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Factors associated with VA versus non-VA substance use treatment among women veterans

Margarita Ana Graeber
University of Iowa

FACTORS ASSOCIATED WITH VA VERSUS NON-VA SUBSTANCE USE TREATMENT AMONG WOMEN VETERANS

by

Margarita Ana Graeber

An Abstract

Of a thesis submitted in partial fulfillment
of the requirements for the Doctor of
Philosophy degree in Psychological and Quantitative Foundations
in the Graduate College of
The University of Iowa

December 2010

Thesis Supervisor: Professor John Westefeld

ABSTRACT

There are more women enlisting in the military and, as a result, the Veterans Administration (VA) is experiencing an increase in women veteran's utilization of healthcare services. This study examined the factors that facilitate and/or impede women veterans with a substance use disorder seeking VA substance use treatment. The current study examined predisposing, enabling, and need factors related to utilization of VA substance use treatment. An intact dataset of 1004 participants were utilized in addition to a subset of 143 women veterans with a substance use disorder who sought substance use treatment. Predisposing factors significantly differentiated women veterans with and with a substance use disorder. A significant difference was not found between severity of substance use diagnosis and health insurance status. Marital status and socio-economic status were the only predictor variables that significantly predicted women veterans with a substance use disorder and utilization of VA substance use treatment. The results provide mixed support related to previous research. Future directions for research are discussed.

Abstract Approved: _____
Thesis Supervisor

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Title and Department

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Date

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Iowa City, Iowa

CERTIFICATE OF APPROVAL

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PH.D. THESIS

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This is to certify that the Ph.D. thesis of

Margarita Ana Graeber

has been approved by the Examining Committee
for the thesis requirement for the Doctor of Philosophy
degree in Psychological and Quantitative Foundations at the December 2010
graduation.

Thesis Committee: _____
John Westefeld, Thesis Supervisor

_____
Saba Ali

_____
Sam Cochran

_____
Jodi Saunders

_____
Timothy Ansley

_____
Michelle Mengeling

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CHAPTER ONE INTRODUCTION AND REVIEW OF THE LITERATURE

The chapter will be organized in the following manner. First, a brief overview of how the Veterans Administration (VA) has responded to the increase of women enlisting in the military will be discussed. Second, a review of the literature regarding the factors related to women veterans and their use of VA mental health utilization will be presented. Third, a discussion of the factors that have been found to impact women veterans to seek substance use treatment will be presented. Fourth, Andersen's Behavioral Model of Health Services Use will be discussed in the context of women veterans and their utilization of substance use treatment. Lastly, a review of the factors that differentiate women veterans seeking VA services versus non-VA services will be presented.

There are an increasing number of female veterans in the military. As a result, the VA is seeing an increase in services utilized by this population (Goldzweig, Balekian, Rolon, Yano, & Shekelie, 2006). Specifically, according to the 2000 U.S. Census, there were 1.6 million women veterans in the United States, and 11% of these veterans reported using the VA for all or some of their care. Because of this increase in both population of women veterans and increase in utilization, the VA has adopted a variety of models aimed at the delivery of gender specific services to women veterans (Yano, Washington, Goldzweig, Caffrey, & Turner, 2003; Yano, Goldzweig, Canelo, & Washington, 2006). For example, over half of women veterans who received most of their health care services from general primary care clinics were typically referred to a specialized womens' health clinic for preventive health screenings (e.g., papanicolaou smears, breast examinations) or gender-specific care. Furthermore, according to Yano,

Washington, Goldzweig, Caffrey, and Turner (2003) over half of all VA facilities surveyed in their study have separate women's health clinics aimed at the delivery of both primary care and gender-specific services. According to the authors, about one third of these clinics were established by 1995 and have continued to increase in number by 5-10% per year, thereafter. Another clinical model identified by the authors was gynecology clinics independent of women's health clinics. These clinics were developed prior to women's health clinics and experienced their greatest growth between the late 1980s and early 1990s. In terms of mental health services, women veterans most often accessed integrated outpatient mental health clinics. However, according to these authors, 11% of the VA's surveyed offered specialized women's mental health clinics, which were established between 1992 and 2001. As a result of these models and the increase in women veterans VA utilization, the VA Office of Research and Development (ORD) recently initiated an effort to examine the special health needs of women veterans, included but not limited to, gynecological/obstetric care and mental health needs (Yano, et al. 2006). Through this initiative a high priority was given to the examination of mental health needs and service utilization among women veterans, given the likelihood that it will impact health-related quality of life.

Women Veterans and VA Mental Healthcare Utilization

An important factor impacting whether women veterans seek VA services is related to their womens' minority status. Currently, the VA is a predominantly male environment. According to VA statistics, in September 2008 there were 23.4 million veterans in the U.S.; of these veterans, 1.8 million were women (Women Veterans

Populations, retrieved December, 2008). Therefore, women veterans are considered a minority within the military (Frayne et al., 2007). According to Stack, Cortina, Samples, Zapata, and Arcand (2000), being an ethnic/racial minority group member in the population at large may not be as salient a factor, in terms of VA service utilization, as being a member of a minority group within a treatment setting (e.g., group therapy). Specifically, they examined substance abuse treatment completion in a sample of male veterans who were predominantly African American. Results indicated that African American male veterans, who were the majority in the treatment setting, were more likely to complete treatment than their Caucasian counterparts. A study conducted by Hoff and Rosenheck (1997) found, contrary to other studies, that women veterans were just as likely as men to receive VA mental health services; however, they found one exception. Women veterans had a significantly decreased likelihood of seeking VA mental health services for substance abuse. The authors provided several possible explanations for this exception. First, it was possible that women veterans might be uncomfortable with the types of substance abuse treatment services (e.g., group therapy) currently offered by both the VA and other service providers, given that this form of treatment can be confrontational in nature. Furthermore, given that both genders typically participate in this treatment modality, women veterans may be uncomfortable with the expectation and/or belief that male veterans may be verbally aggressive and/or confrontational. Lastly, given that VA substance abuse treatment programs do not tailor such service to women veterans by making available women- only treatment groups, women veterans may be reluctant to enter VA treatment.

Living in a rural area versus an urban area also has been shown to be related to the utilization of VA substance abuse services (Wallace, West, Booth, & Weeks, 2007). In 1998 the VA shifted its provision of substance abuse treatment from an inpatient setting to an outpatient setting. As a result, the use of inpatient VA substance abuse programs decreased significantly for rural veterans compared to urban veterans. In addition, these researchers found that rural patients were more likely to have Medicaid than their urban counterparts. Also, both rural and urban patients who entered treatment in a non VA facility were less likely to be enrolled in Medicare. Furthermore, both rural and urban veterans who entered treatment in a VA substance abuse treatment program were more likely than those who entered a non VA treatment program to have a service connected disability (Wallace, West, Booth, & Weeks, 2007). As a consequence of the shift from VA inpatient to outpatient treatment programs, urban veterans were able to compensate by increasing their use of non VA services; however, rural veterans were unable to do the same. One possible explanation is that distance to care is a known barrier to accessing health care services (Borders & Booth, 2007; Druss & Rosenheck, 1997; Wallace, West, Booth, & Weeks, 2007; Washington, Kleimann, Michelini, Kleimann, & Canning, 2007). Therefore, living in a rural area may make it more difficult to access VA outpatient substance abuse treatment as compared to VA inpatient substance abuse treatment. Furthermore, this barrier to care may be further complicated for rural veterans with a substance use disorder, in particular, given that they tend to lose their driver's license and, therefore, are unable to independently drive themselves to VA outpatient treatment (Wallace, West, Booth, & Weeks, 2007).

According to Ruzek (1997), women in the general population do not have equal access to healthcare as compared to men. They are also less likely to have insurance through their own employment; however, they are twice as likely as men to have insurance coverage through their spouse's insurance plan (as cited in Ruzek, 1997). According to Puentes (1992), "The status of women, their position in the labor force and gender roles in most societies, contribute to make women the largest proportion of the population within or below poverty lines, holding low paying jobs, and unable to either pay for better services or cover health costs" (p. 620). Because of these factors, women 18 years old and older are more likely to be eligible for public insurance programs, such as Medicaid (as cited in Ruzek, 1997). Therefore, for this population of women who want to seek mental health services, they find their options are limited, given that Medicaid reimburses at such a low rate for mental health service that few patients can afford to see such providers (Ruzek, 1997). Given this, it is possible that women veterans seek mental health services, including substance abuse treatment, through the VA, assuming they are eligible for such services, as it is provided free of charge to the veteran.

Hoff and Rosenheck (1998) conducted a secondary analyses of data from the 1992 National Survey of Veterans (NSV). The NSV occurred over the previous 20 years and examined the demographic profile of US veterans, healthcare needs, and utilization of VA for health care services. The authors created a subset of this dataset. Their dataset consisted of veterans who were eligible to receive services through the VA and veterans who received any healthcare services from the VA in 1992, which resulted in a sample of 7,309 veterans (7,004 men and 305 women). They examined whether or not women

veterans differed in their use of any VA healthcare services. After stratifying the sample by inpatient versus outpatient use, they examined if there were any differences in utilization of service type. They stratified the sample again across type of reported illness (i.e., serious, possibly fatal, physical problems; less serious physical problems not likely to be fatal, and mental problems) and examined if there were gender differences across illness type. Lastly, gender differences were examined with respect to reasons for choosing the type of healthcare received. In terms of demographics, the authors found women veterans were younger, more likely to be married, more likely to have lower annual income, more educated, less likely to have health insurance, and less likely to have a service-connected disability than were men. Women veterans were half as likely to use VA services, in general, than male veterans, and women veterans were significantly less likely to seek mental health outpatient services from the VA than their male counterparts. There were no gender differences in reported reasons for choosing the type of VA healthcare service (i.e., inpatient, outpatient). Both genders reported location of the site, available services at the site, health insurance status, and perceived quality of care as reasons for choosing a particular type of service.

Women Veterans and Substance Abuse Treatment

In terms of women veterans mental health needs, substance abuse, in particular, is lacking in empirical research. This is an important area of study given that less than half (47%) of women veterans with an alcohol use disorder receive any mental health services in a 12 month period and only 34% complete treatment (Ross, Fortney, Lancaster, & Booth, 1998). Hoff and Rosenheck (1997) conducted a national VA survey on all

outpatient clinical visits to mental health clinics to determine service patterns for men and women veterans. The sample consisted of 70,979 veterans and was divided into veterans with a psychiatric diagnosis (women veterans = 2,574; men veterans = 54,730) and veterans with a substance use related diagnosis (women veterans = 227; men veterans = 13,448). Of veterans with a substance use related diagnosis, women were more likely than men to be younger and to have a service-connected disability. The authors found that only 16% of the women who had a substance-related disorder received substance abuse services, compared to 71% of the men with the same disorder. After adjusting for socio-demographic and clinical characteristics, the authors conducted a multivariate analysis and found that women with a substance use diagnosis were significantly less likely than men to have sought outpatient services for their diagnosis.

According to psychiatric epidemiologists, the clinical criteria for a diagnosis of alcohol dependency should be defined differently by gender. They argue that the legal definition of driving while intoxicated is based on gender and on weight, given men and women metabolize alcohol at different rates, and, therefore, the clinical criteria should also reflect this difference between genders (as cited in Wechsler, Dowdall, Davenport, and Rimm (1995). In a study conducted by Wechsler, Dowdall, Davenport, and Rimm (1995), women are less likely than men to report drinking 6 or more alcoholic drinks on one occasion. Therefore, they proposed a gender specific operational definition of four or more alcoholic drinks on one occasion for women, given women endorsed alcohol related problems (e.g., feeling regret, arguing, unplanned sex, unsafe sex, injury) at this threshold, compared to men who reported such problems at five drinks. Using this definition, Davis, Bush, Kiviahan, Dobie, and Bradley (2003) examined a cross-sectional

cohort of women veterans who completed a 16-page mailed survey assessing "health history and behaviors, history of preventive screening, and mental health, and patient satisfaction (p. 215)". Of the 1,935 surveys mailed, 1,257 surveys were returned complete. The authors reported that up to 31% of women veterans endorsed hazardous or problem drinking and 5% endorsed any drug abuse in the past year. Women veterans under the age of 50 were more likely to report smoking and any hazardous drinking, problem drinking, or both than women veterans over 50 years old. In terms of specific criteria related to substance abuse and/or dependence, women veterans, specifically between 35-49 years old, were more likely to report using drugs more than intended or to report having reduced their drug use than other women veterans in the sample. Also, women veterans who screened positive for a mental health disorder (e.g., major depression, PTSD) had higher rates of a substance use disorder than women veterans who screened negatively for a mental health disorder.

