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Levels of Distress Among Women Veterans Attending a Women's Health Specialty Clinic in the VA Healthcare System

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Levels of Distress Among Women Veterans Attending a
Women's Health Specialty Clinic in the VA Healthcare System

by

Debbie T. Devine

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
College of Nursing
University of South Florida

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DEDICATION

I dedicate this work to Almighty God; without His blessings and provisions this journey could not have been completed.

I can do all things through Christ who strengthens me.

—Philippians 4:13

To those whom have entrusted themselves to me as their healthcare provider, educator, and mentor throughout my career, thank you for allowing me the privilege to serve you.

Last, but certainly not least, to my children (Kristina and Nicolas); my grandchildren (Cicily and Kairo); my husband (Nicolas); my mother (Maria): thank you for always believing in me and encouraging me to keep going. To my friends who, without their encouragement and support, I would not have been able to complete this work, thank you.

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LIST OF ABBREVIATIONS

CWHP	Comprehensive Women's Healthcare Providers
MRS	Menopause Rating Scale
PHQ	Patient Health Questionnaire
QOL	Quality of Life
VA	Veterans Administration Health Care System
WHSC	Women's Health Specialty Clinic

ABSTRACT

Currently, between 21.9 and 23 million veterans have served in the United States armed forces. Of those, 2 million are women, and of those, only 6.5% use the Veterans Health Administration system. These females often suffer from physical and mental health disorders, and overall impaired quality of life (QOL), rendering their healthcare needs complex. Seeking, and providing care in this specialty area may become overwhelming not only for the women seeking the care, but also for healthcare systems that are unfamiliar with the specific needs of this population.

A retrospective medical records review was completed of 51 female veterans between the ages of 40 and 60 years, and who attended a women's health specialty clinic in a women's health center in the VA healthcare system. This center provides comprehensive women's health services to female veterans. By attending this center, female veterans are having most if not all of their healthcare needs met in one location. Some of the services provided at the center include: primary care; gynecology; other gender specific health care needs; mental health care; and social assistance among other issues that may be associated with the overall QOL and depression.

Despite this study having a small sample size ($n = 51$), the participants were ethnically diverse: White (52.9%); African American (29.4%); Hispanic/Latino (15.7%); and Asian/Pacific Islander (2%). The overall results of this study reveal that female veterans who attend this clinic, have significantly lower baseline scores for QOL when compared to a North American population reference value. Means and standard deviation for total Menopause Rating Scale (MRS) score were; ($n = 51$, $M = 21.2$, $SD = 9.2$) compared to the North American women

population reference values ($n = 1,376$, $M = 9.1$, $SD = 7.6$), $z = 9.41$, $p < .0001$, cohens $d = 1.31$. These results were significantly lower for all MRS subsets. The higher the means and standard deviation, the lower the QOL. A paired sample *t-test* indicated significant improvement in QOL after treatment in QOL ($t = 7.80$, $p < .0001$), and depression levels ($t = 3.74$, $p < .0001$) among female veterans attending the women's health specialty clinic. Forward stepwise multiple linear regression models were fit to explore the association between the following variables and the outcomes of QOL and depression levels: low socioeconomic status (SES); number of deliveries; years of service; and military sexual trauma (MST). The only predictor that appeared to be significantly associated with higher MRS scores at baseline was a history of MST ($\beta = .363$; $t = 2.44$; $p = 0.02$). Higher MRS scores can be interpreted as lower QOL among female veterans.

Despite the complexities and unique needs of female veterans, the findings of this study suggest that timely, comprehensive and gender specific healthcare can significantly improve overall QOL and depression levels. In addition, further studies are need to assess what other variables may have a direct association with QOL, depression levels, and overall health of female veterans.

CHAPTER ONE:

INTRODUCTION

Currently, between 21.9 and 23 million veterans have served in the United States armed forces. Of those, 2 million are women, and of those, roughly 6.5% use the Veterans Health Administration system (VA; deKleijn, Lagro-Janssen, Canelo, & Yano, 2015). These females often suffer from physical and mental health disorders, and overall impaired quality of life (QOL), rendering their healthcare needs complex (; National Center for Veterans Analysis and Statistics, 2016). Regardless of current advances in medicine, technology, and research, in the VA system, gender disparities persist and the female veteran population remains a minority in its own healthcare system (Katon et al., 2016; Washington, Farmer, Mor, Cunning, & Yano, 2015; Yano, 2015). Providing healthcare to women who have served in the Armed Forces can be a major challenge, due to the nature of the special needs of the gender. The unique needs of female veterans include issues of depression, decreased QOL, trauma, and pain; thus it becomes clear why this specialty area may be overwhelming, not only for the women seeking care, but also for healthcare systems that are unfamiliar with the specific needs of this population (Bergman, Frankel, Hamilton, & Yano, 2015).

The number of male veterans is expected to decrease from 90.4% in 2010 to 87.6% by the year 2020, with the complementary number of female veterans expected to increase from 9.6% in 2010 to 12.4% in 2020 (Department of Veterans Affairs, 2014). The expected increase in female veterans and the recent controversies regarding healthcare in the VA system, make women's health a matter of urgency. Additional studies and innovative methods of providing

comprehensive and gender-specific care are needed to decrease the gap between genders and increase the number of female veterans seeking and receiving healthcare in this system (Atkins & Lipson, 2015; Gray, Katon, Callegari, Cordasco, & Zephyrin, 2015; Yano, 2015).

Problem

Although the number of female veterans in the VA healthcare system has increased over time, comprehensive healthcare continues to be fragmented (Yano, 2015). The number of female veterans using the VA healthcare system was approximately 160,000 in FY 2000, and rose to approximately 292,000 in FY 2009 (Department of Veterans Affairs, Women Veterans Task Force, 2012). Despite this increase, the disproportionate number of female veterans seeking medical care through the VA system remains about 30% less than their male counterparts. Often it is assumed that female veterans are receiving healthcare outside the VA healthcare system.

The overall health of female veterans differs greatly from that of women who are not veterans, due to military experiences and exposure to combat-related operations. Some female veterans have suffered from military sexual trauma, along with other types of military related traumas and or injuries. These experiences are often associated with mental, physical and emotional health disorders associated with QOL (Yano & Frayne, 2011). These experiences make providing healthcare to this population more complex. Thus, those who provide care to female veterans must be more in tune with the uniqueness of female veterans' needs and make every attempt to improve the overall QOL of women who have served.

Comprehensive healthcare must facilitate the overall health of female veterans, especially those suffering from depression and impaired QOL. Depression is a devastating chronic illness that severely impacts female veterans' QOL, causing functional decline and behavioral problems. Because of the complexity of depression, as well as the complex needs of female

veterans, this population requires prompt accessibility to multiple services during the same visit, in a location where they can feel safe and able to build trust, and work with same-gender providers or someone highly specialized in assessing the needs of this special group of women. Often, when specific care is unavailable or denied, female veterans do not seek needed medical attention, compromising their overall well-being (deKleijn et al., 2015).

