record	173	56.7	48	45.7	2.609 (1)
Military-Related Stressors					
Noted in record	189	61.9	63	60.0	0.130 (1)
Stressors Related to Military Life Changes					12.452 (1)**
Adjustment to Military Life	8	2.6	11	10.5	
Pending Administrative Separation, Retirement or Medical Evaluations Board	20	6.6	3	2.9	

Note: Information related to Interpersonal and Military-Related Stressors was taken from provider entries on Axis IV.

** $p < .01$

Table 6. Gender Differences on Hospitalization and Disposition Characteristics (*N* =410)

Characteristic	Men (<i>n</i> = 305)		Women (<i>n</i> = 105)		Statistics
	<i>M</i>	<i>SD</i> (range)	<i>M</i>	<i>SD</i> (range)	<i>t</i> (<i>df</i>)
Length of Hospitalization	8.23	7.34 (1 - 56)	7.02	5.76 (1 - 30)	-1.499 (391)
	<i>n</i>	%	<i>n</i>	%	χ^2
Disposition at Discharge					1.683 (1)
Return to full duty status	105	34.4	39	37.1	
Recommend administrative separation	78	25.5	29	27.6	
Discharge to locations other than home	35	11.5	8	7.6	
Recommend medical evaluations board	34	11.1	11	10.5	
Discharge to home	15	4.9	4	3.8	
Disposition Unknown	38	12.5	14	13.3	

Note: Disposition “locations other than home” included: release to law enforcement, discharge to outpatient or partial hospitalization program, etc.

Table 7. Factors Related to Length of Hospitalization in a Sample of Psychiatrically Hospitalized Men with Suicide Ideation ($N = 292$)

Characteristic	<i>Beta</i>	<i>SE</i>	<i>P value</i>
Race			
White	0.028	1.513	0.77
Black	-0.032	1.769	0.72
Hispanic	0.069	2.314	0.34
Asian	0.021	2.969	0.75
Marital Status			
Never Married	-0.190	7.464	0.71
Married	-0.060	7.454	0.90
Divorced/Separated	-0.054	7.514	0.88
Trauma History			
Prior history	0.100	0.906	0.10
Substance-Related			
Substance Abuse Prior/Current	-0.054	0.950	0.63
Suicide Attempt History			
No Prior Suicide Attempt	-0.013	1.548	0.90
1 Prior Attempt	-0.033	1.775	0.71
2+ Prior Attempts	0.047	1.741	0.60
Previous Psychiatric Hospitalization			
No Prior Hospitalization	-0.186	-2.175	0.03*
1 Prior Hospitalization	-0.118	-1.583	0.12
2+ Prior Hospitalizations	-0.048	-0.673	0.50

Note: Length of Hospitalization was not available for 13 men in the sample.

* $p < .05$

** $p < .01$

Table 8. Factors Related to Length of Hospitalization in a Sample of Psychiatrically Hospitalized Women with Suicide Ideation ($N = 101$)

Characteristic	<i>Beta</i>	<i>SE</i>	<i>P value</i>
Race			
White	-0.193	1.972	0.25
Black	-0.347	2.292	0.04*
Hispanic	-0.178	3.071	0.13
Asian	-0.043	5.926	0.68
Marital Status			
Never Married	-0.115	5.637	0.71
Married	-0.008	5.659	0.99
Divorced/Separated	0.078	5.681	0.85
Trauma History			
Prior history	-0.051	-0.451	0.65
Substance-Related			
Substance Abuse Prior/Current	0.126	1.504	0.23
Suicide Attempt History			
No Prior Suicide Attempt	-0.344	2.021	0.054
1 Prior Attempt	-0.322	2.122	0.058
2+ Prior Attempts	-0.187	2.399	0.23
Previous Psychiatric Hospitalization			
No Prior Hospitalization	-0.383	1.519	0.01**
1 Prior Hospitalization	-0.228	1.888	0.09
2+ Prior Hospitalizations	-0.004	2.232	0.98

Note: Length of hospitalization was not available for four women in the sample.
* $p < .05$
** $p < .01$

Table 9. Statistically Relevant Clinical Factors in terms of Gender Differences in a Sample Psychiatrically Hospitalized for Suicide Ideation

	Men	Women
Axis I Disorders	=	=
Axis II Disorders		
Borderline Personality Disorder		X
Prior Trauma		X
Suicide Attempt		
No Prior Suicide Attempt	X	
One Prior Suicide Attempt		X
Prior Psychiatric Treatment		
Any Prior (Inpatient/Outpatient)		X
Military-Related Stressors		
Adjustment to Military		X
Separation, Retirement, or Discharge	X	
Disposition	=	=
LENGTH OF HOSPITALIZATION	=	=

Note: This table depicts the relevant clinical factors and significant gender differences in terms of military service and psychiatric characteristics of a sample of service members hospitalized for suicide ideation.