Bradley et al (2001) examined a cross-sectional cohort of women veterans who completed a modified version of the Alcohol use Disorder Identification Test (AUDIT), an alcohol consumption measure. In their study, they modified the third question. Instead of asking the frequency of consuming 6 or more alcoholic beverages in one occasion, the original wording of the AUDIT, they asked the frequency of consuming 4 or more alcoholic beverages in once occasion. The authors found that 25% of women veterans endorsed consuming four or more alcoholic drinks on one occasion. Furthermore, they found that self-reported binge drinking was associated with an increase in alcohol related social problems, morning drinking, drug abuse, and multiple sexual partners in the past year. They also found that women veterans who endorsed binge

drinking monthly or more frequently had an increase in the frequency of self-reported injuries and liver disease. Lastly, women veterans who endorsed binge drinking were more likely to be younger, less likely to be married, and less educated than women who did not binge drink.

In 1992 the National Institute of Health reported a total health care cost of close to $29 billion (as cited in Stecker, Curran, Han, & Booth, 2007). Furthermore, Stecker, Curran, Han, and Booth (2007) suggested that many health problems (e.g., liver disease and pancreatitis and injuries) are directly related to the abuse of substances. Miller, Lestina, and Smith (2001) examined a retrospective cohort of individuals who had medical claims related to an alcohol-related or drug-related primary or secondary diagnosis. In their study, an injury consisted of any of the following: "amnestic syndrome, postconsussion syndrome, traumatic cataract, respiratory conditions due to chemical fumes and vapors, displacement of intervertebral disc, coma, and asphyxia" (p.55). The authors identified 3 categories of substance abuse: alcohol and drug, alcohol only, and drug only. The sample consisted of 15,480 individuals with a substance use diagnosis aged 10-64 years old. Sixty four percent were alcohol only abusers, 17% were drug only abusers, and 19% were both alcohol and drug abusers. They found that female abusers after age 20 displayed similar injury rates to men; however, by age 50 female injury rates exceeded male rates. The authors suggest that the increase for injury in women over 50 may be related to the fact that women are prone to osteoporosis and may, therefore, seek medical attention for broken bones more frequently than men. The authors also found that there were twice as many alcohol abusers between the ages of 35-49 compared to 20-34. They argue this difference may be due to such individuals having

abused alcohol for such an extended period of time that they find themselves seeking medical care for cirrhosis.

Stecker, Han, Curran, and Booth (2007) accessed the VA's national health services use database and examined gender differences among veterans seeking intensive outpatient (IOP) services for substance abuse through the VA. They also sought to investigate differences between women veterans with a substance use disorder in treatment with a matched no treatment group of women "veterans in primary care with a substance abuse diagnosis and no substance use treatment in specialty settings" (p. 1479). The IOP sample consisted of 8,329 men and women veterans, of which 247 were women veterans, from 36 programs across the nation. The matched no treatment group consisted of 7,328 men and women veterans, of which 198 were women. When comparing women veterans in intensive outpatient (IOP) substance abuse treatment with women diagnosed with a substance abuse disorder by a primary care provider but not in treatment, the authors found that women in IOP had significantly higher rates of psychiatric comorbidities (e.g., depression, bipolar disorder, personality disorders) and medical comorbidities (e.g., blood disorders, digestive disorders, infectious disorder, injuries) than women not in treatment. This finding suggests that women veterans with multiple psychiatric and medical comorbidities may either wait longer to enter VA substance abuse treatment or that only women veterans with complex clinical presentations utilize VA services (Stecker, Curran, Han, & Booth, 2007).

Andersen's Behavioral Model of Health Services Use, Women Veterans, and Substance Use

In order to better understand the factors that facilitate and impede women veterans utilization of VA substance abuse services, Andersen's (1973, 1995) Behavioral Model of Health Services Use will be utilized. The model "suggests that people's use of health services is a function of their predisposition to use services, factors which enable or impede use, and their need for care" (Anderson, 1995, p. 1). In this model, predisposing characteristics consist of basic demographic variables that are considered immutable such as age, race/ethnicity, marital status, educational level, and era of service. Enabling factors are considered to be those factors which assist an individual in gaining access to healthcare such as income, health insurance, service connection, and access to childcare. Lastly, need factors are primarily concerned with "how people view their own general health and functional state, as well as how they experience symptoms of illness, pain, and worries about their health and whether or not they judge their problems to be sufficient importance and magnitude to seek professional help" (Andersen, 1995, p. 3). Some examples of need factors include but are not limited to the type of substance used and the severity of the substance used. This model has been used extensively in healthcare utilization studies (as cited in Elhai, Reeves, & Frueh, 2004); however, to this author's knowledge, this model has not been applied to the examination of women veterans with a substance use disorder and their decision to seek VA or non-VA substance abuse services.

Predisposing Factors

According to Andersen's Behavioral Model of Health Services Use, predisposing factors include demographic variables such as age, gender, race/ethnicity, social economic status, education, marital status, and occupation (Andersen, 1995). A relationship between the age of the veteran and likelihood of entering VA substance abuse treatment remains unclear. For example, Ross, Fortney, Lancaster, and Booth (1998) found that younger women veterans (i.e., less than 30 years old) with an alcohol dependent diagnosis were more likely to complete formal inpatient treatment than older women veterans with an alcohol dependent diagnosis. In a study conducted by Elhai, Grubaugh, Richardson, Egede, and Creamer (2007) women who were younger were found to be more likely to avail themselves of VA mental health treatment. However, other studies have found no link between age and use of VA substance abuse treatment (Hoff & Rosenheck, 1997; Nietert, French, Kirchner, & Booth, 2007; Stecker, Han, Curran, & Booth, 2007).

Research examining other predisposing factors among both the general population and military veterans and utilization of mental health services has demonstrated mixed results. In a study examining mental health service use in an active Canadian military sample, Fikretoglu, Guay, Pedlar, and Brunet (2008) found gender, marital status, and military rank to be significantly related to mental health service utilization. Specifically, women were more likely than men to seek treatment. Veterans who were married/in a common law relationship or widowed/separated/divorced were more likely to seek services than veterans who were single. Lastly, in terms of military rank, seniors (i.e., sergeants to chief warrant officers) were less likely to seek treatment than officers (i.e.,

officer cadet and higher ranks). Elhai and Ford (2007) investigated associations between predisposing, enabling and need variables and mental health service use. Their sample came from the National Comorbidity Survey (NCS: 1990-1992) and the National Comorbidity Survey Replication (NCS-R: 2001-2003). The authors used a subsample of participants, ranging in age from 15-54 years old, who completed parts I and II of the NCS (N=5,877) and parts I and II of the NCS-R (N=4,320). Both of these surveys gathered information related to sociodemographic characteristics, diagnostic assessment (i.e., modified version of the structured Composite International Diagnostic Interview), and mental health service use (i.e., number of visit counts to mental health providers). In terms of mental health service use, although the authors gathered data on mood, anxiety, and substance use disorders, they did not distinguish between general psychotherapy use and substance use treatment. A univariate analysis indicated that there were no predisposing factors significantly related to mental health utilization for the NCS dataset and the NCS-R dataset. After conducting a multivariate analyses, the predisposing factors that were significantly related to mental health utilization for the NCS dataset were being older and being more highly educated. In the NCS-R dataset, only having a higher education was significantly associated with mental health service use. However, in the study conducted by Stecker, Han, Curran, and Booth (2007), which was described earlier, they failed to find any predisposing factors that were associated with substance abuse treatment.

Research examining women veterans with a substance use disorder across era of service has been limited. Fontana and Rosenheck (2008) examined veterans from three eras of service: Operation Iraqi Freedom/Operation Enduring Freedom (OIF/OEF),

Persian Gulf, and Vietnam era. Their aim was to examine both socio-demographic and clinical characteristics between the 3 cohorts. Their data were taken from the VA's Northeast Program Evaluation Center (NEPEC), a program that monitors the specialized inpatient and outpatient PTSD treatment programs. In order to control for the possible confounding effect of veterans who may have served in multiple eras, only veterans who served in one of the three eras were eligible. The cohorts for the contemporaneous analyses were taken from outpatient and inpatient admission assessments between April 1, 2004 and December 31, 2006. The outpatient sample sizes for each of the three cohorts were: 6,523 veterans for the OIF/OEF era, 2,376 veterans for Persian Gulf (PER) era, and 20,170 veterans for the Vietnam (VIET) era. The inpatient sample sizes were 562 OIF/OEF veterans, 565 for the PER veterans, and 6,217 for VIET veterans. For the non-contemporaneous analyses, the sample for PER and VIET veterans were taken between February 1, 1992 to October 31, 1994. The non-contemporaneous analyses were conducted in order to "allow matching of the passage of time from the beginning of the respective wars to the time of assessment for PER and OIF/OEF veterans (p. 514)." As a result, this sample was assessed about 10-14 years prior to the beginning of the current OIF/OEF era. The authors noted that, although the VIET era had occurred prior to the last 10-14 years, it was the closest time period where veterans from this era were assessed with similar measures used in the early 2000's. Furthermore, this allowed comparisons between OIF/OEF veterans and PER veterans soon after each respective cohort returned from a war zone. Although this did not allow for a clear analysis of VIET veterans who had just returned from overseas, it did allow comparisons of VIET veteran who were younger than they were at the time the study was conducted. The OIF/OEF veteran

sample that was utilized for the contemporaneous analyses were also used for the non-contemporaneous analyses. For the non-contemporaneous analyses, the outpatient sample size was 1,045 PER veterans and 17,904 VIET veterans. For the inpatient sample, NEPEC began its monitoring of programs on June 1, 1993; therefore, the inpatient sample was derived from the measures used by NEPEC from this date, June 1, 1993 to October 31, 1994. The sample sizes for inpatients were 116 PER and 5,909 VIET veterans.

Although the authors of this study examined data for veterans seeking treatment for Post Traumatic Stress Disorder (PTSD), the study analyzed a variety of socio-demographic and clinical variables among the sample. The contemporaneous analyses, controlling for the program site and age, found the OIF/OEF era veterans had the lowest rates for a diagnosis of either alcohol abuse/dependence or drug abuse/dependence regardless of inpatient or outpatient status; whereas, VIET era veterans had the highest rates of such a diagnosis and PER veterans' rates of such a diagnosis were in between the 2 cohorts. This finding also held true for the non-contemporaneous analyses with the OIF/OEF having the least rates of a diagnosis of alcohol abuse/dependence or drug abuse/dependence, VIET veterans having the highest rates of the diagnosis, and PER veterans' rates of such a diagnosis in between the 2 cohorts. It should be noted that the sample of veterans consisted of both men and women.

Fontana, Rosenheck and Desai (2010) conducted a study examining OIF/OEF women veterans seeking specialized treatment for PTSD. The authors sought to compare this group of women veterans with their male counterparts of the same era. They also sought to compare these women veterans with women veterans who also served in war

zones of previous eras. The authors collected data in a manner similar to the study by Fontana and Rosenheck (2008); however, they only analyzed data for veterans seeking outpatient treatment versus inpatient and outpatient treatment, as in the previous study. Participants were identified through NEPEC who sought specialized outpatient PTSD treatment and both contemporaneous and non-contemporaneous analyses were conducted for similar reasons as reported by Fontana and Rosenheck (2008). The contemporaneous cohort was derived from admission assessments completed between April 1, 2004 and November 30, 2007. The sample sizes for women veterans were: 1,258 OIF/OEF veterans, 380 PER veterans, and 100 VIET veterans. The non-contemporaneous cohort was derived between February 1, 1992 and September 30, 1995 for PER and VIET women veterans; the OIF/OEF women veterans from the contemporaneous sample were used for the non-contemporaneous analyses. The sample size for each cohort was 227 PER women veterans and 71 VIET women veterans. Contemporaneous analyses revealed that OIF/OEF and PER women veterans were diagnosed with alcohol abuse/dependence significantly less often then VIET women veterans. There was no significant difference between the OIF/OEF and PER women veterans and diagnosis of alcohol abuse/dependence. However, a diagnosis of drug abuse/dependence for women veterans was significant across era of service. OIF/OEF women veterans were diagnosed with drug abuse/dependence the least, followed by PER women veterans, and VIET veterans having the highest rate of this diagnosis. The non-contemporaneous analyses resulted in similar findings with OIF/OEF women veterans being significantly less likely to be diagnosed with alcohol abuse/dependence or drug abuse/dependence, followed by

PER women veterans, and VIET veterans being diagnosed significantly more with either alcohol abuse/dependence or drug abuse/dependence.