Recently, researchers identified areas of concern regarding female veterans' health. In 2008, the VA began working to improve services for female veterans. To meet the specific healthcare needs of this vulnerable population, VA healthcare workers aimed to address their needs without requiring them to seek basic women's healthcare in other departments or facilities. In 2010, the VA mandated that primary care providers be specifically trained and current as Comprehensive Women's Healthcare Providers (CWHP) and be available to address women's specific healthcare concerns at one location, without inconveniencing the patient (Bergman et al., 2015; Maisel et al., 2015). Patients receiving care from CWHP tend to be happier with the care received than those not trained as CWHPs (Bastian et al., 2014) In addition, to CWHP, the VA has also designated a Women Veterans Program Manager at each VA healthcare system ($N = 140$) to facilitate the care and proficiency of the new initiative and future endeavors (Maisel et al, 2015). A specific need being addressed by the VA is the need for centers for female veterans in the system in the hope of increasing access to care for female veterans and decreasing the health disparity of this group (Bastian et al., 2015; Di Leone, Wang, Kressin, & Vogt, 2016; Mattocks, 2015; O'Hanlon et al., 2016; Whitehead, Czarnogorski, Wright, Hayes, & Haskell, 2014; Yano, 2015). Due to the disparity in female veterans' health, it is crucial to assess the effect of care for female veterans in women's' centers in the VA healthcare system.

The primary purpose of this study was to investigate the health effects conferred among female veterans through attendance at a VA women's health specialty clinic (WHSC). This included assessment of QOL and depression before and after receipt of treatment services. The study also investigated presenting symptom status of female veterans who attended the clinic in relation to the general population, and explored factors that may be associated with better treatment response at the clinic. To this end, the following specific aims were developed and investigated.

Specific Aims and Hypothesis

Specific Aim 1: To compare baseline levels of QOL among female veterans aged 40 to 60 years who use a WHSC at one of the VA's women's centers to normal reference values of women in the North American population, provided by the original developers of the Menopause Rating Scale (MRS; Berlin Center for Epidemiology and Health Research, 2008; Heinemann et al., 2004).

Hypothesis 1: The mean level of QOL among female veterans 40 to 60 years of age attending a WHSC in the VA will be significantly lower at baseline when compared to the normal reference values of a North American population provided by the original developers of the MRS (Berlin Center for Epidemiology and Health Research, 2008; Heinemann et al., 2004).

Specific Aim 2: To compare scores on the outcome measures (depression and QOL), over time (before and after receipt of treatment services), of female veterans 40 to 60 years of age who attend the WHSC at one of the VA's women's centers.

Hypothesis 2: Mean levels of depression and QOL among female veterans 40 to 60 years of age who attend the WHSC will improve significantly from baseline to post treatment.

Specific Aim 3: to investigate the extent to which socioeconomic status, length of service, military sexual trauma, and number of deliveries relate to baseline levels and treatment-related changes in measures of QOL and depression among female veterans attending the WHSC.

Hypothesis 3: Socioeconomics, length of service, military sexual trauma, and number of deliveries will be associated with levels of QOL and depression at baseline and after treatment completion among women veterans attending a WHSC.

Definitions of Terms

For the purpose of this study, the following terms are defined:

Depression: Depression (major depressive disorder or clinical depression) is a common but serious mood disorder. It causes severe symptoms that affect how you feel, think, and handle daily activities, such as sleeping, eating, or working. To be diagnosed with depression, the symptoms must be present for at least two weeks. Some forms of depression are slightly different, or they may develop under unique circumstances (The National Institute of Mental Health, 2016, p. 1).

Quality of life: “A multidimensional phenomenon composed of core domains that constitute personal well-being. These domains are influenced by personal characteristics and environmental factors” (Schallock, Verdugo, Gomez, & Reinders, 2016, p. 4).

Women’s health: “The general practice management of women’s health involves a holistic patient centered approach to the physical, mental and emotional health of women, their families, and their relationships” (The Royal Australian College of General Practitioners, 2011, p. 199).

Limitations

This study presents QOL and depression levels data of female veterans using a specific WHSC in a VA women's center. Limitations of the study are as follows:

1. Participants will be recruited specifically from a VA WHSC; thus, the population may have specific demographic and clinical characteristics that may prevent generalization of findings to other healthcare locations.
2. Due to policies of the VA system, the scales completed by the participants are entered directly into the electronic health records with summary scores. This does not permit the ability to conduct individual-item analysis.
3. The study design is an uncontrolled case series of modest size that does not permit estimation of treatment response in relation to a control condition, such as usual care.

Significance of the Study

The goal of this study is to increase the knowledge base about an underrepresented population of veterans. As the number of female veterans searching for and receiving healthcare from the VA system continues to grow, it is vital that all stakeholders prepare for the complex needs of this vulnerable population. Navigating the difficulties of the VA system and specialty requires the commitment of a multilevel and multisystem team, if the overall health and QOL of female veterans is to improve. This study will contribute to the current agenda of the VA health services research and development VA Women's Health Research Network and may increase collaboration between clinical providers and researchers, creating opportunities for translational research on female veterans (Yano, 2015). In addition, this study will add to the database of female veteran health research, as well as that of nursing science.

CHAPTER TWO: REVIEW OF LITERATURE

Note to Reader

The conceptual model used in this chapter is a revised Wilson and Cleary Model for Health-Related Quality Life previously published by Ferrans, C. E., Zerwic, J. J., Wilbur, J. E., & Larson, J. L. (2005), in the *Journal of Nursing Scholarship*, 37, 336–342. This model was adapted from Wilson, I.B., & Cleary, P.D (1995). *JAMA*. 273, 59–65. Copyright JAMA. Used with permissions from JAMA (Appendix F).

This chapter presents the conceptual framework, which provides guidance for review of empirical literature. This review of literature that follows includes the overall healthcare needs of female veterans, depression, and QOL among female veterans.

Conceptual Framework

The conceptual model for health-related QOL hypothesizes that QOL depends highly on the interactions and levels of interactions between five major functions of an individual—biological, symptoms, functional status, general health perceptions, and overall QOL—as well as individual and environmental features that can be applied to female veterans (Ferrans et al., 2005; Katon et al., 2016). Based on prior studies, including literature about female veterans, this model facilitates understanding of the assessment, diagnosing, and treatment processes of depression among female veterans while improving their overall health and QOL (Chedraui et al., 2008).