An “X” indicates a factor in which the characteristic was significantly higher when compared by gender.

An “=” indicates a factor in which the characteristic did not significantly differ by gender.

Figure 1. Mediation Analysis of Relationship Between Gender and Length of Hospitalization

Figure 2. Psychiatric Diagnostic Categories (Axis I) Noted in a Sample Psychiatrically Hospitalized with Suicide Ideation (N = 410)

Figure 3. Axis II-related Diagnoses Noted in a Sample Psychiatrically Hospitalized for Suicide Ideation (N = 410)

References

- American Psychiatric Association. (2006). Practice guidelines for the treatment of psychiatric disorders (Compendium 2006). Washington, DC: Author.
- Baca-Garcia, E., Perez-Rodriguez, M.M., Mann, J.J., & Oquendo, M.A. (2008). Suicidal behavior in young women. *Psychiatric Clinics of North America*, *31*(2), 317-331.
- Baca-Garcia E., Perez-Rodriguez, M.M., Keyes, K.M., Oquendo, M.A., Hasin, D.S., Grant, B.F., et al (2010). Suicidal ideation and suicide attempts among Hispanic subgroups in the United States: 1991-1992 and 2001-2002. *Journal of Psychiatric Research*, *45*(4), 512-518.
- Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173-1182.
- Bayatpour, M., Wells, R.D. & Holford, S. (1992). Physical and sexual abuse as predictors of substance use and suicide among pregnant teenagers. *Journal of Adolescent Health*, *13*(2), 128-132.
- Beck, A.T., Brown, G., Berchick, R.J., Stewart, B.L., & Steer, R.A. (1990). Relationship between hopelessness and ultimate suicide: a replication with psychiatric outpatients. *American Journal of Psychiatry*, *147*, 190-195.
- Beck, A.T., Brown, G.K., Steer, R.A., Dahlsgaard, K.K., & Grisham, J.R. (1999). Suicide ideation at its worst point: a predictor of eventual suicide in psychiatric outpatients. *Suicide and Life Threatening Behavior*, *29*(1), 1-9.
- Beck, A.T., Kovacs, M., & Weissman, A. (1979). Assessment of suicidal intention: The Scale for Suicide Ideation. *Journal of Consulting and Clinical Psychology*, *47*(2), 343-352.
- Beck, A.T., Steer, R.A., Kovacs, M. & Garrison, B. (1985). Hopelessness and eventual suicide: a 10-year prospective study of patients hospitalized with suicidal ideation. *American Journal of Psychiatry*, *142*(5), 559-563.
- Beautrais, A.L. (2006). Women and suicidal behavior. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*, *28*(4), 153-156.
- Borges, G., Angst, J., Nock, M.K., Ruscio, A.M., & Kessler, R.C. (2007). Risk factors for the incidence and persistence of suicide-related outcomes: A follow-up study using the National Comorbidity Surveys. *Journal of Affective Disorders*, *105*(1-3), 25-33.
- Brook, R., Klap, R., Liao, D., & Wells, K.B. (2006). Mental health care for adults with suicide ideation. *General Hospital Psychiatry*, *28*(4), 271-277.