Enabling Factors

Concerning Andersen's (1995) enabling factors, he differentiates between potential access and realized access. Potential access is defined as "the presence of enabling resources" (p. 4), which covers issues such as income, availability of health insurance, number of healthcare providers in an area, and distance to healthcare provider. Realized access is "the actual use of services" (p. 4). Borders and Booth (2007) conducted a literature review related to how living in a rural area impacts access to drug abuse services. In their review, the authors identified issues that may negatively impact those with a substance use disorder who live in rural areas. For example, a survey of Iowa's acute care hospitals revealed that 40% of rural hospitals needed but did not offer substance abuse prevention and/or general mental health promotion services. Furthermore, Fortney, Lancaster, Owen, and Zhang (1998) examined VA patient data and the distance these veterans had to travel in order to receive outpatient psychiatric care and medical care. They found that, geographically, rural areas had a significantly smaller market for psychiatric care than for medical care. That is, veterans would have to travel further distances to receive treatment for drug abuse disorders than for medical disorders (as cited in Borders & Booth, 2007). Overall, for potential access, this study found that rural areas often do not have a sufficient number of substance abuse treatment programs to adequately serve this population. For realized access, the review suggested that rural individuals with a substance use disorder have at a minimum, equal, but more often,

worse, realized access to treatment than urban residents. For example, a finding from the 2000-2001 Community Tracking Study revealed few differences in access to general health services (e.g., medical) between metropolitan and non-metropolitan areas; however, the exception to these results was mental health care.

Nietert, French, Kirchner, and Booth (2009) found that such enabling/access variables as military affiliation, having health insurance, and full time employment were significantly related to accessing VA mental health/substance abuse services. They suggested that a veteran's status (e.g., VA health insurance, service connected) potentially provided access to free or virtually free health care, including mental health/substance abuse services. They further suggested that unemployment may be associated with poor physical and mental health status, which taken together may lead veterans to seek out mental health/substance abuse services, given the likelihood of experiencing significant distress in their life. Hoff and Rosenheck (1997) also found that women veterans who attended outpatient mental health services for a substance use disorder were more likely than men veterans to have a service connected disability.

In the study by Elhai and Ford (2007) described in the previous section, the authors conducted a univariate analysis and did not find any of the enabling factors in their study to be significantly related to mental health utilization for the NCS dataset. In the NCS-R dataset, the univariate analysis identified unemployment as significantly related to mental health service use. After conducting a multivariate analysis, possessing health insurance was significantly related to mental health service utilization in the NCS dataset. There were no significant enabling factors in the NCS-R dataset.

Need Factors

Most of the research investigating predictors of mental health utilization among veterans suggests that need factors are the strongest predictors of such utilization. Fikretoglu, Guay, Pedlar, and Brunet (2008) asked a sample of active military Canadian veterans to rate their perceived need for mental health services. Results indicated that veterans who rated their health as poor to fair and good to very good were more likely to seek services than those who rated their health as excellent. Interestingly, being diagnosed with alcohol dependence was not a significant predictor of mental health or substance abuse services; however, being diagnosed with Posttraumatic Stress Disorder, Generalized Anxiety Disorder, and/or Major Depressive Disorder were significantly predicted mental health service utilization. The authors suggest that it is possible that those with alcohol dependence may either not be ready to change or believe they can cope with their symptoms on their own. In the study by Elhai and Ford (2007) already described, in a univariate analysis for the NCS dataset, the only significant need factor in seeking mental health services was having a mental health disability (i.e., "whether the respondent cut down on or was unable to perform usual activities b/c of a mental health problem for at least one day in the past month" p. 1109). In the NCS-R dataset, the need factors which significantly related to seeking mental health services were having a mental health disability and having a diagnosis of an anxiety or a mood disorder. Interestingly, having a substance use disorder was not significant. In their multivariate analysis, the authors found that having a mental health disability was still significant in the NCS dataset. The multivariate analysis for the NCS-R dataset failed to identify any significant need factors for mental health utilization.

Stecker, Han, Curran, and Booth (2007) examined characteristics of men and women veterans seeking IOP substance use treatment through the VA as described previously. Results indicated that women veterans in IOP had significantly higher rates of psychiatric comorbidity (e.g., depression, bipolar, personality disorders) as well as medical comorbidity (e.g., digestive disorders, infectious disorders, injuries) than women veterans not in IOP. However, having a diagnosis of major depression or bipolar disorder were the only need factors strongly associated with IOP use.

Utilization of VA services versus utilization of non-VA services

There is little empirical research examining women veterans' utilization of VA mental health services, specifically, substance abuse treatment. Nonetheless, in the following section, the author will discuss the existing literature, including one study that specifically examined seeking substance abuse treatment. Elhai, Grubaugh, Richardson, Egede, and Creamer (2007) conducted a national survey of veterans. The final sample was demographically representative of the known veteran population collected in the 2000 US Census. They examined predisposing, enabling, and need factors associated with the use of VA vs. non-VA mental health services. The authors conducted a univariate analyses and found being female, younger, a minority, unmarried, having had combat exposure, a lack of health insurance, and being unemployed were all predisposing/enabling factors related to VA mental health service use. For need factors, the authors found a significant association for the following variables: having a disability

and poorer mental and physical health functioning. The strongest effect for VA mental health use were physical health impairment and disability.

Predisposing and enabling factors were examined via univariate analyses for non-VA mental health service use. The following variables were found to be significantly associated with such use: being female, younger, college educated, unmarried; having a lack of health insurance, and maintaining an urban residence. Having a disability and endorsing mental and physical health impairment were the two significantly associated need factors with non-VA mental health service use. The strongest effects found for non-VA use were age and physical health impairment.

The authors then conducted a multivariate analyses and found being younger, umarried, having had combat exposure, lack of health insurance, and being unemployed to all be significant predisposing and enabling factors related to VA mental health use. Endorsing a disability and poorer mental and physical health functioning were significant need factors. The strongest effects for VA mental health service use were disability and physical health impairment.

In terms of non VA mental health service use, the authors found being female, younger, unmarried, having a college education, and urban residence were significant predisposing and enabling factors. Need factors significantly related to non VA mental health use were poorer mental and physical health functioning. The strongest reported effects were age and physical health impairment.

Davis, et al. (2002) examined characteristics that differentiated women veterans' seeking addiction treatment through a VA versus a residential IOP program at a community treatment center. The sample consisted of 76 women veterans seeking IOP at

the VA and 308 women seeking IOP through the residential treatment center. Both programs identified using similar treatment modalities (e.g., individual, group, family, addictions education, and skills training).

The women in the residential treatment center were more likely to be married/widowed and working full time; whereas, the women veterans were more likely to live alone or in an "unstable or controlled environment", receive a pension for a medical disability, and be reportedly unemployed or disabled/retired. A possible explanation for these differences is that in order to use the residential treatment center women were more likely to have insurance, given the cost of such treatment. Therefore, these women would be more likely to be employed full time or be married and under the spouse's healthcare plan. Overall, there is very limited research regarding women veterans, substance use, and their use of VA versus non-VA services.

Summary

More women are entering the military, which means more women veterans are potentially seeking services from the VA. However, the VA has been a predominantly male environment. Therefore, when seeking healthcare services, women are in the minority. This may be particularly relevant for women veterans with a substance use disorder, given that most substance abuse treatment within the VA system is group therapy where a woman's minority status is amplified. Therefore, it may be less likely for women veterans to seek such services from the VA. Research has demonstrated equivocal results when examining predisposing (i.e., age, race/ethnicity, marital status) enabling (unemployment, having health insurance, geographic region), and need (mental

health diagnosis, severity of diagnosis) factors related to seeking either VA services or non-VA services in both men and women veterans. To date no research has examined the factors most associated specifically with women veterans with a substance use disorder and their utilization of VA substance abuse services or non-VA substance abuse services. Therefore, the primary purpose of this exploratory study is to examine the specific predisposing, enabling, and need factors that both facilitate and impede women veterans from seeking VA substance abuse services, non-VA substance abuse treatment services, or both.

The following are the research questions addressed in this study:

1. Is there a relationship between women veterans with and without a substance use disorder, as measured by the Substance Abuse Outcome Measure (SAOM) and the following social demographic variables: age, marital status, race/ethnicity, employment status, social economic status (SES), and era of service?

2. Of women veterans with a substance use disorder (SUD), is there a relationship between the degree of severity of the substance use disorder as measured by the SAOM and health insurance status (e.g., health insurance vs. no health insurance)?

3. Of the following variables, which is the best predictor of type of substance use service sought (VA vs. non-VA): age, marital status, SES, severity of substance use disorder, and health insurance status?

CHAPTER TWO METHODOLOGY

Participants and Procedures

Of an initial sample of 2414 women veterans, 1670 were asked to participate, 707 could not be reached, 30 were ineligible and 7 were deceased. Of the 1670 who were asked to participate, 1055 participated in the study (63% response rate) and 615 refused to participate. Of the 1055 who participated in the study, 1004 completed the interview, 17 were ineligible, 21 could not be reached by phone, and 13 were unable to complete the interview, leaving a total sample of 1004 women veterans. No significant differences were found between participants and refusers with regard to average age, (38.3 vs. 37.9 years); self-report of very good or excellent health (43.5% vs. 45.1%); number of gynecologic visits in last year (2.1 vs. 1.7); or ever being told by a provider they had an abnormal Pap test (56.9% vs. 51.2%).

The sample for this study consisted of 1004 women veterans. A subset of 143 participants was also utilized in the current study. Participants were women veterans that participated in a study conducted by Sadler, Booth, Mengeling, Torner, and Syrop entitled "Sexual Assault and Women Veteran's Gynecologic Health". The sample consisted of women veterans who were enrolled at the Iowa City VAMC and community based outpatient clinics (CBOCs) within the 5 years preceding the study interview (July 2005 to August 2008). The Iowa City Department of Veterans Affairs (DVA) Information Resources Management provided names and contact information for living women veterans 50 years of age or younger who obtained healthcare through the Iowa City VAMC or CBOCs during this time period. From this list, women veterans were

randomly selected to be contacted. Using the VistA System (Veterans Health Information System & Technology Architecture), veterans enrolling after June 2005 and prior to study completion were periodically identified and added to the cohort. VA enrollment could have been initiated for health care, disability claim, registry enrollment, or outreach participation.

An introductory letter, describing the study, was sent to potential participants. A toll-free number was provided so the potential participant could ask questions, enroll in the study, or refuse participation. Women refusing participation were asked why, as well as three health-related questions to allow comparison with participants: (1) "In general, would you say your health is excellent, very good, good, fair, or poor, (2) Have you ever been told you have had an abnormal Pap test, and (3) In the last year, approximately how many times have you seen a doctor or health care provider for gynecologic health issues?" After two weeks, the potential participants that did not contact the project coordinator were contacted via phone and asked if they wanted to participate.

When address or phone problems occurred, effort was taken to find current contact information using internet white pages, VA's Computerized Record System (CPRS), and Accurint (a confidential Lexis Nexis research tool). Although 32% of women in the sample (n = 772) were at one time unreachable due to address and/or phone problems, 56% of these veterans were successfully located. Approximately half (52%) of those found completed the interview. Women interested in participating were screened to exclude those: with in utero diethylstilbesterol (DES) exposure, currently receiving immunosupressants, or women veterans over age 52 years. In utero DES exposure and immunosupressants are recognized risk factors for cervical dysplasia and genital

malignancies. Including participants 52 years old or less reduced the occurrence among participants of natural menopause which, given symptoms and associated health care, might confound findings. Pregnant women and women with HIV and AIDS were also excluded because these diagnoses potentially represent lifespan sexual assault (LSA) sequelae.