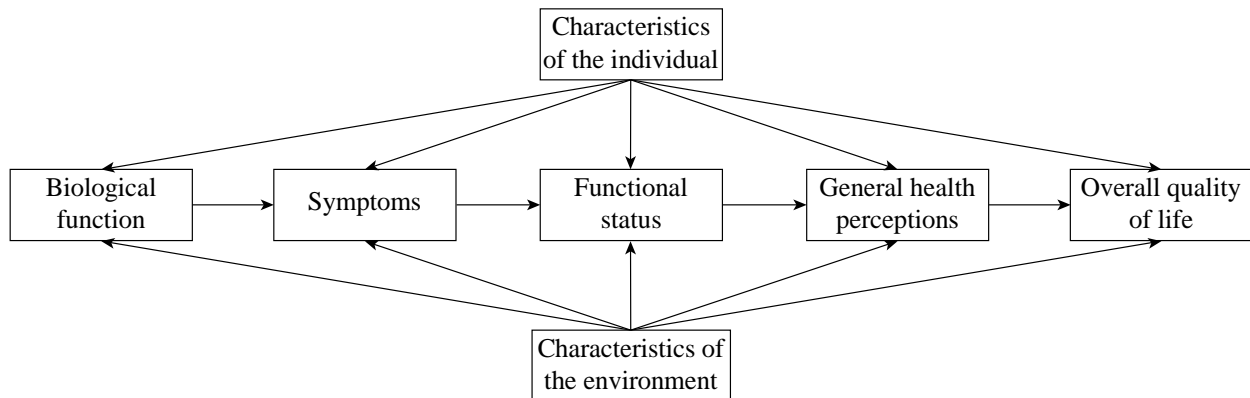


Figure 1. Revised conceptual model of health-related quality of life.

Veterans Health Administration

Due to the overall healthcare needs of female veterans, the VA developed *VHA Handbook 1330.02* (Department of Veterans Affairs, 2015) in 2010 to set forth guidelines on clinical components necessary to provide comprehensive women’s health care. Although the mandatory changes are already in place for male veterans, a discrepancy persists in the availability of the same services available for women in the VA healthcare system. Although the system has been equipped to handle high volumes of male veterans and their medical demands, it lacks some of the knowledge, resources, and ability to provide the same for its female populace (deKleijn et al., 2015; Katon et al., 2016; Whitehead et al., 2014). Despite the many advances in medicine, and the dedication by the VA to facilitate female veterans’ quality comprehensive care, the VA has been unable to meet its goals and meet the needs of female veterans.

Comprehensive care is the backbone of female veterans’ health. The fragmented care currently provided at the VA for women prompted the VA to put women’s health at the forefront of their agenda to increase knowledge among all stakeholders and improve accessibility to obtain better outcomes (Bergman et al., 2015; Department of Veterans Affairs, 2015; Wagner, Dichter, & Mattocks, 2015).

Understanding what constitutes comprehensive care for women veterans is often challenging because each individual has specific needs that differ among this vulnerable population. Healthcare providers need to consider the perceptions of these women about their needs as an integral part of their health care. Female veterans believe that access to medical care should include communication, coordination, continuity of care, and personalized care; Women consider these to be important factors in comprehensive care (Wagner et al., 2015). For example, an inability to speak to the correct individual during a perceived moment of crisis, physical or psychological, might lead to devastating outcome not only for female veterans but for all stakeholders. Women in general prefer to have all care at one facility and perhaps with one provider who is trained in caring for women's specific issues.

Although it seems that women veterans suffer from the same physical and psychological problems (gynecological, family planning, pregnancy, depression, mental health disorders, chronic pelvic pain or pain in general, domestic violence, alcohol/drug abuse, and other comorbid illnesses and diseases) as females who are not veterans, their healthcare needs are quite different. Female veterans present differently and are often more difficult to diagnose, treat, and follow-up. Often the inability to properly care or render comprehensive care to female veteran stems from multiple variables such as providers' lack of unfamiliarity specific to female veterans' care, trust and mental health issues of female veterans, physical disabilities, and unique military experiences encountered by female veterans (Bergman et al., 2015).

To assist in providing gender and veteran-specific care to women, Gray et al. (2015), reviewed data from 120 emergency rooms in the VA and found that having a gynecologist available in the emergency room facilitated accessibility to gender- and veteran-specific care not only at the time of a crisis, but also for future medical needs. To date, the challenge remains in

the ability to assess the extent of policy implementation regarding women's health in the complexities of the VA system. What remains a priority for this minority population is access to timely, quality, individualized medical care, better outcomes from depression, and the highest possible overall QOL.

The growing number of female veterans indicates a higher need for women to seek care in the VA system. If the goal is to improve the overall health outcomes of female veterans, the VA must do a better job of providing access to individualized comprehensive care in as many locations as possible but preferably in gender specific healthcare centers (deKleijn et al., 2015). When female veterans have access to their own unique comprehensive care, depression decreases, QOL improves, and overall health outcomes are better (Bastian et al., 2015; deKleijn et al., 2015; Di Leone et al., 2016).

Depression

Depression is one of the most prevalent diagnoses and often occurs with other mental health disorders and chronic diseases in veterans overall, with women having a higher rate of depression than male veterans. When compared to the 24% of their male counterparts, 31% of female veterans are plagued with multiple diagnoses (Department of Veterans Affairs, Women Veterans Task Force, 2012). Disparities are significant in regards to the female veteran populations and the need for early depression screening. Advances have been made in years past but the disparities are still present. For example; in 2008, 12, 516 women compared to 30, 644 men screened for depression. In 2009, depression screening improved and 16, 619 females were screened but male screening also improved (41, 176) which still represents a difference in depression screening between gender. (Whitehead et al., 2014). While depression screening has improved over the years, female veterans continue to be a minority among those receiving care at

the VA, they are a majority when referring to the diagnosis of depression among their own population (MacGregor, Hamilton, Oishi, & Yano, 2011; Oishi et al., 2011; Whitehead et al., 2014).

In 2011 and 2012, it was reported that over 200,000 women serving in the military were serving as active duty members of the Armed Forces, and approximately 113,000 were serving in the reserves and national guards, constituting a significant increase from those serving in the 1950s (Department of Veterans Affairs, 2012; Bean-Mayberry et al., 2011). This increase in service and recent wars such as Operation Enduring Freedom/Operation Iraqi has made women more susceptible to physical and mental health disorders in greater numbers. Gender differences often add to the difficulties and complexities of assessing and treating female veterans in a system that has been mostly male driven (Bean-Mayberry et al., 2011; Gerber, Iverson, Dichter, Klap, & Latta, 2014). By 2020, the actual percentage of women veterans will be approximately 12.4% of the Armed Forces (Department of Veterans Affairs, 2014). As years pass, and the absolute number of female veterans with depression is likely to continue to rise; thus, it is imperative that individualized care be based whenever possible on the causes of depression. In 2014, between 25 and 49% of military women were sexually abused prior to joining the military, whereas only 1 to 15% of men report the same type of abuse (Kelly, Boyd, Valente, & Czekanski, 2014).