- Centers for Disease Control and Prevention. Web-based Injury Statistics Query and Reporting System (WISQARS) [Online]. (2003). National Center for Injury Prevention and Control, Centers for Disease Control and Prevention (producer). Available from: URL: www.cdc.gov/ncipc/wisqars
- Chan, S.S., Chiu, H.F., Chen, E.Y., Chan, W.S., Wong, P.W., Chan, C.L et al. (2009). Population-attributable risk of suicide conferred by Axis I psychiatric diagnoses in a Hong Kong Chinese population. *Psychiatric Services*, 60(8), 1135-1138.
- Cheng, J.K., Fancher, T.L., Ratanasen, M., Conner, K.R., Duberstein, P.R., Sue, S. et al. (2010). Lifetime suicidal ideation and suicide attempts in Asian Americans. *Asian American Journal of Psychology*, 1(1), 18-30.
- Chioqueta, A.P. & Stiles, T.C. (2007). The relationship between psychological buffers, hopelessness, and suicidal ideation: identification of protective factors. *Crisis*, 28(2), 67-73.
- Cole, T.B. & Glass, R.M. (2005). Mental illness and violent death: Major issues for Public Health. *Journal of the American Medical Association*, 294(5), 623-624.
- Conwell, Y., Duberstein, P.R., & Caine, E.D. (2002). Risk factors for suicide in later life. *Biological Psychiatry*, 52, 193-204.
- Cornam L.M., Cairney, J., & Streiner, D.L. (2010). Suicide ideation in older adults: Relationship to mental health problems and service use. *The Gerontologist*, 50(6), 785-797.
- Cogle, J.R., Keough M.E., Riccardi, C.J., & Sachs-Ericsson, N. (2009). Anxiety disorders and suicidality in the National Comorbidity Survey-Replication. *Journal of Psychiatric Research*, 43, 825-829.
- Cogle, J.R., Resnick, H., & Kilpatrick, D.G. (2009). PTSD, depression, and their comorbidity in relation to suicidality: Cross-sectional and prospective analyses of a national probability sample of women. *Depression and Anxiety*, 26, 1151-1157.
- Dennis, M., Baillon, S., Brugha, T., Lindesay, J., Stewart, R. and Meltzer, H. (2009). The influence of limitation in activity of daily living and physical health on suicidal ideation: results from a population survey of Great Britain. *Social Psychiatry and Psychiatric Epidemiology*
- Dyrbye, L.N., Thomas, M.R., Massie, F.S., Power, D.V., Eacker A., Harper, W., et al. (2008). Burnout and suicidal ideation among U.S. medical students. *Annals of Internal Medicine*, 149, 334-341.
- Fortuna, L. R., Perez, D. J., Canino, G., & Alegria, M. (2007). Prevalence and correlates of lifetime suicidal ideation and attempts among Latino subgroups in the United States. *Journal of Clinical Psychiatry*, 68(4), 572-581.

- Fragala, M.R. & McCaughey, B.G. (1991). Suicide following medical/physical evaluation Boards: A complication unique to military psychiatry. *Military Medicine*, 156(4), 206-209.
- Fridner, A., Belkic, K., Marini, M., Minicci, D., Pavan, L., & Schenck-Gustafsson, K. (2009). Survey on recent suicidal ideation among female university hospital physicians in Sweden and Italy (the HOUPE study): Cross-sectional associations with work stressors. *Gender Medicine*, 6(1), 314-328.
- Gliatto, M.F. & Rai, A.K. (1999). Evaluation and treatment of patients with suicidal ideation. *American Family Physician*, 59(6), 1500-1506.
- Goldberg, J. F., Ernst, C. L., & Bird, S. (2007). Predicting hospitalization versus discharge of suicidal patients presenting to a psychiatric emergency service. *Psychiatric Services*, 58, 561-565.
- Good, G.E., Dell, D.M., & Mintz, L.B. (1989). Male role and gender role conflict: Relations to help seeking in men. *Journal of Counseling Psychology*, 36, 295-300.
- Hamilton, T.K. & Schweitzer, R.D. (2000). The cost of being perfect: perfectionism and suicide ideation in university students. *Australian and New Zealand Journal of Psychiatry*, 34(5), 829-835.
- Harlow, L.L. & Newcomb, M.D. (1986). Depression, self-derogation, substance use, and suicide ideation: Lack of purpose in life as a mediational factor. *Journal of Clinical Psychology*, 42(1), 5-21. DOI: 10.1002/1097-4679
- Heider, D., Bernert, S., Matschinger, H., Haro, J.M., Alonso, J., & Angermeyer, M.C. (2007). Parental bonding and suicidality in adulthood. *Australian and New Zealand Journal of Psychiatry*, 41(1), 66-73.
- Henriksson, M.M. Aro, H.M., Marttunen, M.J., Heikkinen, M.E., Isometsa, E.T., Kuoppasalmi, K.I. et al. (1993). Mental disorders and comorbidity in suicide. *American Journal of Psychiatry*, 150, 935-940.
- Hill, J.V., Johnson, R.C., & Barton, R.A. (2006). Suicidal and homicidal soldiers in deployment environments. *Military Medicine*, 171(3), 228-232.
- Hirsch, J.K., Duberstein, P.R., & Unützer, J. (2009). Chronic medical problems and distressful thoughts of suicide in primary care patients: Mitigating role of happiness. *International Journal of Geriatric Psychiatry*, 24, 671-679.
- Hoge, C.W., Auchterlonie, J.L., & Milliken, C.S. (2006). Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. *Journal of the American Medical Association*, 295(9), 1023-1032.