Consented participants completed a computer-assisted telephone interview (CATI). The CATI assessed demographics, LSA, gynecologic diagnoses, procedures, care and utilization, risk behaviors, lifetime violence exposures, mental health history, access to medical care, and healthcare utilization in and outside the VA". The average interview took 1 hour and 16 minutes and most (89%) completed it in one call. Participants were reimbursed $30.00 for participation. For the purpose of the current study, participants who completed the demographic questionnaire, General Health Questionnaire, and the modified version of the Substance Abuse Outcome Measure (SAOM) were used in this study.

Instrumentation

Demographic Questionnaire *(See Appendix A).*: Women veterans were asked their age, ethnicity, marital status, highest educational level completed, income, employment status, health insurance status, branch of service, era of service, and highest pay grade in the military.

General Health Questionnaire *(GHQ; See Appendix B)).* This measure was developed by Sadler, Booth, Mengeling, Torner, and Syrop in 2006. It assesses general medical and mental health history of the veteran. For the purposes of this study, only

questions that assessed women veterans' outpatient substance abuse treatment were used. In order to determine if women veterans' sought non-VA substance use services, the GHQ asked women veterans if they had ever received outpatient counseling or psychiatric care and, if so, how many visits were made during the following time frames: (1) in the last year, (2) the two years prior to military service, (3) visits during military service, and (4) the first two years post-service. However, the question did not differentiate between outpatient care received through the VA (e.g., CBOC's) or non- VA services. Therefore, the authors conducted a medical chart review of each of the women veterans who endorsed receiving outpatient substance use services in order to distinguish between the two kinds of services. If the chart indicated the veteran received VA substance use care, these veterans were classified as seeking substance use treatment at a VA facility. If the chart did not indicate the veteran received VA substance use care but the veteran endorsed receiving outpatient substance abuse treatment, this was considered to be indicative of the veteran receiving substance abuse treatment at a non-VA facility.

Substance Abuse Outcome Modules *(SAOM; See Appendix C).* The Substance Abuse Outcome Modules (SAOM) assesses patients for substance use disorders based on the Diagnostic and Statistical Manual of Mental Disorders IV criteria (Smith, et al., 1996). It also assesses symptom severity and patient's degree of functioning over time. The SAOM is comprised of the following four domains: Diagnosis, Prognosis/Case Mix, Outcomes, and Treatment, which were created using other standard measures that were either reproduced in their entirety (i.e., SF-36) or modified for the SAOM (i.e., AUDIT, DIS). The SAOM has 4 components that consist of a Patient Baseline Assessment,

Clinician Baseline Assessment, Medical Record Review, and Patient Follow-Up Assessment.

The SAOM was modified by the original authors and the modified version was utilized for this study. Examples of items that measure substance abuse include "In my lifetime, I was arrested, questioned, or warned by the police as a result of using alcohol or drugs", "In my lifetime, my alcohol or drug use caused arguments or fights with others, and "In my lifetime, I continued to use alcohol or drugs in dangerous situations, like driving a car or operating a machine". Examples of items that measure substance dependence include "In my lifetime, I needed more and more alcohol or drugs to get the same effect as before", "In my lifetime, I used alcohol or drugs to get rid of a hangover or the shakes", and "In my lifetime I found it difficult to stop using alcohol or drugs, even for a single day". Substance abuse was defined as endorsing one or more substance abuse items. Substance dependence was defined as endorsing 3 or more substance dependence items.

Smith et al., (2006) examined the reliability and validity of the original version of the SAOM. The sample consisted of 100 inpatients, of which 32 were women. The sample was comprised of individuals beginning treatment for a substance use disorder. Of the 100 participants, 93 completed the follow-up assessment. The accuracy of diagnoses was compared to the Composite International Diagnostic Interview-Substance Abuse Module (CIDI-SAM), which is a structured interview that assesses substance abuse and substance dependence. Results indicated a 93% agreement between the SAOM and CIDI-SAM regarding presence of a substance use disorder. Non-agreement was "evenly balanced between over-and under-diagnoses" (p. 1456). At follow-up there

was a 90% agreement rate on the presence of a substance use diagnosis and an 89% agreement on the presence of abuse or dependence. The diagnosis, severity of abuse, and severity of dependence demonstrated good internal reliability with ranges from .89-.90. The diagnosis component had a kappa coefficient of .59, which is considered moderate agreement. The intra-class correlation coefficient was high for both severity of abuse and severity of dependence with a coefficient of .95.

In order to assess concurrent validity, Smith et al., (2006) used the CIDI-SAM, the AUDIT, which is an alcohol screening measure, developed by the World Health Organization, that assesses alcohol consumption and harmful consequences related to alcohol use, and the Addictions Severity Index (ASI), which is a semi-structured, interviewer administered assessment tool. The concurrent validity for severity of alcohol abuse or dependence at baseline ranged from .66-.81. At follow-up, concurrent validity ranged from .80-.94. The concurrent validity for severity of drug abuse or dependence at baseline ranged from .33-.38. At follow-up, concurrent validity ranged from .48-.88.

Analyses

Because there is a high comorbidity between substance use disorders and other Axis I disorders, women veterans with a dual diagnosis were not excluded. Also, women veterans without a substance use disorder but meet criteria for other Axis I disorders (e.g., Major Depressive Disorder, Posttraumatic Stress Disorder) were included so as not to limit the sample size.

The first research question investigated if there was an association between women veterans with and without a substance use disorder and the following socio-

demographic variables: age, marital status, race/ethnicity, educational level completed, social economic status (SES), employment status, and era of service. In order to answer this question, chi-square analyses were conducted as all variables were categorical.

The second research question concerned women veterans with a substance use disorder and investigated if there was an association between the degree of severity of the substance use disorder (e.g., abuse vs. dependence) and health insurance status (e.g., no health insurance vs. health insurance). A chi-square analysis was conducted as both variables were categorical.

The third research question included only women veterans with a substance use disorder. The question sought to identify which of the following variables were most predictive of seeking VA substance use treatment (versus non-VA substance use treatment): age, marital status, SES, health insurance status, and severity of substance use disorder. In order to answer this question, a logistic regression was conducted with VA substance use treatment as the dependent variable and the following variables as predictors of VA substance use treatment: age, marital status, SES, health insurance status, and severity of substance use (e.g., abuse vs. dependence).

To reiterate, the primary purpose of this study was to identify the factors that are associated with women veterans with substance use disorders and their use of VA vs. non-VA substance use services. Given that more women are entering the military and, therefore, will likely be seeking more services from the VA, it is important to better understand the factors that facilitate and/or impede women veterans and their choice to seek VA services.

CHAPTER THREE RESULTS

Sample Characteristics

For purposes of the current study, the sample size for the first two research questions included all 1004 participants, both those with and without a Substance Use Disorder (SUD). The average age of the total sample was 38.3 years old (SD = 8.8), with an overall age range of 20-52 years old. Of the total sample, there were 230 (23%) single women veterans, 441 (44%) married women veterans, and 333 (33%) divorced women veterans. The sample resulted in 802 (80%) identifying as Caucasian, 99 (10%) identifying as non-Caucasian, and 103 (10%) identifying as Multi-Racial. There were 153 (15%) women veterans who reported completing high school, 566 (56%) reported some college/technical school, and 285 (29%) reported completing college and/or graduate school. Of the 1004 women veterans, 333 (33%) reported serving during the Post-Vietnam era, 301 (30%) reported serving during the Persian Gulf era, and 370 (37%) reported serving during the OEF/OIF era. Please refer to Table 1 (pg. 92) for other demographic characteristics.

Women veterans with an SUD were identified through the SAOM. In this study, substance abuse was defined as endorsing one or more substance abuse items; substance dependence was defined as endorsing 3 or more substance dependence items. Of the 1004 women veterans, 346 (34.5%) met criteria for a substance use disorder.

Participants were flagged as having sought treatment for an SUD if they answered 'yes' to the question "Have you ever received counseling because of problems with drugs or alcohol?" Participants who had received SUD counseling at a VA facility within the

last five years were identified using the following International Classification of Diseases-9 (ICD-9) codes: 303 Alcohol dependence syndrome (303.00, 303.02, 303.90, 303.91, 303.92, 303.93); 304 Drug dependence (304.00, 304.20, 304.21,304.22, 304.23, 304.30, 304.31, 304.32, 304.33, 304.40 304.41, 304.43, 304.60, 304.63, 304.80, 304.81, 304.83, 304.90); 305 Nondependent abuse of drugs (305.00, 305.01, 305.03, 305.20, 305.21, 305.23, 305.42, 305.60, 305.61, 305.63, 305.70, 305.72, 305.90, 305.93); and v65.42 counseling on substance use and abuse. Codes 94.45 drug addiction counseling and 94.46 alcoholism counseling were also included although no one in the sample was found with either code.

The third research question used 143 participants from the initial 1004 sample. The 143 women were veterans who reported that they had ever sought treatment and had been identified as ever having had a SUD. The average age for the 143 women veterans 40.2 years old (SD = 8.5). Of the 143 women veterans with an SUD who endorsed ever seeking substance use treatment, 50 women veterans were identified through electronic health records as having sought VA substance use treatment within the last five years compared to 93 women veterans who were not found to have sought VA substance use treatment in the last five years. The average age for the women veterans with an SUD who sought VA treatment was 42.5 years old (SD = 7.7). The average age for the women veterans with an SUD who sought non-VA treatment was 39.1 years old (SD = 8.8).

Analyses Results

Research question one examined the association between women veterans with and without a substance use disorder (SUD) and the following demographic variables: age, marital status, race/ethnicity, employment status, social economic status, and era of service. For the chi-square analyses that revealed a significant association, the expected vs. observed counts in each cell were examined in order to identify the significant association between the variables. The chi-square tests revealed there were significant associations between women veterans with and without an SUD and several demographic variables. Specifically, the analysis showed a significant association between women veterans with and without an SUD and marital status χ^2 (2; N=1004) = 10.32, p<.01. Women veterans without an SUD were more likely to be married (71%); whereas, women veterans with an SUD were more likely to be single (39%) or divorced (38%). There was also a significant association between women veterans with and without an SUD and employment status χ^2 (3; N=1004) = 8.63, p= .03. Women veterans without an SUD were more likely to be either a student (71%) or employed (66%). Women veterans with an SUD were more likely to be unemployed (38%) or retired (53%). Furthermore, a significant association was also found between women veterans with and without an SUD and level of education χ^2 (2; N=1004) = 11.17, p<.01. Women veterans without an SUD were more likely to have completed college (73%); whereas, women veterans with an SUD were more likely to have either completed high school (40%) or completed some college or technical training (37%). Lastly, the analysis revealed a significant association between women veterans with and without an SUD and era of service χ^2 (2; N=1004) = 20.28, p<.01. Women veterans without an SUD were more likely to have served during

the OIF/OEF era (72%); whereas, women with an SUD were more likely to have served during the Post-Vietnam era (44%). The reader is referred to Tables 2-5 (pgs. 93-96) for more details regarding the significant associations. There were no significant differences between women veterans with and without an SUD and the following variables: age [χ^2 (2; N=1004) = 2.95, p=.22], race/ethnicity χ^2 (2; N=1004) = 3.09, p=.21], or social economic status (χ^2 (2; N=1004) = 5.58, p=.06).

Research question two examined the association between the severity of the substance use disorder in women veterans diagnosed with an SUD and health insurance status. Of the 1004 women veterans who completed the survey, three women veterans' surveys were missing this information; therefore, they were not included in the analysis. The analysis yielded a non-significant result (χ^2 (2; N=1001) = 1.61, p=.45]. There was no association between severity of the SUD and health insurance status.

Prior to investigating differences between women veterans with an SUD who reported seeking VA versus non-VA substance use treatment (n=143), an additional analyses was conducted to investigate potential differences among women veterans with an SUD and whether or not they reported ever seeking substance use treatment (n=346). Of the 346 women veterans with an SUD, 143 women veterans endorsed seeking any substance use treatment in the last five years. Chi square analyses initially examined women veterans with an SUD and the association between whether they sought any substance use treatment in the last five years and the following demographic variables: age, marital status, race/ethnicity, employment status, social economic status, era of service, and severity of the substance use disorder. The chi-square tests of women

veterans with an SUD revealed there were significant associations between whether they sought recent substance use treatment and several demographic variables.