Having been physically and or sexually abused prior to and during military service puts women at greater risk for further abuse, thereby increasing the risk for depression and other preventable diseases due to lack of care (Gerber et al., 2014; Lee, Westrup, Ruzek, Keller, & Weitlauf, 2007). For this reason, once the potential for mental illness (e.g., depression and posttraumatic stress disorder) has been identified, continual monitoring and screening is essential

in this population. Literature shows that depression among female veterans is higher today, based on previous history of violence, higher incidence of military trauma, and combat exposure, among other causes. Those providing care to women who have served must become aware of the specific needs of these women. Increasing training of VA women's health providers, location of care, and methods of assessment is essential to decrease distress among these women and increase participation of care in the VA (Gerber et al., 2014; Kelly et al., 2014; Lehavot, O'Hara, Washington, Yano, & Simpson, 2015). To take it a step further, the VA has begun a "gender-specific care" policy in which a veteran may choose the gender of provider for whom they would like to be treated. Choosing a gender specific provider facilitates ease in treatment and trust for female veterans who have suffered from military trauma especially sexual in nature (McGregor et al. 2011).

The Patient Health Questionnaire (PHQ-9) instrument provides a simple method to screen, diagnose, and monitor depression among female veterans. Because the PHQ-9 has been used in numerous settings, countries, and populations, it has been successfully used in the VA system and the veteran population. What remains a challenge for the VA system is identifying the providers who will actually screen, diagnose, and provide the necessary mental health services female veterans need. Although recommendations are to improve women's health among veterans, a lack of agreement continues regarding who, where, and when such services will be provided for female veterans, including mental health services (MacGregor et al., 2011). Despite the number of women veterans seeking care in the VA, and the VA's continual effort to provide equal care, the gap in knowledge on how to best to care for female veterans' complicated life-altering issues remains an important concern (Kroenke, Spitzer, Williams, & Lowe, 2010; Oishi et al., 2011; Wittkamp et al., 2009). As military service, combat exposure, and depression

symptoms increase among women, it is crucial that discussion and effort remain a priority, determining how, when, and where to best provide comprehensive women's healthcare that includes mental health services (Creech, Swift, Zlotnick, Taft, & Street, 2016). Female veterans have a higher rate of depression, which hinders multiple systems at different functional levels, and ultimately impairs QOL (Katon et al., 2016; Bastian et al., 2015).

Quality of Life

Although many researchers and healthcare providers have defined QOL differently, the assessment of QOL continues to grow across disciplines and populations. Research literature and conceptual models postulate that QOL includes all aspects of life and not just one or some aspects: individual, environmental, biological, symptomatic, functional, and general health perceptions (Ferrans et al., 2005; Schalock et al., 2016). Although this concept may be difficult to understand, assessment data about QOL allows for better understanding when assisting female veterans to improve their QOL. Challenges may arise while attempting to assess and assist women veterans with their QOL. QOL is quite subjective; thus, levels may change quickly and QOL should be continually assessed and reassessed to consider improvement or decline so appropriate measures may be taken when necessary (Schalock et al., 2016).

Current literature implies that, on average, QOL for female veterans is typically lower than that of women who are not veterans (Katon et al., 2016). Every component of a female veteran's life has the potential to be in some type of distress or imbalance. As the numbers of female veteran continues to grow, efficient methods of assessing QOL need to be incorporated into the comprehensive model. The MRS scale has been shown to be an effective scale to evaluate all components of a women's life in order to evaluate QOL and make necessary treatment adjustments in a timely manner (Heinemann, Potthoff, & Schneider, 2003; Schneider,

Heinemann, Rosemeier, Potthoff, & Behre, 2000). QOL and factors that play a role on its impairment have been well defined throughout the literature and concept models. For this population, a significant factor that may hinder improvement of QOL is the VA healthcare system's lack of information and education regarding resources for women veterans.

CHAPTER THREE:

METHODS

This chapter summarizes the investigational approach and techniques that were used to address the specific aims and hypotheses. First, the design is described. This is followed by a description of: sample and setting; inclusion and exclusion criteria; instruments; procedures; and data analysis. The study was completed using a retrospective medical records review.

Sample and Setting

The sample consisted of 51 female veterans who attended a WHSC at a women's center in the VA health care system. For Aim 1, a sample of 47 subjects detects a medium effect size of 0.50 with a significant level (alpha) of .01, achieving 80% power when comparing the baseline mean value of the study population to an external norm-based sample (Machin, Campbell, Fayers, & Pino, 1997; Zar, 1984). For Aim 2, a sample size of 51 detects a medium within-subject effect size of 0.50 with a significance level (alpha) of .01 using a two-sided paired *t* test achieving 81% power (Machin et al., 1997; Zar, 1984).

This study, included medical record information of (a) female veterans who were 40 to 60 years of age (b) attended the WHSC in a women's health center in the VA system and (c) completed the MRS, and the PHQ-9 before and after treatment completion. Records reviewed for this study were strictly from a women's only center, thus excluding record information of men and children.

Instrumentation

This investigation retrospectively reviewed the results of the MRS (Appendix B) and the PHQ-9 (Appendix C), which are included in the medical records of patients who meet the inclusion criteria. In addition, selected demographic and clinical information was extracted from the medical records.

Menopause Rating Scale (MRS). The MRS was developed by Heinemann et al., (2004) from the Berlin Center for Epidemiology and Health Research (2008). The MRS was validated as a health-related QOL instrument following the guidelines for QOL instruments (Heinemann et al., 2003). The MRS was developed as a self-administered instrument to assess: (a) QOL, (b) fluctuations occurring to women over time, (c) variations prior to and after therapy, (d) and to have a method from which to uniformly assess symptoms. The levels of QOL of female veterans 40 to 60 years of age were compared to a North American population's reference values (Appendix A) provided by the Berlin Center for Epidemiology and Health Research (2008). In addition, the levels of QOL of female veterans were appraised as they changed over time.

The MRS contains a total of 11 symptoms with the severity of each symptom rated as: no symptom (0), mild (1), moderate (2), severe (3), and very severe (4). In these 11 symptom categories, three subscales were recognized as autonomous: psychological, somato-vegetative, and urogenital. These subscales account for a 58.8% total variance. The total score on the MRS may vary from 0 (no symptoms) to 44 (severe symptoms). A variation in score depends on the severity of symptoms on each subscale. Instrument validity and reliability have been studied extensively. Validity of this instrument was completed after comparing the means of 9,300 women from different clinic types and nine different countries who self-administered the MRS; despite a small difference among religious groups and cultures, the symptoms appeared to be

quite similar (Berlin Center for Epidemiology and Health Research, 2008; Heinemann, et al., 2004).

In addition, criterion validity was also evaluated. Correlation with the Kupperman Index, and the SF 36 were found to be closely related. When compared to the Kupperman Index, the Kendall's tau-*b* coefficient was 0.75 (95% CI 0.71–0.80), and a Pearson correlation coefficient was found to be $r = 0.91$ (95% CI 0.89–0.93; and $r = 0.48$ 95% CI 0.58–0.37; Berlin Center for Epidemiology and Health Research, 2008; Heinemann et al., 2004). The SF 36 was also found to have a significantly related Kendall's tau-*b* = 0.43 (95% CI 0.52–0.35) for the somatic domains; a Kendall's tau-*b* = 0.49 (95% CI 0.56–0.41) for the psychological domain; and a Pearson correlation coefficient $r = 0.73$ (95% CI 0.81–0.65; Berlin Center for Epidemiology and Health Research, 2008; Heinemann et al., 2004). Researchers assessed the reliability of the instrument through Cronbach's alphas which ranged between .83 and .86. Test–retest correlation across four continents was strong (0.8–0.9; Berlin Center for Epidemiology and Health Research, 2008; Heinemann et al., 2004).

