

The Correlation Between Female Veteran Mental Health and Branch of Military Service

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ABSTRACT

Purpose: While military mental health has been a topic of interest in recent years, the relationship between branch of military service and female veteran mental health outcomes has been under-explored. Female veterans are six times more likely to commit suicide than civilian counterparts, and present posttraumatic stress (PTS) rates that sit at approximately 20% (with some studies reporting statistics up to 50%), along with 20-30% for depressive disorders. Seeking to more fully understand what contributes to these issues is a necessary step in creating programming designed to improve outcomes and prevent death by suicide in women veterans. **Methods:** Researchers conducted a secondary analysis of data collected by the Service Women's Action Network (SWAN) in their 2017 needs assessment of women veterans. Quantitative analyses included multinomial regression tests and one-way ANOVA tests of dependent variables, with branch of military service as the independent variable. **Results:** Statistically significant differences between branches of service were found in respondent questions asking about the following: impact of service on mental health, impact of service on physical health, and existing depression diagnoses. Additional analyses of questions regarding stress injury, self-harm, and attitudes toward mental health treatment did not show significant difference. **Conclusions:** Many factors impact the mental well-being of service women. The experiences of unit cohesion, the incidence of trauma, or the availability of a network of peers on which to rely all change the operating environment for a military woman. To date, insufficient research has examined the role of service branch on mental health outcomes in veteran women, a knowledge

gap the present study sought to fill. **Recommendations:** The results of the study provide important feedback for service branches and the veteran care sector as they consider predictors for adverse health outcomes in women veterans. Tailoring culturally-competent outreach to service women is indicated, as is continuing to increase understanding of the military woman's transition experience.

Keywords: veteran, woman veteran, mental health, military service, veteran health

INTRODUCTION

Some of the major conditions that are associated with poor mental health are post-traumatic stress (PTS), depression, and suicidal ideation (Bryan, 2011). The number of active duty military service members and veterans seeking treatment for these mental health conditions has increased in recent years; multiple studies have found a relationship between the development of mental health conditions and military experiences (McDaniel, Thomas, Albright, Fletcher & Shields, 2018). Information acquired by the Department of Veterans Affairs (VA) revealed that approximately 25% of veterans returning home from deployment during Operation Enduring Freedom and Operation Iraqi Freedom (OEF-OIF) had developed a mental health condition (Seal, Bertenthal, Miner, Sen, & Marmar, 2007). According to studies, 35% of Iraq war veterans utilized VA mental health care post redeployment and 15% of active military women are seeking help via the VA healthcare system (Thomas & Hunter, 2019). These data have been useful in identifying gender differences in relation to the diagnosis and treatment of mental health conditions (Haskell, et al., 2010).

Since 2011, the anti-terrorism wars and campaigns have had an impact on deployment frequency and duration, which have in-turn impacted the rates of mental health conditions, such as posttraumatic stress (PTS), depression, and suicide in military veterans (Thomas, et al., 2015). While this has been a topic of interest in recent years, breaking down specific rates and analyzing both male and female veteran predictors of depression diagnoses and symptoms (Thomas, et al., 2016), the relationship of branch of military and female veteran mental health has yet to be analyzed. Female veterans are six times more likely to commit suicide than civilian counterparts, and present PTS rates that sit at approximately 20% (with some studies reporting statistics up to 50%), along with 20-30% for depressive disorders (Thomas & Hunter, 2019).

A study by Kelly (2011) reviewed the relationship between traumatic experiences and the

development of PTS, depression, and other mental health conditions. Military sexual trauma (MST) is classified by the VA as sexual assault or repeated and threatening sexual harassment (Maguen, Ren, Bosch, Marmar, & Seal, 2010). Researchers have consistently reported prevalence rates of sexual assault of women during military service of 21–25% or higher and of sexual harassment of 24–60% (Tanielan & Jaycox, 2008). Understanding these incidence rates is important because MST is one of the leading causes for developing PTS amongst the female veteran population (Himmelfarb, Yaeger, & Mintz, 2006). Intimate partner violence is another contributing factor to poor mental health outcomes; rates are as high as 40% in the female veteran community (Albright, et al., 2020). Researchers generally agree that the prevalence of stress injury and depression linked to sexual trauma is high and that their impact on women veterans is significant (Goldzweig, Balekian, Rolon, Yano, & Shekelle, 2006).