Specifically, the analysis showed a significant association between seeking substance use treatment and age χ^2 (2; N=346) = 6.80, p<.05. Women veterans with an SUD who sought substance use treatment were more likely to be between 40-52 year old (48%); whereas, women veterans with an SUD who did not seek substance use treatment were more likely to be between 20-29 years old (67%). There was also a significant association between seeking substance use treatment and ethnicity χ^2 (2; N=346) = 13.60, p<.01. Women veterans with an SUD who sought treatment were more likely to be non-Caucasian (66%); whereas, women veterans with an SUD who did not seek VA substance use treatment were more likely to be Caucasian (63%). Furthermore, there was a significant association between seeking substance use treatment and employment status χ^2 (3; N=346) = 22.38, p<.0001. Of women veterans with an SUD, women veterans who sought VA treatment were more likely to be retired (69%); whereas women veterans who did not seek treatment were more likely to be employed (68%). Another significant association was found between seeking substance treatment and SES χ^2 (2; N=346) = 17.60, p<.01. Women veterans with an SUD who sought treatment were more likely to earn less than $20,000 (60%); whereas women veterans with an SUD who did not seek substance use treatment in the last five years were more likely to earn more than $50,000 (71%). There was also a significant association between seeking recent substance use treatment and era of service χ^2 (2; N=346) = 6.18, p<.05. Women veterans with an SUD who sought treatment were more likely to have served during the Post Vietnam era (48%); whereas women veterans with an SUD who did not seek treatment were more

likely to have served during the Persian Gulf era (66%). Lastly, a significant association was found between seeking recent substance use treatment and severity of the substance use disorder χ^2 (1; N=346) = 48.77, p<.0001. Women veterans with an SUD who sought substance use treatment were more likely to be dependent on the substance (62%); whereas women veterans with an SUD who did not seek substance use treatment were more likely to be abusing the substance (75%).

For women veterans with an SUD there was no significant association between marital status and seeking recent substance use treatment.

Research question three examined which variables were most predictive of women veterans seeking VA substance use treatment versus non-VA substance use treatment. Of the 143 women veterans with an SUD and who sought substance use treatment in the last five years, 50 women veterans were identified as having sought VA substance use treatment; whereas, 93 women veterans were identified as having sought non-VA substance use treatment. Chi square analyses examined associations between women veterans who sought recent VA substance use treatment versus women veterans who did not seek recent VA substance use treatment and the following demographic variables: age, marital status, ethnicity, employment status, SES, era of service, health insurance status, severity of SUD, The chi-square tests of women veterans with an SUD revealed there were significant associations between whether they sought recent VA or non-VA substance use treatment and several demographic variables.

Specifically, the analysis showed a significant association between women veterans with an SUD seeking VA versus non-VA substance use treatment and marital status χ^2 (2; N=143) = 7.91, p<.05. Women veterans with an SUD who sought VA

treatment were more likely to be single (38%); whereas women veterans with an SUD who sought non-VA treatment were more likely to be married (40%). There was also a significant association between seeking VA substance use treatment versus non-VA substance use treatment and employment status χ^2 (3; N=143) = 7.91, p<.05. Women veterans with an SUD who endorsed seeking VA substance use treatment were more likely to be unemployed (48%); whereas women veterans with an SUD who endorsed seeking non-VA substance use treatment were more likely to be employed (44%). Furthermore, a significant association was found between women veterans seeking VA versus non-VA substance use treatment and SES χ^2 (2; N=143) = 12.67, p<.01. Women veterans with an SUD who sought VA substance use treatment were more likely to earn less than $20,000 (52%); whereas, women veterans with an SUD who sought non-VA substance use treatment were more likely to earn $20,000 or more (74%).

For women veterans with an SUD there was no significant association between seeking recent VA substance use treatment versus non-VA substance use treatment and the following variables: age, ethnicity, health insurance status, era of service, and severity of substance use.

A logistic regression analysis was conducted where the dependent variable indicated VA or non-VA substance use treatment and the independent variables included variables that demonstrated a significant bivariate relationship with the dependent variable in the previous chi-square analyses: marital, employment, and social economic status (SES). Odds ratios and their corresponding 95% confidence intervals were calculated for each of the independent variables and the outcome variable. The reference group for marital status was ‘single’. The ratio of the odds between women veterans who

were married and women veterans who were single and seeking VA substance use treatment revealed a significant difference. Women veterans who were married were less likely to seek VA substance use treatment than women veterans who were single (OR=.157; CI $_{.95}$ = .051-.483). The reference group for SES was those earning less than $20,000. The ratio of the odds between women veterans who earned more than $50,000 and women veterans who earned less than $20,000 and seeking VA substance use treatment revealed a significant difference. Women veterans who reported an annual household income over $50,000 were less likely to seek VA substance use treatment than women veterans who reported an annual household income of less than $20,000 (OR=.149; CI $_{.95}$ = .03-.64). The reference group for employment status was 'employed'. There were no significant findings among employment categories when marital and SES status were included in the model. The reader is referred to Table 6 (pg. 97) for further details regarding the regression.

Summary of Results

In summary, the results of the statistical analyses provided support for several variables of interest related to women veterans with and without a substance use disorder. The data suggested differences between women veterans with and without a substance use disorder and marital status, employment status, educational level, and era of service. Specifically, women veterans with an SUD were more likely to be single or divorced, unemployed or retired, completed high school or some technical training, and have served during the Post-Vietnam era than women veterans without an SUD. However,

there was no significant association between severity of substance use and health insurance status between women veterans with and without an SUD.

There was limited support for women veterans with a substance use disorder and specific predictor variables for seeking VA substance use treatment. Of women veterans with an SUD who endorsed seeking substance use treatment, only marital status and socio-economic status significantly predicted seeking VA substance use treatment versus seeking non-VA substance use treatment. Specifically, women veterans with an SUD who were married were less likely to seek VA substance use treatment than women veterans with an SUD who were single. Lastly, women veterans with an SUD who reported an annual household income over $50,000 were less likely to seek VA substance use than women veterans with an SUD who reported an annual household income of less than $20,000.

CHAPTER FOUR DISCUSSION

The VA is experiencing an increase in women enlisting in the military. According to the U.S. Census in 1990, there were 1.2 million women veterans and by 2000 there were 1.6 million women veterans (Women Veterans: Past, Present and Future. Retrieved June, 2010). Furthermore, VA statistics from 2008 indicated that of 23.4 million veterans in the U.S. military, 1.8 million (8%) were women veterans (Women Veterans Populations, retrieved December, 2008). With this increase in enlistment among women veterans, the VA is experiencing an increase in women veteran's utilization of services (Yano, Washington, Goldzweig, Caffrey, & Turner, 2003), which has prompted more research studies involving women veterans (Romeis, Gillespie, Virgo, & Thorman, 1991; Sadler, Booth, Mengeling, & Doebbeling, 2004; Sadler, Booth, & Doebbeling, 2005). Although the research is somewhat limited, there has been some research in the area of women veterans and substance use disorders (Hoff & Rosenheck, 1997; Bradley et. al., 2001; Stecker, Han, Curran, & Booth, 2007). However, because this research is limited, particularly research involving women veterans with an SUD and their utilization of VA substance use treatment, the current study was undertaken. The current study is exploratory in nature. This study aimed to gain a better understanding of the factors that both facilitate and impede women veterans with an SUD seeking VA substance abuse treatment versus non-VA substance use treatment.

Discussion of Findings in light of Previous Literature

The study first sought to examine predisposing factors that differentiated women veterans with an SUD and women veterans without an SUD. Women veterans with an SUD were less likely to be married, more likely to be unemployed or retired, and less likely to have completed college compared to women veterans without an SUD. To the author's knowledge there is only one other study that examined differences between women with and without an SUD. Some of the current findings are consistent with this study (Bradley et al, 2001). More specifically, Bradley et al., (2001) found women veterans who identified as binge drinkers were less likely to be married and less educated than women veterans who identified as non-binge drinkers. It should be noted other studies have found similar risk factors for an SUD (e.g., marital status, education level, employment status); however, these studies examined risk factors between gender rather than solely examining risk factors for an SUD among women (Compton, Thomas, Stinson, & Grant, 2007; Swendsen et al, 2009).

In the current study, era of service was found to be significant in that women veterans who were discharged during the Post Vietnam era were more likely to have an SUD than women veterans who were discharged during the Persian Gulf era or the OEF/OIF era. There is some preliminary support for this finding, as two other studies that examined veterans across era of service in treatment have reported a similar pattern using both contemporaneous and non-contemporaneous analyses (Fontana & Rosenheck, 2008; Fontana, Rosenheck, & Desai, 2010). More specifically, Fontana and Rosenheck (2008) found that in both contemporaneous and non contemporaneous analyses, OIF/OEF era veterans had the lowest rates for a diagnosis of either alcohol

abuse/dependence or drug abuse/dependence regardless of inpatient or outpatient status; whereas, VIET era veterans had the highest rates of such a diagnosis and PER veterans' rates of such a diagnosis were in between the 2 cohorts. It should be noted that the sample of veterans consisted of both men and women veterans.

Fontana, Rosenheck and Desai (2010) conducted a study examining OIF/OEF women veterans seeking specialized treatment for PTSD. As part of the study, the authors sought to compare women veterans who served in war zones across the following three eras: Vietnam, Persian Gulf, and OIF/OEF. Contemporaneous analyses revealed OIF/OEF and PER women veterans were diagnosed with alcohol abuse/dependence significantly less often then VIET women veterans. There was no significant difference between the OIF/OEF and PER women veterans and diagnosis of alcohol abuse/dependence. However, a diagnosis of drug abuse/dependence for women veterans was significant across era of service. OIF/OEF women veterans were diagnosed with drug abuse/dependence the least, followed by PER women veterans, and VIET veterans having the highest rate of such a diagnosis. The non-contemporaneous analyses resulted in similar findings with OIF/OEF women veterans being significantly less likely to be diagnosed with alcohol abuse/dependence or drug abuse/dependence, followed by PER women veterans, and VIET veterans being diagnosed significantly more with either alcohol abuse/dependence or drug abuse/dependence.

There were no significant differences between women veterans without an SUD and women veterans with an SUD with regard to age, race/ethnicity, or social economic status (SES), indicating that these variables did not differentiate the 2 groups.

Results of the current study contradict the Bradley et al. (2001) study; specifically Bradley et al. (2001) found age to be a significant variable, in that being younger was related to having an SUD. Furthermore, Davis, Bush, Kivlahan, Dobie, and Bradley (2003) found women veterans younger than 50 years of age were more likely to have higher rates of hazardous/problem drinking or other drug abuse than women veterans over the age of 50 years. It should be noted that other studies have found younger age to be a significant factor for an SUD; however, these studies examined gender differences and SUDs rather than examining differences among only women with and without an SUD (Compton, Thomas, Stinson, & Grant, 2007; Ferrier-Auerbach, Kehle, Erbes, Arbisi, Thuras, & Polusny, 2009; Swendsen et al, 2009). Because Post Vietnam era and employment status, specifically, retired, significantly differentiated women with and without a SUD, it is further surprising age was insignificant. More specifically, given both of these significant variables are comprised of older women veterans compared to the other eras (i.e., Persian Gulf, OIF/OEF) as well as employment status' (i.e., employed, student) one might expect age would have interacted with these variables. Because the current study contradicts the one study examining differences among women with and without an SUD, this is an area of research that warrants further attention.

The lack of a relationship between SUD and race/ethnicity may be related to the fact that the sample was predominantly Caucasian (80%). Therefore, this analysis may not have had enough power to detect any differences. Bradley et al., (2001) did not find a significant difference between women veterans who identified as binge drinkers vs. non-binge drinkers and race/ethnicity. However, as with the current study, Bradley et al.'s (2001) sample was predominantly Caucasian (73%) and, as a result, may not have had

enough power to detect significant differences. It should be noted other studies have found race/ethnicity to be a significant factor for an SUD; however, these studies examined gender differences and SUDs rather than examining differences among only women with and without an SUD (Compton, Thomas, Stinson, & Grant, 2007; Swendsen et al, 2009). Therefore, it is currently unknown if race/ethnicity is a significant risk factor only across gender or if it is also a significant risk factor within women.