- Hovey, J.D. (1999). Moderating influence of social support on suicidal ideation in a sample of Mexican immigrants. *Psychological Reports, 85*(1), 78-79.
- Ilggen, M.A., Zivin, K., McCammon, R.J., & Valenstein, M. (2008). Pain and suicidal thoughts, plans and attempts in the United States. *General Hospital Psychiatry, 30*, 521-527.
- Jakupcak, M., Cook, Z., Imel, Z., Fontana, A., Rosenheck, R., McFall, M. (2009). Post-traumatic stress disorder as a risk factor for suicidal ideation in Iraq and Afghanistan war veterans. *Journal of Traumatic Stress, 22*(4), 303-306.
- Joiner, T.E. (2002). The trajectory of suicidal behavior over time. *Suicide and Life-Threatening Behavior, 32*(1), 33-41.
- Juriscic, B. & Marusic, A. (2009). Suicidal ideation and behavior and some psychological correlates in physically disabled motor-vehicle accident survivors. *Crisis: Journal of Crisis Intervention and Suicide 30*(1).
- Kessler, R.C., Borges, G. & Walters, E.E. (1999). Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Archives of General Psychiatry, 56*(7), 617-626.
- Kessler, R.C., Berglund, P.A., Borges, G., Nock, M., Wang, P.S. (2005). Trends in suicide ideation, plans, gestures, and attempts in the United States 1990-92 to 2001-03. *The Journal of the American Medical Association, 293*(2), 2487-2495.
- Kessler R.C., Borges, G., & Walters, E.E. (2006). Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Archives of General Psychiatry 56*, 617-625.
- Krug, E.G., Dahlberg, L.L., Mercy, J.A., Zwi, A., & Lozano, R. (eds., 2002). *World report on violence and health*. Geneva: World Health Organization.
- Lee, J.I, Lee, M.B., Lio, S.C., Chang, C.M., Sung, S.C., Chiang, H.C. et al. (2010). Prevalence of suicidal ideation and associated risk factors in the general population. *Journal of the Formosan Medical Association, 109*(2), 138-147.
- Legleye, S., Beck, F., Peretti-Watel, P., Chau, N., Firdion, J.M. (2010). Suicidal ideation among young French adults: Association with occupation, family, sexual activity, personal background and drug use. *Journal of Affective Disorders, 123*(1-3), 108-115.
- Mahon, M.J., Tobin, J.P., Cusack, D.A., Kelleher, C., & Malone, K.M. (2005). Suicide among regular-duty military personnel: A retrospective case-control study of occupation-specific risk factors for workplace suicide. *American Journal of Psychiatry, 162*(9), 1688-1696.
- Maris, R. W., Berman, A. L., & Silverman, M. M. (2000). *Comprehensive textbook of suicidology*. New York: Guilford.