The Patient Health Questionnaire (PHQ-9). The PHQ-9 questionnaire is designed to monitor, identify, observe, and evaluate the severity of depression (Kroenke, Spitzer, & Williams, 2001). This questionnaire is self-administered and integrates nine questions that meet the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.) depression standards. The PHQ-9 may be used repeatedly to assess if a client is improving or deteriorating over time. The total score on the PHQ-9 fluctuates between 0 and 27. Every question can be answered as 0 (not at all) to 3 (nearly every day) with higher numbers indicating worse depression. The total score for gravity of depression may range from 5 (mild) to 10 (moderate), 15 (moderately severe), and 20 (severe depression).

Kroenke et al. (2001), assessed validity by comparing the results of 3,000 primary care patients from eight offices to those of 3,000 obstetrics–gynecology patients from seven offices. After comparing the results of the primary care group and those of the obstetrics–gynecology group, the researchers established the following: the correlation between the severity of depression and functional status were the same between the two groups, the level of functioning highly correlated with the level of depression (mental health issues) rather than to pain or other variables, and “most pairwise comparisons within each SF-20 scale between successive PHQ-9 levels were highly significant” (Kroenke et al. p. 609). The researchers evaluated criterion validity through interviews conducted by mental health professionals. The final evaluation concluded that the “the area under the curve for PHQ-9 in diagnosing major depression was 0.95 suggesting a test that discriminates well between persons with and without major depression.”

Kroenke et al. (2001), estimated internal-consistency reliability using Cronbach’s alpha. The resulting alphas varied only slightly between primary care clinics (.89), and the obstetrics–gynecology clinics (.86).

Demographic Data

Demographic data was collected to describe the sample. Data included age, ethnicity, marital status, medical insurance, employment status, years of service, number of deliveries, history of sexually transmitted infection, sexually active, location of deployment or era served, trauma experiences encountered while in the military, and military branch served. Low socioeconomic status was derived from the medical insurance and employment status variables. Data was accrued on all qualified participants using a chart audit form (Appendix D). Variables in the instrument are those identified in previous studies with a similar population and assisted in addressing the aims and hypotheses of this study.

Procedures

Approvals

To extract data from electronic medical records, approval for this study was obtained from the Institutional Review Board of the University of South Florida (Appendix E), as well as from the James A. Haley Veterans Hospital Research and Development Committee (Appendix F) prior to initiating any data collection. Because this was a retrospective medical-record investigation, a waiver of informed consent and a waiver of Health Insurance Portability and Accountability Act authorization was granted.

Data Collection Procedures

The Computer Patient Record System using a VA-approved password to the firewall-protected computer system was entered to access patient data. Electronic health records reviewed were specifically of patients who attended the WHSC at one of the women's centers in the VA. The collaborating physician previewed potential participants from January 1, 2014 to October 1, 2016. Records were reviewed and data was collected until the need sample size of 51 was achieved. A master list was not created, and all data collected was completely de-identified. None of the Health Insurance Portability and Accountability Act 18 identifiers were collected as part of this study. Data collected was from entry to clinic (baseline) until end of treatment (3 to 12 months depending on patient's needs). Participants completed the MRS and PHQ9 at every visit.

Data Analysis

First data was analyzed to describe the sample using frequencies and percentages.

Hypothesis 1: The mean level of QOL among female veterans 40 to 60 years of age attending a WHSC in the VA will be significantly lower at baseline when compared to that of the non-veteran North American population's reference values. This hypothesis was evaluated by use of a one-sample z -test comparing mean values from the WHSC in the VA to reference values in the general population.

Hypothesis 2: Mean levels of depression and QOL among female veterans 40 to 60 years of age attending the WHSC in a women's center in the VA system will improve significantly from baseline to post-treatment. Means scores on the outcome measures (depression and QOL) were collected over time where subjects served as their own controls. Mean baseline levels of depression and QOL were compared to mean values at follow-up assessment by use of paired t tests.

Hypothesis 3: Low socioeconomic status, length of service, military sexual trauma, and number of deliveries will be associated with levels of QOL and depression at baseline and after treatment completion among women veterans attending a WHSC. To investigate the manner in which socioeconomic status, length of service, military sexual trauma, and number of deliveries are associated to QOL and depression levels among female veterans attending a WHSC in a women's center in the VA system, forward stepwise multiple linear regression was used.

Data Management

To ensure confidentiality and privacy, all data were collected through the use of password, firewall, a VA-secured computers and systems. The Computer Patient Record System facilitated review and collection of data. All study data were stored on the secured drive which is only on VA-approved computers and in the VA system. The current VA policy does not allow data destruction. De-identified data was collected in compliance with strict management procedures and in accordance with the policies and procedures set forth by the VA Research and Development Office Research Data Security and Privacy Policy. All data were stored and maintained on a Microsoft SQL server or Microsoft Access back-end database. The server is managed by the VAs Office of Information and Technology and data are backed up nightly. A password-protected file using the Statistical Package for the Social Sciences (SPSS) Version 23 data-analysis system was used for data entry, management, and analysis. Each participant was de-identified by assigning a number beginning with one and ending with 51. Outcomes from the investigation are shown for group data, not by individual.

CHAPTER FOUR:

RESULTS

This chapter includes the results of this study as they relate to the sample of female veterans who attended a WHSC in the VA. Specifically, it describes the sample and includes results pertaining to each of the research aims and hypotheses.

Sample

Participants were selected from those who attended a WHSC in the VA. All participants completed the MRS and PHQ-9 at baseline and the end of treatment. Aligned with the study inclusion criteria, all participants in the study were between the ages of 40 and 60.

Frequency and percentage of demographic factors of age, ethnicity, and marital status of participants appear in Table 1. Nearly half of participants were between 51 and 55 (41.2%) years of age, more than half identified as White (52.9%), and nearly three-quarters of the participants were listed as married (74.3%).

Table 2 shows the frequency and percentage of the number of children by participants. Participants in this category had a mean of number of children of 2.10 ($SD = 1.47$). Frequencies and percentages of medical insurance and work status reported by the participants appear in Table 3. The highest frequencies of work status reported by participants were disabled (33.3%) and unemployed (27.1%).