The non significant finding with SES was also unexpected, given that previous studies have found lower SES to be a risk factor for a diagnosis of a SUD (Compton, Thomas, Stinson, & Grant, 2007; Swendsen et al., 2009). Given SES is typically related to employment status, which was significantly related to SUD in this study, this non-significant finding is puzzling. However, although it was non-significant, the p value = .06 suggested a trend where women veterans with an SUD tended toward the "less than $20,000" SES range (41%); whereas women veterans without an SUD tended toward the "more than $50,000 SES range (69%). It should be noted again that the other studies that found a significant difference between SES and SUD were comprised of both men and women (Compton, Thomas, Stinson, & Grant, 2007; Swendsen et al., 2009).

Severity of SUD and Health Insurance Status

The second research question examined the possible relationship between severity of an SUD and health insurance status. The current study did not reveal a significant association between the severity of the SUD and having health insurance. There has not been research to date, to the author's knowledge, specifically examining a possible relationship between severity of the SUD and health insurance status. The fact that no

significant association was found in the current study may indicate that the severity (e.g, abuse vs. dependence) of substance use may not be a significant factor for women veterans and health insurance status.

Predictors of women veterans seeking VA substance use treatment

The third research question examined among women veterans with an SUD which predisposing, enabling, and need factors predicted seeking VA substance use treatment.

The predisposing factors, marital status and SES, were the only predictive variables for seeking VA substance use treatment. Specifically, women veterans with an SUD who were married were less likely to seek VA substance use treatment compared to women veterans who were single. This finding is inconsistent with previous literature, as Nietert, French, Krichner, and Booth (2007) found no significant relationship between marital status and seeking mental health services. However, it is consistent with other studies that have found being unmarried was significantly related to seeking VA mental health services (Davis, Carpenter, Malte, Carney, Chambers, & Saxon, 2002; Elhai, Grubaugh, Richardson, Egede, & Creamer, 2007). Given the current finding, more research in this area is warranted.

Women veterans with an SUD who reported an annual household income of more than $50,000 were less likely to seek VA substance use treatment. Nietert, French, Kirchner, and Booth (2007) found that utilization of mental health/substance abuse services was related to lower annual household income. They suggest the lower annual household income may be a factor in seeking services, as veteran status “potentially

provides access to free or virtually free health care, including mental health and substance abuse services" (p. 443).

It is interesting that health insurance status was not a significant predictor, given SES was a significant predictor and health insurance status and SES are often related. Other studies have found lack of health insurance to be significantly related to VA substance use treatment (Davis, et al., 2002; Elhai et al., 2007). However, other studies have found possessing health insurance to be significantly related to mental health services. More specifically, Elhai and Ford (2007) found possessing health insurance to be a significant predictor of seeking mental health services. Nietert, French, Kirchner, and Booth (2007) also found that such enabling/access variables as military affiliation, having health insurance, and full time employment to be significantly related to accessing VA mental health/substance abuse services.

Lastly, the current study found employment status to be a significant predictor of VA substance use treatment in the bivariate analyses, but not when both employment and household income were entered into the model simultaneously. However, Nietert, French, Kirchner, and Booth (2009) found that full time employment was significantly related to accessing VA mental health/substance abuse services. Contrary to this study, Elhai and Ford (2007) did not find any enabling factors to be significantly related to mental health utilization when they conducted a univariate analysis of the NCS dataset previously discussed. However, in the NCS-R dataset, these authors found unemployment was significantly related to mental health service use. Due to these contradictory findings, further research in this area is warranted.

In summary when the results of the current study are compared to existing literature, we find that the current study's findings are equivocal. More specifically, the current study's results were consistent with other studies examining risk factors for an SUD. Specifically, women veterans with an SUD were less likely to be married, more likely to be unemployed or retired, and less likely to have completed college compared to women veterans without an SUD. However, the current study's findings were inconsistent regarding other risk factors such as age, race/ethnicity, and socio-economic status when compared to existing literature. Second, the current study did not reveal a significant relationship between severity of an SUD and health insurance status, which to the author's knowledge is a relationship that has not been studied previously. Lastly, only marital status and SES were significant factors that predicted women veterans with an SUD seeking VA substance use treatment. Specifically, women veterans who were married and women veterans who earned more than $50,000.00 annually were less likely to seek VA substance use treatment. Employment status was not a significant predictor in the multivariate model for seeking substance use treatment among women veterans with an SUD in the current study. In examining previous literature, there appears to be inconsistent findings regarding these variables as they relate to predicting women veterans with an SUD and their use of VA substance use treatment.

Limitations

The current study has several limitations. First, the study was a cross sectional design and, as a result, there may be generational differences among the women veterans that may have impacted the findings. Also, possible sampling bias may be a limitation of

the current study. Given there was monetary incentive for involvement in the study, it may have influenced the women veteran's decision to participate. Furthermore, the analyses regarding seeking substance use treatment only examined women veterans with an SUD who endorsed seeking such treatment. As a result, the findings from that analyses cannot be generalized to women veterans with an SUD who have not sought treatment. In terms of generalizability of current findings to other veterans, it is difficult to gauge, given the sample consisted of a predominantly Caucasian sample from the Midwest. As a result, it is difficult to generalize findings to other racial/ethnic groups as well as to other regions of the country.

The current study used primarily categorical variables. Also, the sample size of women veterans with an SUD and seeking VA vs. non-VA substance use treatment was relatively small. As a result, it is possible there was not enough statistical power to detect subtle or small differences between groups.

The current study used self-report questionnaires (e.g., GHQ) that have not undergone psychometric testing. Although the measures appear to have face validity, there are no other psychometric properties available for these measures. Also, there's always a concern with self-report measures in terms of the participants accuracy when responding to items. It is possible women veterans may have inaccurately reported their substance use pattern due to possible embarrassment or stigmatization even though it was an anonymous phone interview.

Even though, as with all studies, there are limitations, it is still felt that this study makes some important contributions to the literature. Specifically, this study adds to the limited research examining women veterans with a substance use disorder and factors

associated with seeking substance use treatment. Furthermore, it adds to the general literature of examining women and substance use disorders rather than examining gender differences and substance use disorders. This is an important area to investigate as there may be risk factors unique to women and SUDs that have yet to be identified as most of the research to date examines risk factors across gender.

Clinical Implications

The current study offers clinical implications for mental health counselors regarding two of its findings. First, results in the current study found that women veterans who were married were less likely to have an SUD than women veterans who were single or divorced. It is possible that being married acts as a protective factor against substance use disorders, as the partner may be a source of support when these women are experiencing stress. As a result, clinicians who work with married, women veterans with an SUD may want to explore the quality of the marriage and identify ways to possibly strengthen their relationship, if warranted so as to increase the strength of this possible protective factor. When working with single, women veterans with an SUD, clinicians may want to focus on helping these women build healthy, interpersonal relationships that can serve as a source of support during and after treatment so as to possibly reduce the rate of relapse. Furthermore, given marital status is not exclusive to women veterans, these findings and, subsequent implications, may hold true for women who are civilians with an SUD.

Second, the study found that women veterans who served during the Post Vietnam era were more likely to have an SUD than women veterans who served during

the Persian Gulf era or the OIF/OEF era. Both men and women veterans were subject to harsh criticism and reactions when they returned from Vietnam. Clinicians, working with women veterans who served during this era, may want to explore the possible relationship between their personal experiences upon returning to the U.S. and how those experiences may have impacted the development of a substance use disorder.

Future Directions

Future research should use larger sample sizes to examine the factors that facilitate and/or impede women veterans with an SUD and their decision to seek VA vs. non-VA substance use treatment. The larger sample size will allow the investigation of some of the variables that were not examined in the current study due to the small sample size (e.g., physical/mental health functioning, era of service). Furthermore, examining other factors related to women veteran's decision to seek VA treatment should also be examined (e.g., barriers to care, stigmatization, minority status, given VA is predominantly male veterans). Severity of a substance use disorder in this study was defined as abuse vs. dependence. However, other factors may better distinguish severity of an SUD. For example, the duration of the substance use, the amount used, and/or the aspects of one's life in which the substance use is causing distress. Lastly, the current study only utilized the severity of the substance disorder as a need factor. Future research should examine other need factors that may contribute to women veterans with an SUD seeking VA substance use treatment (e.g., physical and mental health functioning, medical/psychological comorbidity).

Summary

Given the fact that more women are enlisting in the military and subsequently the VA is experiencing an increase in women veterans utilizations of healthcare services, it is important to better understand the factors that facilitate and/or impede women veterans with an SUD and their decision to seek VA substance use treatment. The findings in the current study are equivocal in that some findings were supported by previous research, while other findings were contradicted. Nevertheless, this study makes an important contribution in the area of women veteran's research, which is an important area to investigate, given the increase in women serving in the U.S. military and, as a result of their service, the increased likelihood of them seeking VA treatment.

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APPENDIX A DEMOGRAPHIC QUESTIONNAIRE

Before we begin, I want to remind you that any information you provide will be kept strictly confidential. While we hope you are willing to answer all of the questions, if there are any you would prefer not to answer, just let me know and we'll go on to the net one. Do you have any questions before I begin?

1. I have your age as ____. Is this correct?

Yes No Don't Know Refuse

I am going to start with some questions about your military service.

2. Have you served on regular military duty? Do not include Reserves or National Guard service.

Yes No Don't Know Refuse

2a. Some have served regular duty in more than one branch of the military. Not including Reserves or National Guard, have you ever served on regular duty in the Army?

Yes No Don't Know Refuse

2b. (Not including Reserves or National Guard), have you ever served on regular duty in the Marines?

Yes No Don't Know Refuse

2c. (Not including Reserves or National Guard), have you ever served on regular duty in the Navy?

Yes No Don't Know Refuse

2d. (Not including Reserves or National Guard), have you ever served on regular duty in the Air Force?

Yes No Don't Know Refuse

2e. (Not including Reserves or National Guard), have you ever served on regular duty in the Coast Guard?

Yes No Don't Know Refuse

3. Did you complete the entire tour of regular duty for which you originally enlisted (not Reserves or National Guard)?

Yes No Don't Know Refuse

4. What is the total time that you served on active regular military duty, to the nearest number of years and months (this does not include when activated for Reserves or National Guard duty)?

How many years? _____

How many months? _____

5. Not including Reserve or National Guard duty, did you serve more than one tour of regular duty?

Yes No Don't Know Refuse

6. Were these tours served consecutively, that is, one right after the other, or were they separated by a break between tours during which you were not in the service?

Consecutive tours
Break between tours
Don't Know
Refuse

7. When did you enter regular duty military service? ___/___/_____

8. What date did you first enter regular duty military service? __/___/_____

9. What was your highest pay grade during regular military service (not Reserves or National Guard)? Select One:

Enlisted	Warrant	Officer
E1	W1	O-1 O-1E
E2	W2	O-2 O-2E
E3	W3	O-3 O-3E

E4	W4	O-4
E5	W5	O-5
E6		O-6 or above
E7		
E8		
E9		

Don't Know Refuse

10. Have you ever served in the Reserves or National Guard?

Yes No Don't Know Refuse

10a. Are you currently serving in the Reserves or National Guard?

Yes No Don't Know Refuse

11. Some have served in more than one branch of the Reserves or National Guard. Have you ever served in the Army National Guard?

Yes No Don't Know Refuse

11a. Have you ever served in the Army Reserve?

Yes No Don't Know Refuse

11b. Have you ever served in the Air National Guard?

Yes No Don't Know Refuse

11c. Have you ever served in the Air Reserve?

Yes No Don't Know Refuse

11d. Have you ever served in the Naval Reserve?

Yes No Don't Know Refuse

11e. Have you ever served in the US Marine Corps Reserve?

Yes No Don't Know Refuse

11f. Have you ever served in the US Coast Guard?

Yes No Don't Know Refuse

12. While in the Reserve or National Guard, have you ever served on active duty other than for training purposes?

Yes No Don't Know Refuse

13. While in the Reserve or National Guard, how many times have you served on active duty other than for training purposes?

_____ Don't Know Refuse

14. While in the Reserve or National Guard, how many total months did you serve on active duty other than for training purposes?

_____ Don't Know Refuse

15. What date did you enter the Reserves or National Guard? -

____/____/_____

16. What is/was your highest pay grade in Reserves or National Guard military service?

Select One:

Enlisted	Warrant	Officer
E1	W1	O-1 O-1E
E2	W2	O-2 O-2E
E3	W3	O-3 O-3E
E4	W4	O-4
E5	W5	O-5
E6		O-6 or above
E7		
E8		
E9		

Don't Know Refuse

Many people claim more than one racial or ethnic ancestry. Because of this we would like you to answer yes or no to each of the following questions.