The current state of research regarding female veteran mental health has increased immensely over the past few years and provides an in-depth look into a few main topics such as, traumatic military experiences, PTS or other mental health conditions, returning home from deployment, and methods treatment, to name a few (Jones & Hanley, 2017; Thomas, McDaniel, Albright, Fletcher, & Haring, 2017). However, one of the most overlooked factors when determining the major causes of poor mental health outcomes is the influence of branch of service in the military. The five major branches of military are Air Force, Army, Marine Corps and Navy, with the Coast Guard being the only branch that fall under the Department of Homeland Security rather than the Department of Defense. A veteran's service experience is necessarily impacted by the culture, demographics, and mission sets of the service branch in which they work.

PURPOSE

The purpose of this study is to examine service branch differences in the diagnoses of and treatments for self-reported poor mental health

conditions. The results of the study will help to tailor programming that will better impact and resonate with female veterans, commanding officers, and correlating branch of military for a targeted preventative and intervention education to lower the high rates of mental health diagnoses and suicide in US female military veterans.

METHODS

Because of the many risk factors for poor mental health that women veterans face, the non-profit Service Women's Action Network (SWAN) was founded in 2007 to "support, connect and advocate for service women, past, present and future." Organizational aims are multi-faceted and include: to provide a community network, be an information resource, offer supportive programming, and advocate for the individual and collective needs of service women through programming and data collection. Data analyzed in this study were collected during a two-month time period during the fall of 2017 as part of a larger need assessment project aimed at illuminating unmet needs and perceived gaps in available services for military women. To examine the phenomenon of mental health conditions in veteran women, the Service Women's Action Network (SWAN) built questions about self-reported mental health status into its annual membership survey, designed according to the same measures used in the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance Survey (BRFSS).

After signing a data sharing agreement, the research team for this study, unaffiliated or involved with the original assessment, successfully sought to have the research approved by the Institutional Review Board (IRB) of Fort Lewis College (Durango, CO). Analyses were secondary in nature and received a human subjects exemption.

The original survey consisted of thirty-three questions, some of which concerned mental health and overall well-being of the respondents. The survey opened with an informed consent statement that outlined the study purpose, the survey's IRB approval through Charleston Southern University, and the limited risks participants faced by completing it. Participants indicated consent to continue the survey by clicking a button to move the survey forward. The data collected from the surveys were categorized into various demographics to better understand major risk factors of mental health conditions, and to identify if certain risk factors increase the likelihood to develop mental health

conditions. Several demographic characteristics were analyzed such as highest level of education obtained, marital and family status, race, and ethnicity. Survey respondents were also asked how their experiences in the military have affected them personally.

Secondary analysis of survey data involved quantitative analysis of mental health questions by respondents who identified as female veterans ($n = 1,293$). For this study, a multinomial logistic regression analysis (Hosmer, Lemshow, & Sturdivant, 2013) was used to analyze the data. This method provided answers to the following research question: do the identified risk factors for the development, prevalence, treatment, and care of female veterans and active duty military mental health conditions, differ between each of the major branches of the military?

First, basic frequencies were obtained to examine demographic factors and poor mental health prevalence in the surveyed population. While these numbers offered insight as to how to female veterans felt their mental health had been impacted by their military service, further cross-analysis of this data set was needed in order to detect if these numbers had any statistical significance in terms of differences between branches of service. For the analysis, the independent variable was always branch of military service (Question 3).

The tests used included a multinomial regression test and one-way ANOVA test. A multinomial regression is a statistical test used to predict a nominal dependent variable given one or more independent variables (SPSS Statistics, n.d.). The one-way ANOVA test was used to determine statistically significant differences between one or more independent variables (SPSS Statistics, n.d.). It is important to note that the p -value for both tests were set at <0.05 . This value was used to determine statistical significance. The IBM Statistical Package for the Social Sciences (SPSS) version 26 for MAC was used to conduct all analysis for the data included in the study (SPSS Statistics, n.d.).

RESULTS

The survey, consisting of 33 questions, asked participants to provide their branch of service, demographic information, and mental/ physical health status. Of these 33 questions, 11 were analyzed as they had the most relevance to the topic of this study.

Question three of the SWAN survey asked respondents “What is your most recent service branch?” The results displayed that Army had the largest percentage of respondents to the survey; 606 respondents (46.8%). The Air Force was second with 325 respondents (25.1%), followed by Navy which had 222 respondents (17.2%). Marine Corps and Coast Guard has the lowest number of respondents with 96 (7.4%) and 44 (3.4%), respectively.

The next question analyzed was question 13: “Has military service impacted your mental well-being?” The results demonstrated that 12% said there was no impact, 28% said their service impacted their mental well-being for the better while 60% of respondents said that military service has impacted their mental well-being for the worse.