Table 1

Demographic Characteristics (Frequency and Percentage) by Age, Ethnicity, and Marital Status

Source	Participants	
	<i>n</i>	%
Age		
40–45	6	11.8
46–50	9	17.6
51–55	21	41.2
56–60	15	29.4
Ethnicity		
White	27	52.9
African American	15	29.4
Hispanic-Latino	8	15.7
Asian/Pacific Islander	1	2.0
Eskimo/Native American Indian	0	0.0
Mixed (specify)	0	0.0
Other (specify)	0	0.0
Marital status		
Married	26	74.3
Divorced/separated	5	14.3
Never married	0	0
Living with partner	2	5.7
Widowed	2	5.7

Table 2

Frequency and Percentage of Number of Deliveries

Number of deliveries	Participants	
	<i>f</i>	%
0	8	15.7
1	7	13.7
2	21	41.2
3	7	13.7
4	5	9.8
5	2	3.9
6	0	0.0
7	1	2.0

Table 3

Frequency and Percentage of Medical Insurance and Work Status

	Participants	
	<i>n</i>	%
Medical insurance		
Tricare	13	43.3
Blue Cross/Blue Shield	2	6.7
Humana	1	3.3
Medicaid	4	13.3
Medicare	5	16.7
Other (Cigna, Optium Health	5	16.7
Work status		
Full time	11	22.9
Part time	2	4.2
Unemployed	13	27.1
Disabled	16	33.3
Retired	6	12.5

Military branch served and years of service by participants are displayed in Table 4. Most commonly served were the Army with (47.5%) and Air Force with (30%). The most frequent length of service was 5 to 9 years (32.5%).

The majority of participants had served principally during the Vietnam era (43.1%) or the Persian Gulf era (47.1%). Table 5 shows the results. Principal type(s) of traumatic experiences encountered by participants while in the military appear in Table 6. The most frequent types of traumas included witnessing nonlethal major injuries (14.7%), sexual assault (13.7%), and other types of traumas (18.4%).

Table 4

Frequency and Percentage of Participants Service by Military Branch and Years of Service

	Participants	
	<i>n</i>	%
Military branch		
Army	19	47.5
Air Force	12	30.0
Navy	8	20.0
Marine Corps	1	2.5
Air Force	0	0
Coast Guard	0	0
Years of service		
0 to 4 years	11	29.7
5 to 9 years	12	32.5
10 to 14 years	2	5.4
15 to 19 years	1	2.7
20 to 24 years	8	21.6
25 to 29 years	3	8.1
30+ years	0	0.0

Table 5

Frequency and Percentage of Location of Deployment or Era of Service

Location	Participants	
	<i>n</i>	%
Persian Gulf	24	47.1
Vietnam	22	43.1
Other (Not specified in records)	2	3.9
Iraq	1	2.0
Multiple Locations	1	2.0
Afghanistan	1	2.0
Persian Gulf	0	0

Table 6

Frequency and Percentage of Principal Type(s) of Traumatic Experiences Encountered While in the Military

Traumatic experiences	Participants	
	<i>n</i>	%
Witnessed death or execution		
Yes	2	3.9
No	32	62.7
IED blast or combat explosion		
Yes	2	5.9
No	32	94.1
Witnessed major injuries (nonlethal)		
Yes	5	14.7
No	29	85.3
Physical assault	33	
Yes	0	0
No	33	64.7
Sexual assault		
Yes	7	13.7
No	30	58.8
Other (Trauma/Verbal/Harassment)		
Yes	7	18.4
No	31	81.6

Note. IED = improvised explosive device. Number of participants varies by experience

Hypothesis 1

To address Hypothesis 1, “The levels of QOL among women veterans 40 to 60 years of age attending a WHSC within the VA will be lower at baseline when compared to those of the North American population’s reference values,” descriptive statistics were calculated to identify the baseline means of the MRS scale for female veterans. Female veterans had higher mean scores on all components of the MRS at baseline than those of the North American population reference value. Results of this analysis appear in Table 7.

Table 7

Means, Standard Deviations, and Z score of Quality of Life (MRS Score) for Female Veterans and North American Populations Women Population

	Female veterans			North American women			<i>z</i>	<i>p</i>	<i>Cohens d</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>			
Total score	51	21.2	9.2	1,376	9.1	7.6	9.41	.000	1.31
Psych score	51	8.0	4.7	1,426	3.4	3.5	6.93	.000	.970
Somato-vegetative score	51	7.9	3.2	1,440	3.8	3.1	10.8	.000	1.51
Urogenital score	51	5.2	3.3	1,437	2.0	2.3	5.89	.000	.826

Hypothesis 2

To investigate whether a significant improvement emerged between QOL and depression levels at baseline and after receipt of treatment services, a paired sample *t*-test was conducted.

Results of the analysis indicated a significant improvement in QOL and depression levels among female veterans attending the WHSC in the VA system. Table 8 shows the results.

Table 8

Paired Sample t-Test of Quality of Life and Depression at Baseline and After Treatment

		<i>N</i>	Mean	Std. deviation	<i>t</i>	<i>p</i>
Depression	Baseline	51	9.52	6.56	3.74	.000
	After Treatment	51	7.15	6.33		
	Difference	51	2.37	4.52		
Quality of Life	Baseline	51	21.2	9.17	7.80	.000
	After Treatment	51	12.8	9.11		
	Difference	51	8.35	7.64		

Hypothesis 3

To address Hypothesis 3, multiple linear regression models were fit to explore the association between the following variables and the outcomes of QOL and depression levels: low socioeconomic status (SES), number of children, years of service, and military sexual trauma.

After fitting a multiple linear regression model of baseline MRS scores (dependent variable) and the four predictors of interest—low SES, number of children, years of service, and military sexual trauma (MST)—the only predictor that appeared to be significantly associated with higher MRS scores at baseline was a history of MST ($\beta = .363$; $t = 2.44$; $p = 0.02$). Higher MRS scores can be interpreted as lower QOL among female veterans. From the full model, results of this analysis do not completely support Hypothesis 3, in which all four predictive variables were postulated to be associated with a higher MRS score at baseline. These results appear in Table 9.

Table 9

Model 1. Multiple Linear Regression Model of Baseline MRS Score and Four Predictors of Interest Forced in the Model

Predictors	<i>df</i>	<i>B</i>	Standard error	β	<i>t</i>	<i>p</i>
Intercept	1	18.70729	3.20007	0	5.85	< .0001
Low SES	1	2.46116	2.90846	0.12349	0.85	0.4020
Years of Service	1	-0.61434	3.14090	-0.03303	-0.20	0.8458
Years of service Missing	1	0.32353	3.51384	0.01590	0.09	0.9271
Military sexual trauma	1	9.58109	3.92726	0.36305	2.44	0.0188
Military sexual trauma missing	1	1.17509	3.17650	0.05775	0.37	0.7132
Number of Deliveries	1	0.13317	0.88042	0.02139	0.15	0.8805

Note. $N = 51$; $R^2 = .139$; Adj. $R^2 = .0217$; MRS = Quality of Life; Dependent Variable = Baseline MRS.