17a. Do you consider your racial/ethnic ancestry to be Native American or Alaskan Native?

Yes No Don't Know Refuse

17b. Do you consider your racial/ethnic ancestry to be Asian or Pacific Islander?

Yes No Don't Know Refuse

17c. Do you consider your racial/ethnic ancestry to be Hispanic or Latino?

Yes No Don't Know Refuse

17d. Do you consider your racial/ethnic ancestry to be Black or African American?

Yes No Don't Know Refuse

17e. Do you consider your racial/ethnic ancestry to be White or Caucasian?

Yes No Don't Know Refuse

17f. Do you consider your racial/ethnic ancestry to be something else?

Yes No Don't Know Refuse

What is that? _____

18. What is your religious preference?

Protestant

Catholic

Jewish

Islamic

Something else: _____

None

Don't Know

Refuse

19. What is the highest level you have completed in school?

High School/GED completion

Some college or technical training (including junior college, technical degree, or 3-year R.N. degree)

College completion (4-year degree)

Some graduate education (at least 1 year)

Graduate or professional degree completed

Don't Know

Refuse

This next question is about household income. Please count income from all sources, including wages earned, retirement income, interest and dividends, settlements, and various benefit programs. Household income should include income from a life

partner that contributes to your financial support. It does not include parent's income, or roommates,, unless the roommate is your life partner.

20. Thinking about all of the people in your household, including yourself, please estimate your current annual household income to the nearest $5,000.00.

$_____ Don't Know Refuse

This next question is about your current individual annual income. (Again, please count income from all sources, including wages earned, retirement income, interest and dividends, settlements, and various benefit programs.)

21. Please estimate your current annual individual income to the nearest $5,000.00.

$_____ Don't Know Refuse

22. Are you currently employed for wages?

Yes No Don't Know Refuse

22a. Do you work part time, full time, or both?

Yes No Don't Know Refuse

23. Are you currently self-employed?

Yes No Don't Know Refuse

23a. Are you self-employed full time or part time?

Yes No Don't Know Refuse

24. Are you currently looking for work and unemployed for more than a year?

Yes No Don't Know Refuse

24a. Are you currently looking for work and unemployed for less than one year?

Yes No Don't Know Refuse

25. Are you currently a student?

Yes No Don't Know Refuse

25a. Do you go to school full time or part time?

Yes No Don't Know Refuse

26. Are you retired from civilian employment?

Yes No Don't Know Refuse

26a. Are you currently unable to work?

Yes No Don't Know Refuse

27. Are you currently a homemaker?

Yes No Don't Know Refuse

28. How many time have you been legally married?

_____ Don't Know Refuse

28a. Excluding people you later married, how many times have you lived with a partner as though you were married?

_____ Don't Know Refuse

28b. How many times have you been widowed?

_____ Don't Know Refuse

28c. How many times have you been divorced?

_____ Don't Know Refuse

29. Which of the following best describes your current sexual preference?

Heterosexual

Lesbian

Bisexual

Don’t know

Refuse

These next questions are about your current living arrangement.

30. Do you live alone?

Yes No Don’t Know Refuse

30a. Do you live with a spouse or partner?

Yes No Don’t Know Refuse

30b. Do you live with a roommate or roommates?

Yes No Don’t Know Refuse

30c. Do you live with your adult children?

Yes No Don’t Know Refuse

30d. Do you live with your parents?

Yes No Don't Know Refuse

30e. Do you live with family other than your parents or adult children?

Yes No Don't Know Refuse

30f. Do you live in a domiciliary?

Yes No Don't Know Refuse

30g. Do you live in a treatment center or halfway house?

Yes No Don't Know Refuse

30h. Are you homeless?

Yes No Don't Know Refuse

30i. What is your current living arrangement?

_____ Don't Know Refuse

31. Including yourself, how many adults, age 18 and older, are there currently living in your household?

_____ Don't Know Refuse

31a. How many children under age 18 are there currently living in your household?

_____ Don't Know Refuse

The next questions are about health insurance.

32. Do you currently have health care insurance that covers all or some of your medical bills? (This includes Medicare, Medicaid, Medigap, TRICARE, CHAMPVA, VAMC care, and private insurance.)

Yes No Don't Know Refuse

32a. How long have you been without health insurance? How many years?

_____ Don't Know Refuse

32b. How many months?

_____ Don't Know Refuse

32c. Are you currently covered by Medicare?

Yes No Don't Know Refuse

32d. Do you have Medigap insurance (private supplemental insurance that pays health care costs not covered by Medicare)?

Yes No Don't Know Refuse

32e. Are you currently covered by Medicaid?

Yes No Don't Know Refuse

32f. Are you currently covered by TRICARE?

Yes No Don't Know Refuse

32g. Are you currently covered by CHAMPVA?

Yes No Don't Know Refuse

32h. Are you currently covered by VAMC care?

Yes No Don't Know Refuse

32i. Are you currently covered by other private insurance (through work, associations, etc)?

Yes No Don't Know Refuse

32j. Do you pay all, part, or none of the cost of your private insurance?

All of the cost

Part of the cost

None of the cost

Don't Know

Refuse

33. Does your insurance cover mental health care?

Yes No Don't Know Refuse

34. Does your health insurance have an individual annual deductible?

Yes No Don't Know Refuse

35. In the past 5 years, did you receive all, some, or none of your medical care at VAMCs? Medical care also includes mental health and gynecologic/reproductive care. We do not mean dental care?

All Some None Don't Know Refuse

35a. In the past 5 years, did you receive emergency or urgent care somewhere other than a VAMC?

Yes No Don't Know Refuse

35b. In the past 5 year, did you receive women's health care (gynecologic/reproductive) somewhere other than a VAMC?

Yes No Don’t Know Refuse

35c. In the past 5 years, did you receive mental health care somewhere other than a VAMC?

Yes No Don’t Know Refuse

APENDIX B GENERAL HEALTH QUESTIONNAIRE

Now I would like to ask you a few questions about your current health and healthcare.

1. How tall are you?

HGT FT _____ HGT IN _____ Don't Know Refuse

2. How much do you weigh?

Lbs _____ Don't Know Refuse

3. Are you satisfied with your eating patterns?

Yes No Don't Know Refuse

3a. Do you ever eat in secret?

Yes No Don't Know Refuse

3b. Does your weight affect the way you feel about yourself?

Yes No Don't Know Refuse

3c. Have any members of your family suffered with an eating disorder?

Yes No Don't Know Refuse

3d. Do you currently suffer with or have you ever suffered in the past with an eating disorder?

Yes No Don't Know Refuse

4. Has a health care clinician ever diagnosed you with an eating disorder?

Yes No Don't Know Refuse

4a. How old were you when you were first diagnosed?

_____ Don't Know Refuse

Was this:

Bulimia

Anorexia

Obesity

Other _____

Don't Know

Refuse

5. On average, how many times per week do you exercise?

_____ Don't Know Refuse

These next questions ask about your use of caffeine. Keep in mind that a can of soda pop and a medium cup of coffee or tea is approximately 12 oz.

6. On average, how many cups (or 12 oz glasses) of caffeinated coffee do you drink per day?

_____ Don't Know Refuse

6a. On average, how many cups (or 12 oz glasses) of caffeinated tea do you drink per day?

_____ Don't Know Refuse

6b. On average, how many ounces of cola or other caffeinated soft drinks do you

drink per day? Cans are generally 12 oz, bottles can be 12, 16, 20 oz or more.

_____ Don't Know Refuse

7. In the last 6 months, have you taken any prescription medications for psychological or mental health concerns, such as depression or anxiety?

Yes No Don't Know Refuse

7a. What prescription medication have you taken (in the last 6 mths for

psychological or mental health concerns)?

_____ Don't Know Refuse

8. Did you ever use a prescription oral medication called Acutane?

Yes No Don't Know Refuse

8a. How old were you when you started using oral Acutane?

_____ Don't Know Refuse

8b. Are you currently using oral Acutane?

Yes No Don't Know Refuse

8c. How old were you when you stopped using the oral Acutane?

_____ Don't Know Refuse

9. Do you have frequent headaches?

Yes No Don't Know Refuse

10. Has a doctor or other healthcare professional ever told you that you have migraine headaches?

Yes No Don't Know Refuse

11. Has a doctor or other health care professional ever told you that you have fibromyalgia?

Yes No Don't Know Refuse

12. Do you have any other chronic pain conditions?

Yes No Don't Know Refuse

13. Has a healthcare clinician ever diagnosed you with an anxiety disorder?

Yes No Don't Know Refuse

13a. How old were you when you were first diagnosed with an anxiety disorder?

_____ Don't Know Refuse

14. Has a healthcare clinician ever diagnosed you with a panic disorder?

Yes No Don't Know Refuse

14a. How old were you when you were first diagnosed with a panic disorder?

_____ Don't Know Refuse

15. Has a healthcare clinician ever diagnosed you with a depression?

Yes No Don't Know Refuse

15a. How old were you when you were first diagnosed with a depression?

_____ Don't Know Refuse

16. Has a healthcare clinician ever diagnosed you with a PTSD?

Yes No Don't Know Refuse

16a. How old were you when you were first diagnosed with a PTSD?

_____ Don't Know Refuse

17. Has a healthcare clinician ever diagnosed you with OCD?

Yes No Don't Know Refuse

17a. How old were you when you were first diagnosed with OCD?

_____ Don't Know Refuse

18. Has a healthcare clinician ever diagnosed you with Agoraphobia(that is, anxiety about being in places or situations from which escape might be difficult or help might not be available, such as being outside the home alone, in a crowd or line, on a bridge, or traveling)?

Yes No Don't Know Refuse

18a. How old were you when you were first diagnosed with Agoraphobia?

_____ Don't Know Refuse

19. Has a healthcare clinician ever diagnosed you with Bipolar Disorder?

Yes No Don't Know Refuse

19a. How old were you when you were first diagnosed with Bipolar Disorder?

_____ Don't Know Refuse

20. Has a healthcare clinician ever diagnosed you with Emotional Intensity Disorder?

Yes No Don't Know Refuse

20a. How old were you when you were first diagnosed with Emotional Intensity Disorder?

_____ Don't Know Refuse

21. Has a healthcare clinician ever diagnosed you with any other mental health disorder?

Yes No Don't Know Refuse

21a. What was that? _____ Don't Know Refuse

22. Do you have any chronic medical problems (such as diabetes, hepatitis, or heart disease)?

Yes No Don't Know Refuse

22a. What are those chronic medical problems?

_____ Don't Know Refuse

23. Has a doctor or other healthcare professional ever told you that you have cancer?

Yes No Don't Know Refuse

23a.What kind of cancer did you have? _____

23b. Approximately, what year were you diagnosed? _____

The next few questions ask about your visits to emergency rooms or urgent care centers.

24. How many visits have you made to an emergency room within the last year?

_____ Don't Know Refuse

25. In the two years prior to military service (about how many times did you go to the emergency room for care)?

_____ Don't Know Refuse

26. During your military service (about how many times did you go to the emergency room for care)?

_____ Don't Know Refuse

27. During the first two years following your regular military discharge (about how many times did you go to the emergency room for care)?

_____ Don't Know Refuse

28. During the first two years following your return from your most recent National Guard or Reserve deployment (about how many times did you go to the emergency room for care)?

_____ Don't Know Refuse

These next questions are about outpatient visits made to a doctor or other health care practitioner. Please do not include ER or urgent care visits; visits for pregnancy or mental health care; or routine eye and dental exams. Outpatient care includes care received at hospital clinics, private clinics, and offices.

29. How many outpatient visits have you made to a doctor or health care practitioner in the last year?

_____ Don't Know Refuse

30. Because of problems with drugs or alcohol, how many visits have you made for counseling or psychiatric care in the last year (psychiatrist, psychologist, marital counselor, social worker, and others)?

_____ Don't Know Refuse

30a. Have you ever received counseling because of problems with drugs or alcohol?

Yes No Don't Know Refuse

30b. Have you ever received psychiatric care because of problems with drugs or alcohol?

Yes No Don't Know Refuse

30c. Because of problems with drugs or alcohol, how m any visits did you make to a doctor or health care practitioner in the two years prior to your military service?