Question 15 asked, “Do you consider yourself limited in anyway as a result of your service?” Of the total respondents, 30% said they did not consider themselves limited, 12% considered themselves limited mentally, 17% felt limited physically, while 41% considered themselves to be limited both physically and mentally.

Inversely, question 16 asked whether or not the respondents “considered themselves to be strengthened or improved as a result of their service”, to which 27% answered no improvement, 43% considered themselves improved both mentally and physically, while 12% said their mental well-being had improved and only 5% said their physical well-being has improved.

Question 17 asked, “If you left the service, did you leave for mental health reasons, physical health reasons, both, or neither.” Nine percent reported that they left their branch of service due to mental health conditions, 13% cited physical health reasons and 13% claimed both physical and mental health reasons. Sixty-five percent of respondents said neither of those were reasons why they left the service.

The next series of questions that were analyzed were more specific to mental health conditions. One in particular indicated the prevalence of existing mental health conditions. Question 19 asked, “Have you ever been told by a professional clinician that you have a depressive disorder including depression, major depression, dysthymia, minor depression?” Sixty-one percent responded “Yes” while 39% responded “No”.

Question 20 asked, “Have you ever been told by a professional clinician that you have a mild, moderate, or severe stress injury (sometimes called post-traumatic stress disorder)?” Fifty-one percent responded “Yes” and 49% responded “No.”

Question 22 asked whether or not respondents have ever intentionally harmed themselves, to which 21% responded “Yes” and 79% responded “No.”

Question 24 asked, “How much have you been bothered by repeated, disturbing memories, thoughts or images of a stressful military experience in the past month?” Overall, 44% of respondents said they were not bothered by repeated memories or thoughts of a stressful military experience. On the other hand, 20% said they were bothered a little bit and 17% said they were moderately bothered by repeated thoughts or memories of stressful military experiences. Lastly, 12% said they were bothered quite a bit while 6% said they were extremely bothered by repeated memories or thoughts of stressful military experiences.

Question 27 asked respondents to rate their level of agreement with the statement “mental health treatment can help people improve their quality of life.” Of the total respondents, 67% of respondents said they agreed strongly with this statement and 21% said that they agreed slightly. Additionally, 9% said they neither agree nor disagree and only 3% of respondents said they slightly or strongly disagree with this statement.

The ANOVA and multinomial regression tests determined that there was a statistically significant difference ($p=0.021$) in branch of service in relation to question 13, “Has military service impacted your mental health?” With the exception of the Coast Guard ($p=0.014$), the statistically significant difference for each branch of service was relatively the same ($p\leq 0.001$) for respondents who were asked if their military service has affected their mental health for the better. Comparatively, when asked if military service has affected the respondent’s mental health for the worse, the statistically significant difference for each branch was roughly equal ($p\leq 0.001$).

Question 14 asks, “Has military service affected your physical well-being?” When asked if military service had affected physical well-being for the better, there was a significant difference between the branches of service; Air Force ($p=0.016$), Army ($p=0.009$), Coast Guard ($p=0.019$), Marine Corps ($p=0.005$), however, the Navy did not merit statistical significance ($p=0.420$). When respondents said that

their military service has affected their physical well-being for the worse, the p -value for all groups was ≤ 0.001 . The mean of the responses for Question 13 and Question 14 was 1.843 and 1.935, respectively. The standard deviation for Question 13 was 0.61059, while the standard deviation for Question 14 was 0.57911. These numbers can also be identified in Tables 1 and 2.

Question 19 ("Have you ever been told by a professional clinician that you have a depressive disorder including depression, major depression, dysthymia, minor depression") was determined by the ANOVA test to be trending toward a statistically significant difference ($p=0.059$). Among each branch of the military, Air Force ($p=0.033$), Army ($p\leq 0.001$), and Navy ($p\leq 0.001$) all had statistically significant difference, whereas Coast Guard ($p=0.277$) and Marine Corps ($p=0.217$) were not determined to have statistically significant differences. The mean of question 19 was 1.3926 and the standard deviation was 0.48852. These numbers are also shown in Table 3.

The remaining questions that were analyzed did not meet the requirements to demonstrate statistical significance, therefore, the null hypothesis was rejected. The p -value for question 15 was 0.648, which indicates a lack of support for either mental and/or physical limitations across the different branches of the military, even though only 30% of respondents to the SWAN did not view themselves as limited as a result of their service. The mean was 2.8864 and the standard deviation was 0.96793. Alternatively, question 16 ($p=0.631$) did not show support for one of the five branches to have a statistically significant difference in improvement mental and/or physical health. The mean and standard deviation for question 16 were 2.7121 and 1.11999.