- McLaren, S. & Challis, C. (2009). Resilience among men farmers: the protective roles of social support and sense of belonging in the depression-suicidal ideation relation. *Death Studies*, 33, 262-276.
- Mehlum L, Friis S, Vaglum P, & Karterus S. (1994). The longitudinal pattern of suicidal behavior in borderline personality disorder: a prospective follow-up study. *Acta Psychiatrica Scandinavica*, 90, 124–130.
- Mental Health Advisory Team V (2008, February 14). *Mental Health Advisory Team (MHAT) V Operation Iraqi Freedom 06-08* (Report chartered by the Office of the Surgeon Multi-National Force-Iraq and the Office of the Surgeon General United States Army Medical Command). Retrieved from http://www.armymedicine.army.mil/reports/mhat/mhat_v/redacted1-MHATV-OIF-4-FEB-2008report.pdf
- Milliken, C.S., Auchterlonie, J.L., & Hoge, C.W. (2007). Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq War. *Journal of the American Medical Association*, 298(18), 2141–2148.
- Nock, M.K., Borges, G., Bromet, E.J., Alonso, J., Angermeyer, M., Beautrais, A. et al. (2008). Cross-national prevalence and risk factors for suicidal ideation, plans and attempts. *The British Journal of Psychiatry*, 192, 98-105.
- Nye, E.C. & Bell, J.B. (2007). Specific Symptoms predict suicidal ideation in Vietnam combat veterans with chronic post-traumatic stress disorder. *Military Medicine*, 172(11), 1144-1147.
- Pan, L., Fergusson, D., Schweitzer, I., & Hebert, P.C. (2005). Ensuring high accuracy of data extracted from patient charts: The use of a standardized medical record as a training tool. *Journal of Clinical Epidemiology*, 58(9), 918-923.
- Paris, J. (2002). Chronic suicidality among patients with borderline personality disorder. *Psychiatric Services*, 53, 738-742.
- Pietrzak, R.H., Goldstein, M.B., Malley, J.C., Rivers, A.J., Johnson, D.C. & Southwick, S.M. (2009). *Journal of Affective Disorders*, 123(1-3), 102-107.
- Read, J., Agar, K., Barker-Collo, S.L., Davies, E., & Moskowitz, A. (2001). Assessing suicidality in adults: Integrating childhood trauma as a major risk factor. *Professional Psychology Research and Practice*, 32(4), 367 – 372.
- Rowe, J.L., Conwell, Y., Schulberg, H.C., & Bruce, M.L. (2006). Social support and suicidal ideation in older adults using home healthcare services. *The American Journal of Geriatric Psychiatry*, 14(9), 734-741.

- Roy, A. (1982). Suicide in chronic schizophrenia. *The British Journal of Psychiatry*, 141, 171-177.
- Sareen, J., Cox, B.J., Afifi, T.O., Stein, M.B., Belik, S.L., Meadows, G., et al. (2007). Combat and peacekeeping operations in relation to prevalence of mental disorders and perceived need for mental health care: Findings from a large representative sample of military personnel. *Archives of General Psychiatry*, 6, 843-852.
- Scocco, P., Fantoni, G., Rappattoni, M., de Girolamo, G., & Pavan, L. (2009). Death ideas, suicidal thoughts, and plans among nursing home residents. *Journal of Geriatric Psychiatry Neurology*, 22(2), 141-148.
- Silverman, M. M., Berman, A. L., Sanddal, N. D., O'Carroll, P. W. & Joiner, T. E. (2007). Rebuilding the Tower of Babel: A revised nomenclature for the study of suicide and suicidal behaviors Part 2: Suicide-related ideations, communications and behaviors. *Suicide and Life-Threatening Behavior*, 37(3), 264-277.
- Smith, D., Fisher, L., & Goldney, R. (2002), Do suicidal ideation and behaviour influence duration of psychiatric hospitalization? *International Journal of Mental Health Nursing*, 11(4), 220-224.
- Soloff, P.H., Lynch, K.G., Kelly, T.M., Malone, K.M. & Mann, J.J. (2000). Characteristics of suicide attempts of patients with major depressive episode and borderline personality disorder: A comparative study. *American Journal of Psychiatry*, 157:601-608.
- Von Borczyskowski, A., Lindblad, F., Vinnerljung, B., & Hjern, A. (2010). Gender differences in risk factors for suicide: Findings from a Swedish national cohort study. *Canadian Journal of Psychiatry (Revue Canadienne de Psychiatrie)*, 55, 108-111.
- Wagner, K.D., Rouleau, M., & Joiner, T. (2000). Cognitive factors related to suicidal ideation and resolution in psychiatrically hospitalized children and adolescents. *American Journal of Psychiatry*, 157(12), 2017-2021.
- Whitlock, J.L., Eckenrode, J.E. & Silverman, D. (2006). Self-injurious behavior in a college population. *Pediatrics*, 117(6).