_____ Don't Know Refuse

30d. Because of problems with drugs or alcohol, how many visits did you make to a doctor or health care practitioner during your military service?

_____ Don't Know Refuse

30e. Because of problems with drugs or alcohol, how m any visits did you make to a doctor or health care practitioner during the first two years following your regular military discharge?

_____ Don't Know Refuse

30f. Because of problems with drugs or alcohol, how m any visits did you make to a doctor or health care practitioner during the first two years following your return from your most recent National Guard or Reserve deployment?

_____ Don't Know Refuse

31. Excluding drugs and alcohol, how many visits for mental health counseling or psychiatric care have you made to a doctor or health care practitioner in the last year?

_____ Don't Know Refuse

31a. Excluding drugs and alcohol, have you ever received counseling for a mental health problem, stressful experience, or other life event?

Yes No Don't Know Refuse

31b. Excluding drugs and alcohol, have you ever received psychiatric care for a mental health problem, stressful experience, or other life event?

Yes No Don't Know Refuse

31c. Excluding drugs and alcohol, how many visits for mental health care did you make to a doctor or health care practitioner in the two years prior to your military service (include both regular and National Guard or Reserve service)

_____ Don't Know Refuse

31d. Excluding drugs and alcohol, how many visits for mental health care did you make to a doctor or health care practitioner during your military service (include both regular and National Guard or Reserve service)

_____ Don't Know Refuse

31e. Excluding drugs and alcohol, how many visits for mental health care did you make to a doctor or health care practitioner during the first two years following your regular military discharge?

_____ Don't Know Refuse

31f. Excluding drugs and alcohol, how many visits for mental health care did you make to a doctor or health care practitioner during the first two years following your return from your most recent National Guard or Reserve deployment?

_____ Don't Know Refuse

31g. Within the last year, about how many sick days have you taken from work?

_____ Don't Know Refuse

32. Have you ever had surgery?

Yes No Don't Know Refuse

32a. What kind of surgeries did you have? Please list the four most recent and year.

_____

_____

_____

_____

Don't Know

Refuse

33. Have you ever had a head injury, skull fracture, or concussion?

Yes No Don't Know Refuse

33a. Did you lose consciousness as a result of this?

Yes No Don't Know Refuse

These next questions are about hospitalizations.

34. Other than for pregnancy care, cancer treatment, or surgery, have you been hospitalized in the last year?

Yes No Don't Know Refuse

34a. In the last year, how many times were you hospitalized for an injury?

_____ Don't Know Refuse

34b. In the last year, how many times were you hospitalized for a medical condition?

_____ Don’t Know Refuse

34c. In the last year, how many times were you hospitalized because of problems with drugs or alcohol?

_____ Don’t Know Refuse

34d. In the last year, how many times were you hospitalized for a mental health problem, excluding problems with drugs or alcohol?

_____ Don’t Know Refuse

34e. Have you ever received inpatient hospitalization because of problems with drugs or alcohol?

Yes No Don’t Know Refuse

34f. Have you ever received inpatient hospitalization because of a mental health problem, excluding problems with drugs or alcohol?

Yes No Don’t Know Refuse

APPENDIX C SUBSTANCE ABUSE OUTCOME MODULE MODIFIED

Now I would like to ask you about your use of alcohol and other drugs. For the following questions, keep in mind that a drink means a can or bottle of beer, a glass of wine, a wine cooler, or a shot of hard liquor (like scotch, gin, vodka), including a mixed drink.

BEER (12 OZ) = WINE (4 OZ) = WINE COOLER (4 OZ) = MIXED DRINKS (WITH ONE SHOT)

1. Have you ever had any alcohol to drink?

Yes No Don't Know Refuse

2. At what age did you first use alcohol?

_____ Don't Know Refuse

3. During the past year, have you had any alcohol to drink?

Yes No Don't Know Refuse

4. During the past four weeks, on the days that you drank, how much did you usually drink?

_____ Don't Know Refuse

5. Have you ever used any illegal drugs, such as marijuana, cocaine, methamphetamines, or prescription drugs not prescribed to you (such as barbiturates, tranquilizers, or sedatives)?

Yes No Don't Know Refuse

5a. Have you ever used marijuana (grass, pot, cannabis, ganja)?

Yes No Don't Know Refuse

5b. Have you ever used cocaine or crack (rock, coca leaves, blow, snow)?

Yes No Don't Know Refuse

5c. Have you ever used heroin (skag, speedballs)?

Yes No Don't Know Refuse

5d. Have you ever used hallucinogens (LSD, PCP, Shrooms, Acid, TKO, DMT, peyote, mescaline)?

Yes No Don't Know Refuse

5e. Have you ever used inhalants (whippets, glue, amyl nitrate, poppers, locker room, rush, gasoline, huffing)?

Yes No Don't Know Refuse

5f. Have you ever used methadone not prescribed to you?

Yes No Don't Know Refuse

5g. Have you ever used opiates and analgesics not prescribed to you (morphine, Demerol, codeine, Tylenol 3, or street drugs)?

Yes No Don't Know Refuse

5h. Have you ever used barbiturates not prescribed to you (street drugs)?

Yes No Don't Know Refuse

5i. Have you ever used sedatives, hypnotics, or tranquilizers not prescribed to you (benzos, reds, downers, or street drugs)?

Yes No Don't Know Refuse

5j. Have you ever used methamphetamine or amphetamines not prescribed to you (meth, black beauties, crank, bennies, speed, crystal, ecstasy, or street drugs)?

Yes No Don't Know Refuse

6. At what age did you first use illegal drugs (such as marijuana, cocaine, methamphetamines, or prescription drugs not prescribed to you, such as barbiturates, tranquilizers, or sedatives)?

_____ Don't Know Refuse

7. Have you used illegal drugs (such as marijuana, cocaine, methamphetamines, or prescription drugs not prescribed to you, such as barbiturates, tranquilizers, or sedatives) in the last year?

Yes No Don't Know Refuse

8. In the past 4 weeks, how many days have you used illegal drugs (such as marijuana, cocaine, methamphetamines, or prescription drugs not prescribed to you, such as barbiturates, tranquilizers, or sedatives)?

Yes No Don't Know Refuse

Please indicate if any of the following statements have been true for you either in your lifetime and in the past year.

9. In my lifetime, I was arrested, questioned, or warned by the police as a result of using alcohol or drugs.

Yes No Don't Know Refuse

Did this happen in the past year?

Yes No Don't Know Refuse

10. In my lifetime, my alcohol or drug use caused arguments or fights with others.

Yes No Don't Know Refuse

Did this happen in the past year?

Yes No Don't Know Refuse

11. In my lifetime, I used alcohol or drugs the first thing when I woke up in the morning.

Yes No Don't Know Refuse

Did this happen in the past year?

Yes No Don't Know Refuse

12. In my lifetime, I needed more and more alcohol or drugs to get the same effect as before.

Yes No Don't Know Refuse

Did this happen in the past year?

Yes No Don't Know Refuse

13. In my lifetime, I used alcohol or drugs to get rid of hangover or the shakes.

Yes No Don't Know Refuse

Did this happen in the past year?

Yes No Don't Know Refuse

14. In my lifetime, once I started using alcohol or drugs, it was difficult for me to stop before becoming "drunk or wasted".

Yes No Don't Know Refuse

Did this happen in the past year?

Yes No Don't Know Refuse

15. In my lifetime, I found it difficult to stop using alcohol or drugs, even for a single day.

Yes No Don't Know Refuse

Did this happen in the past year?

Yes No Don't Know Refuse

16. In my lifetime, I spent a great deal of time getting, using, or getting over the effects of alcohol or drugs.

Yes No Don't Know Refuse

Did this happen in the past year?

Yes No Don't Know Refuse

17. In my lifetime, I gave up or cut way back on important activities in order to use alcohol or drugs (activities like sports, work, or associating with friends or relatives).

Yes No Don't Know Refuse

Did this happen in the past year?

Yes No Don't Know Refuse

18. In my lifetime, I continued to use alcohol or drugs in dangerous situations, like driving a car or operating a machine.

Yes No Don't Know Refuse

Did this happen in the past year?

Yes No Don't Know Refuse

APPENDIX D TABLES

Table D-1 Demographic Characteristics of Women Veterans with and without a SUD

Demographic Characteristics	N (%)
Age (years):	
20-29	225 (22%)
30-39	266 (27%)
40-52	513 (51%
Marital status:	
Single	230 (23%)
Married	441 (44%)
Divorced	333 (33%)
Race/Ethnicity:	
Caucasian	802 (80%)
Non-Caucasian	99 (10%)
Multi-racial	103 (10%)
Employment Status	
Employed	518 (52%).
Student	242 (24%)
Retired	30 (3%)
Unemployed	214 (21%)
Educational level:	
High School	153 (15%)
Some college/technical school	566 (56%)
College or graduate school	285 (29%)
Branch of military	
Army	379 (38%)
Navy	160 (16%)
Air Force	140 (14%)
Marine or Coast Guard	45 (4%)
Multiple branches	280 (28%)
Household income	
Less than 20,000:	204 (20%)
20-50,000:	521 (52%)
More than 50,000:	279 (28%)

Table D-1 – Continued

Era of service (when discharged):	
OEF/OIF era:	370 (37%)
Persian Gulf era:	301 (30%)
Post Vietnam era:	333 (33%)
SUD Lifetime	
Women veterans with SUD:	346 (34%)
Women veterans without SUD	658 (66%)

Note. SUD = Substance use disorder

Table D-2 Association Between Women Veterans with and without a SUD and Marital Status

Marital Status	Women veterans SUD	Women veterans no SUD	χ^2	p
Single	90 (26%) (79)	140 (21%) (151)	10.32	<.01
Married	128 (37%) (152)	313 (48%) (289)		
Divorced	128 (37%) (115)	205 (31%) (218)		

Note. SUD = Substance use disorder. Expected frequencies are reported below the observed frequencies in parentheses.

Table D-3 Association Between Women Veterans with and without a Substance Use Disorder and Employment Status

Employment Status	Women veterans SUD	Women veterans no SUD	χ^2	p
Student	71 (29%) (83)	171 (71%) (159)	8.63	.03
Employed	178 (34%) (179)	340 (66%) (339)		
Unemployed	81 (38%) (74)	133 (62%) (140)		
Retired	16 (53%) (10)	14 (47%) (20)		

Note. SUD = Substance use disorder. Expected frequencies are reported below the observed frequencies in parentheses.

Table D-4 Association Between Women Veterans with and without a Substance Use Disorder and Education Level

Education Level	Women veterans SUD	Women veterans no SUD	χ^2	p
High School	61 (40%) (53)	92 (60%) (100)	11.17	<.01
Some College/Tech Training	209 (37%) (195)	357 (63%) (371)		
College/Graduate Training	76 (27%) (98)	209 (73%) (187)		

Note. SUD = Substance use disorder. Expected frequencies are reported below the observed frequencies in parentheses.

Table D-5 Association Between Women Veterans with and without a Substance Use Disorder and Era of Service

Era of Service	Women veterans SUD	Women veterans no SUD	χ^2	p
Post Vietnam	145 (44%) (115)	188 (56%) (218)	20.28	<.01
Persian Gulf	99 (33%) (104)	202 (67%) (197)		
OEF/OIF	102 (28%) (128)	268 (72%) (242)		

Note. SUD = Substance use disorder. Expected frequencies are reported below the observed frequencies in parentheses. Post Vietnam era = 5/8/1975-8/1/1990; Persian Gulf era = 8/2/1990-11/10/1998; OEF/OIF era = 11/11/1998-present day

Table D-6 Logistic Regression for Predictors of Women Veterans Utilizing VA Substance Use Treatment Services

Predictor Variable	OR (95% CI)
Marital Status (Reference Single)	
Married	.157 (.05-.48)*
Divorced	.420 (.16-1.1)
Employment Status (Reference Employed)	
Student	.427 (.126-1.44)
Unemployed	2.72 (1.05-7.05)
Retired	1.29 (.27-6.09)
SES (Reference Less than $20,000)	
$20,000-$50,000	.428 (.18-1.0)
More than $50,000	.149 (03-.64)*

Note. OR = Odds Ratios. CI = Confidence Interval. SES = Social Economic Status. SUD = Substance Use Disorder.