Additionally, question 17 asked respondents if they left their service for mental and or physical health reasons, which resulted in a p -value of 1.000. The mean was 3.3523 and the standard deviation was 1.00462.

Question 20 ($p=0.151$) indicates that there is not a statistically significant difference in the diagnosis of stress injuries between each branch of service. The mean was 1.4897 and the standard deviation was 0.50010.

Question 22 had a p -value of 0.380, which indicated that there was not one specific branch of military in which its female population was more

likely to intentionally harm themselves compared to the rest of the branches of service. Question 22 had a mean value of 1.794 and a standard deviation of 0.40457.

Question 24 ($p=0.113$) indicates that there was not a specific branch of service in which its female veteran population was more or less likely to be bothered by stressful memories or situations as a result of their service. The mean was 2.3144 and the standard deviation was 1.27843.

Lastly, question 27 ($p=0.711$) indicated that there was not one branch of military that was less or more receptive to the idea that mental health treatment can be beneficial to one's quality of life, the mean and standard deviation were 1.486 and 0.81376 (Table 4).

CONCLUSIONS

Many factors impact the mental well-being of service women (Thomas, et al., 2017). The experiences of unit cohesion, the incidence of trauma, or the availability of a network of peers on which to rely all change the operating environment for a military woman. To date, insufficient research has examined the role of service branch on mental health outcomes in veteran women, a knowledge gap the present study sought to fill.

When considering the findings of this report, a number of limitations must be acknowledged, including its overall exploratory nature. Data were self-reported, which could be problematic due to respondent recall or reluctance to answer sensitive, personal questions honestly. However, the use of self-report in survey-based research in the field is both accepted and common (Alvarez, Canduela, & Raeside, 2012). Because of the non-random sample, results are limited in generalizability; further assessments should seek larger sample sizes. Another limitation was the cross-sectional nature of this study's design, providing information from one snapshot in time from survey respondents.

The findings of the present study indicate that mental health is impacted by a woman veteran's service branch. The purpose of this study was to determine if there was a statistically significant difference in the prevalence and treatment of mental health conditions compared to the major branches of service: Air Force, Army, Navy, Marine Corps, and Coast Guard. A 33-question survey was conducted by the Service Women's Action Network (SWAN) and dispersed via convenience sampling (online,

email, phone, or by mail) to various female veterans to find statistical significance.

Analysis indicated significant differences between the service branches when respondents were asked about military service's impact on mental or physical health. Specific questions indicated significant differences between service branch participation and mental health outcomes. In particular, the analysis of question 19, which asked about existing diagnoses indicated significance. From these data, one can assume that receiving a diagnosis of depressive disorders such as major/minor depression or dysthymia, are more common among the Air Force, Army, and Navy populations. Interestingly, there were no significant differences in the likelihood of having been diagnosed with a stress injury. Depressive and stress injury conditions have different symptoms, but at times co-occur (Albright, et al., 2019; Thomas & Hunter, 2019).

Each service branch has a unique culture, and each has different resiliency programs that are delivered to personnel. Shields and Florenz (2017) offer insight on how resilience programs are being implemented in the military; future research should explore the connection between mental health outcomes and available programs. Resilience programs and services are used as prevention and intervention to the development of stress related injuries due to military service. A few examples of these programs and services include counseling, fitness, and team building exercises. Air Force is currently the only branch of the military that requires its members to participate in resilience programs, but each branch of military still has numerous programs and services available for their members (Shields & Florenz, 2017).

RECOMMENDATIONS

The findings of the present study present important feedback for the veterans' care sector, to include the Veterans Health Administration (VHA). Any organization hoping to reach women veterans, who are the fastest-growing veteran population (Defense Manpower Data Center, 2012) should be educated about mental health risk factors in the population. Understanding the service challenges many women veterans likely faced while on active duty can and should inform programming. Culturally competent programming could include trauma-informed offerings in a single-sex environment that offer a bridge into larger group participation. Gender norms in military family life must also be considered. Women are more likely to be the primary caregivers

to dependent children (Mankowski, & Everett, 2016), and unavailability of childcare could be a barrier to participation (Thomas, et al., 2019). Sociocultural barriers are nuanced leadership challenges that require diverse input from stakeholders at all levels of organizations or event-planning teams; outreach must be thoughtful, peer-led, and considerate of the culture of women warriors (Thomas, Plummer Taylor, Hamner, Glazer, & Kaufman, 2015).