For the multiple linear regression model of baseline depression score as the outcome of interest in relation to the four predictors—low SES, number of deliveries, years of service, and

MST—the only predictor that appeared to significantly associate with baseline depression scores was MST ($\beta = .285$; $t = 1.94$; and $p = 0.06$). Therefore, a history of MST appeared to be associated with higher depression scores among female veterans prior to treatment. Overall, the results of this analysis did not fully support Hypothesis 3, postulating that all four predictor variables would be associated with higher depression scores at baseline. These results appear in Table 10.

Table 10

Model 2. Multiple Linear Regression Model Baseline Depression Score and Four Predictors of Interest Forced in the Model

Predictors	<i>df</i>	<i>B</i>	Standard error	β	<i>t</i>	<i>p</i>
Intercept	1	6.02193	2.26884	0	2.65	0.0110
Low SES	1	2.73148	2.06209	0.19148	1.32	0.1921
Years of Service	1	1.82424	2.22688	0.13702	0.82	0.4171
Years of service Missing	1	4.10862	2.49130	0.28209	1.65	0.1062
Military sexual trauma	1	5.39649	2.78441	0.28570	1.94	0.0590
Military sexual trauma missing	1	-0.27252	2.25212	-0.01871	-0.12	0.9042
Number of deliveries	1	0.09293	0.62422	0.02085	0.15	0.8823

Note. $N = 51$; $R^2 = .155$; $Adj. R = .040$; Dependent Variable = Baseline Depression; SES = Socioeconomic status.

For the multiple linear regression model with change in MRS scores as the outcome of interest in relation to the four predictors—low SES, number of deliveries, years of service, and MST, the only predictor that appeared to significantly associate with change in MRS scores was low SES ($\beta = -0.298$; $t = -2.30$; and $p = 0.03$). Because this association was negative in direction, female veterans with low SES experienced less change (improvement) in MRS scores. This occurred after adjustment for baseline MRS scores. Table 11 reflects these results.

Table 11

Model 3. Multiple Linear Regression Model of Change in MRS Score Four Predictors of Interest

Forced in the Model Includes Adjustment for Baseline MRS Score

Predictors	<i>df</i>	<i>B</i>	Standard error	β	<i>t</i>	<i>p</i>
Intercept	1	1.39336	3.14005	0	0.44	0.6595
Low SES	1	-4.96382	2.15844	-0.29882	-2.30	0.0264
Years of service	1	-3.42480	2.31320	-0.22092	-1.48	0.1460
Years of service missing	1	1.84167	2.58699	0.10859	0.71	0.4804
Military sexual trauma	1	-2.75423	3.08042	-0.12522	-0.89	0.3762
Military sexual trauma missing	1	-1.95881	2.34204	-0.11549	-0.84	0.4076
Number of children	1	0.59319	0.64830	0.11432	0.91	0.3653
Baseline MRS	1	0.42122	0.11098	0.50540	3.80	0.0005

Note. $N = 51$; $R^2 = .343$; $Adj. R = .236$; Dependent Variable = Change in MRS Score; SES = socioeconomic status.

For the multiple linear regression model with change in depression scores as the outcome of interest in relation to the four predictors—low SES, number of children, years of service, and MST, none of the predictors of interest were associated with change in depression scores ($p > .10$). Table 12 reflects these results.

Table 12

Model 4. Multiple Linear Regression Model of Change in Depression Score Four Predictors of

Interest Forced in the Model Includes Adjustment for Baseline Depression Score

Predictors	<i>df</i>	<i>B</i>	Standard error	β	<i>t</i>	<i>p</i>
Intercept	1	0.38117	1.54206	0	0.25	0.8059
Low SES	1	-1.49769	1.32693	-0.15215	-1.13	0.2653
Years of service	1	-0.98910	1.41591	-0.10767	-0.70	0.4886
Years of service missing	1	3.43657	1.61994	0.34194	2.12	0.0397
Military sexual trauma	1	1.40681	1.83051	0.10794	0.77	0.4464
Military sexual trauma missing	1	-2.38819	1.42139	-0.23762	-1.68	0.1002
Number of children	1	0.02668	0.39400	0.00868	0.07	0.9463
Baseline depression	1	0.23956	0.09513	0.34718	2.52	0.0156

Note. $N = 51$; $R^2 = .309$; $Adj. R = .197$; $p = > .10$; Dependent Variable = Change in Depression Score; SES = socioeconomic status.

Two additional multiple linear regression models were fit in an attempt to explore other variables that may be linked with change in MRS and change in depression. The first regression model fit included change in MRS scores as the outcome of interest, low SES (as previously identified), and a history of sexually transmitted infections (STIs) as predictors of interest. This analysis showed that some negative relationships between low SES and change in MRS were attenuated after adjustment for a history of STIs. For this analysis, a history of STIs appeared to negatively associate with change in MRS ($\beta = -0.234$; $t = -1.75$, $p = 0.09$). These findings appear in Table 13.

Table 13

Model 5. Multiple Linear Regression Model of Change in MRS Score One Predictors of Interest (Low SES) Included in the Model. Includes adjustment for Baseline MRS Score and History of Sexually Transmitted Infection

Predictors	<i>df</i>	<i>B</i>	Standard error	β	<i>t</i>	<i>p</i>
Intercept	1	3.74883	2.75035	0	1.36	0.1794
Low SES	1	-2.71248	2.15758	-0.16329	-1.26	0.2149
Baseline MRS	1	0.31938	0.10985	0.38321	2.91	0.0055
History of STI	1	-3.67143	2.09239	-0.23452	-1.75	0.0858

Note. $N = 51$; $R^2 = .276$; $Adj. R = .230$; Dependent Variable Change in MRS; STI = sexually transmitted infection; SES = socioeconomic status.

The second regression model fit in this series of analyses included change in depression score as the outcome of interest, with no predictors of interest forced into the model. Using a forward stepwise regression approach, the following variables were selected (at $p < .20$) in the model: White; sexually active; and vaginal delivery. The coefficients for these variables were as follows: White ($\beta = .317$; $t = 2.51$, $p = .02$), being sexually active ($\beta = .246$; $p = .06$), and having had a vaginal delivery ($\beta = -.239$; $t = -1.88$; $p = .07$). This can be interpreted as greater change (reductions) in depression scores among Whites and women who were sexually active, and

conversely, less improvement among women with a history of vaginal delivery. Table 14 shows these results.