Analyses of student veteran demographics indicate that of the two million veterans returning to civilian life each year, approximately 500,000 immediately use their veteran education benefits, and women veterans are overrepresented in that number (Albright, et al., 2019). The college campus thus creates an important site for intervention when thinking about how to reach veterans in the classroom. Several foundational steps can help campuses develop their relationship with the veteran and service member community to include: identifying students who are veterans (an often-overlooked tactic), offering community-building opportunity through the veteran student affairs office, and harnessing key stakeholders to provide leadership and program input unique to their campus setting. Findings are useful for college campuses interested in understanding military women demographically. Specifically, female student veterans are older and more likely to be married than female students who had not served. This makes caregiving responsibilities a risk factor for academic program completion that is uniquely salient for female student veterans. In one recent study, despite increased risk for mental health issues, military women received less information from campus services while in student status at levels statistically and practically significant on health topics such as alcohol and substance use, depression and anxiety, intimate partner violence, and stress (Thomas, et al., 2019). This indicates a possible messaging problem reaching non-traditional students in terms of both channels and tone. Specifically, it is likely that campus educators do not clearly understand how to tailor messaging appropriate for military personnel steeped in the norms of warrior culture. Veterans often reject patient identities, which creates a major barrier to mental health care with this population, barriers which are higher among marginalized subgroups like women veterans (Thomas & Hunter, 2019).

As educators who have increasing numbers of women veterans in the classroom each year as their population and representation in higher education both grow, it is important to understand the risk

factors that a service background brings to the student's experience. It also brings strengths to those students. Opening a dialogue with veteran students starts with identifying them. Is veteran status part of your initial meet-and-greet questioning? Taking the time to understand the culture of female student veterans will go a long way towards meeting the needs of this sub-population of students.

Further research is necessary for this topic, not just in terms of distinguishing a difference in the prevalence of mental health conditions across each branch of the military, but to provide more knowledge and understanding of the importance of mental health amongst the military populations. Taking into consideration some of the limitations that may have affected the data collection, further research should include a much larger sample population size in order to gain a more accurate representation of the female veteran population as a whole.

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Table 1
Total number of respondents, measures of central tendencies and statistical significance.

Has military service impacted your mental health?	N	Mean	SD	Sig.
Total	1,274	1.843	0.61059	0.21
Has military service affected your physical well-being?	N	Mean	SD	Sig.
Total	1,276	1.935	0.57911	0.008*

* indicates a p -value $\leq .05$

Table 2
Statistical Significance for each branch of service.

Has military service impacted your mental health?	Yes, For the Better	Yes, For the Worse
Air Force	≤0.001*	≤0.001*
Army	≤0.001*	≤0.001*
Coast Guard	0.014*	≤0.001*
Marine Corps	≤0.001*	≤0.001*
Navy	≤0.001*	≤0.001*
Has military service affected your physical well-being?	Yes, For the Better	Yes, For the Worse
Air Force	0.016*	≤0.001*
Army	0.009*	≤0.001*
Coast Guard	0.019*	≤0.001*
Marine Corps	0.005*	≤0.001*
Navy	0.42	≤0.001*

* indicates a p -value ≤ .05

Table 3
Total number of respondents, measures of central tendencies and statistical significance for each branch of service.

Have you ever been told by a professional clinician that you have a depressive disorder, including depression, major depression, dysthymia, or minor depression?	N	Mean	SD	Sig.
Air Force	301	1.4385	0.49703	0.033*
Army	572	1.3881	0.48775	≤0.001*
Coast Guard	41	1.4146	0.49878	0.277
Marine Corps	94	1.4362	0.49857	0.217
Navy	202	1.3119	0.46441	≤0.001*
Total	1,210	1.3926	0.48852	0.059

* indicates a p -value ≤ .05

Table 4

Total number of respondents, measures of central tendencies and statistical significance of the questions that did not merit statistical significance.

Question	N	Mean	SD	Sig.
Do you consider yourself limited in any way as a result of your service? (Q 15)	1,276	2.8864	0.96793	0.648
Do you consider yourself strengthened/improved in any way as a result of your service? (Q 16)	1,261	2.7121	1.11999	0.631
If you have left the service, did you leave for mental health, physical health, both or neither? (Q 17)	1,215	3.3523	1.00462	1.00
Have you ever been told by a professional clinician that you have a mild, moderate, or severe stress injury (sometimes called post-traumatic stress disorder)? (Q 20)	1,211	1.4897	0.5001	0.151
Have you ever intentionally harmed yourself? (Q 22)	1,209	1.794	0.40457	0.38
How much have you been bothered by repeated, disturbing memories, thoughts or images of a stressful military experience in the past month? (Q 24)	1,212	2.3144	1.27843	0.113
Please rate your level of agreement with the following statement: "mental health treatment can help people improve their quality of life." (Q 27)	1,214	1.486	0.81376	0.711