Table 14

Model 6. Multiple Linear Regression Model of Change in Depression Score One. No Predictors of Interest Forced in the Model. Includes Adjustment for Baseline Depression Score

Predictors	<i>df</i>	<i>B</i>	Standard error	β	<i>t</i>	<i>p</i>
Intercept	1	-1.59767	1.67583	0	-0.95	0.3455
Baseline Depression	1	0.30398	0.08753	0.44632	3.47	0.0011
White	1	2.83687	1.12995	0.31671	2.51	0.0157
Sexually Active	1	2.20661	1.13199	0.24635	1.95	0.0575
Vaginal Delivery	1	-2.29106	1.22148	-0.23940	-1.88	0.0672

Note. $N = 51$; $R^2 = .326$; *Adj. R = .266*; Dependent Variable: Change in Depression Score

CHAPTER FIVE: DISCUSSION

This final chapter of this dissertation includes a synthesis of the study results, with discussion of the findings, conclusions, implications and recommendations for future research. The goal of this study was to increase the knowledge base about an underrepresented population of veterans. As the number of female veterans searching for and receiving healthcare from the VA system continues to grow, it is vital that all stakeholders prepare for the complex needs of this vulnerable population. Navigating the difficulties of the VA system and specialty requires the commitment of a multilevel and multisystem team, if the overall health and QOL of female veterans is to improve.

Sample

The data for this study consisted of information gathered during a retrospective medical records review of female veterans who use a WHSC at one of the VA's centers. The sample included 51 female veterans aged 40 to 60 years who completed the MRS and the PHQ-9 scales at baseline and throughout their treatment. Although this group of participants was heterogeneous, it is recognized that there might have been other variables that were not examined during this investigation which may have affected the results of the study. Due to the study design of this study, predicting exactly which variables might have been overlooked might be an assumption at best. Data collected was at entry to clinic (Baseline) and at the end of treatment (3 to 12 months, depending on the needs of the participants).

Hypothesis 1

Hypothesis 1 was that the levels of QOL among female veterans 40 to 60 years of age attending a WHSC in the VA would be lower at baseline when compared to the normal reference values of a North American population provided by the original developers of the MRS (Berlin Center for Epidemiology and Health Research, 2008). As hypothesized, results of the one-sample z-test analysis indicated that baseline MSR scores were significantly higher for female veterans attending the clinic compared to North American population reference values. Higher scores indicate lower QOL. This analysis validates Katon, et al., (2016) theory in that QOL for female veterans tends to typically be lower than that of women who are not veterans. Although a significant difference in QOL was observed, it is wise to remember that many factors may have contributed to these differences especially in such a complex population. Female veterans are often plagued with a multitude of multifactorial problems that may impact and cause fluctuation in QOL over time (Heinemann et al., 2013). These complexities often contribute not only to the levels of QOL, but to the manner in which female veterans seek and acquire healthcare. For these reasons, it is important that healthcare needs of female veterans be specifically addressed on an individual basis, comprehensively and in a timely manner, and continual assessment of QOL needs to occur with this population (Bergman et al., 2015; Schalock et al., 2016).

Hypothesis 2

For Hypothesis 2, as hypothesized, QOL and depression levels among female veterans 40 to 60 years of age who attended the WHSC improved significant from pre-treatment to post-treatment. The significance of the improvement was confirmed by paired sample t-tests where the change in depression between baseline and after treatment was found to be statistically

significant ($p < .001$). Female veterans attending this WHSC experienced a decrease in depression symptoms with an overall improvement in QOL.

Notwithstanding the significance found in the levels of change overtime, it is important to keep in mind the multifactorial facets that may contribute to these changes in both levels of depression and QOL. It is very likely that QOL and depression are strongly related; thus, it is to be expected that if depression improves, QOL would also. But the change in QOL was relatively much greater than the change in depression scores, thus other factors must have also influenced QOL scores.

These results support the Gerber et al., (2016) recommendation of future studies, and program development. A continual effort must be made to provide specialized healthcare to female veterans. Specialized comprehensive care can and does contribute to the improvement in QOL, depression and additional outcomes in this population. This analysis further reflects on previous findings concerning the lack of comprehension, negative views, of female veterans in regards to healthcare. What needs to be noted is that female veterans have a need and prefer comprehensive and timely care within a gender specific facility in the VA. Comprehensive care provided by the VA facilitates improvement of the overall health status and QOL, of this vulnerable population (Gerber et al., 2014; Kelly et al., 2014; Lehavot, O'Hara, Washington, Yano, & Simpson, 2015; Wagner et al., 2015).

Hypothesis 3

Hypothesis 3 was that low socioeconomic status length of service, military sexual trauma, and number of deliveries would predict QOL and depression levels among women veterans attending a WHSC. The results did not support all chosen variables were significant predictors of QOL and depression. This result might have occurred because of the small sample size ($n = 51$).

Further investigation to identify other predictor variables are needed. A forward multilinear regression did find that a history of military sexual trauma was significantly associated with both baseline QOL and depression scores. This analysis supports Kelly, et al., (2014) and their findings, that military sexual trauma is highly associated with the overall QOL and depression of female veterans. In addition, it is important to realize that many other variables may also contribute to QOL and depression of this population. Female veterans are afflicted by multiple conditions simultaneously. As previously stated, QOL and depression status will vary (Heinemann et al., 2013). Frequent monitoring of QOL and depression is needed in order to better assess the need for immediate intervention and facilitation of resource that will provide safety and improvement in the overall well-being of female veterans Bergmann et al., 2015; Schalock et al., 2016).

Two additional multiple linear regression models were fit in an attempt to explore other variables that may be associated with change in MRS and change in depression. The first regression model fit included change in MRS scores as the outcome of interest, and low SES (as previously identified) and a history of STIs as predictors of interest. A history of STIs appeared to be negatively associated with change in MRS score. While the association was negative, having a history of STIs was significantly associated with change in MRS score, thus confirming the need to further investigate other predictor variables when examining QOL.

The second regression model fit in this series of analyses included change in depression score as the outcome of interest, and no predictors of interest forced into the model. Using a forward stepwise regression approach, the following variables were selected (at $p < .20$) in the model: white; sexually active; and vaginal delivery. The results of this analysis can be interpreted as greater change (reductions) in depression scores among whites and women who

were sexually active, and conversely, less improvement among women with a history of vaginal delivery. Thus substantiating the need to further investigate other predictor variables when examining depression scores.

Implications for Nursing

Study findings demonstrated that women veterans attending a WHSC report low QOL scores compared to the North American population reference values. They also showed that the women had significantly improved QOL and depression from baseline to after treatment. This is a very encouraging finding. However, before system-wide recommendations can be implemented, additional studies are needed. A clinical trial in which women veterans who do and do not attend a WHSC should be conducted to compare their QOL and depression scores over time. Replicating the study to include a larger sample in different VA locations may prove to be of benefit in further assessing levels of distress among female veterans and the impact healthcare services being rendered in the VA have on the overall health and QOL of this population.

There is a need to for development of reliable, valid, gender, and veteran population specific instruments that assess or measure constructs and behaviors related to specific issues associated with female veterans and overall wellbeing. The results of this study may assist researchers, providers, the VA, and female veterans to find answers on how to: innovatively provide individualized quality comprehensive care to this population; create effective methods of training veteran specific women's health providers; assist female veterans with self-advocacy; and create dialogue and collaboration among all stakeholders.

Nurses are at the forefront of patient care, and education is an area in which they possess expertise. Educating providers involved in the care of female veterans is of utmost importance given the number of women expected to become veterans in the near future. It cannot be

assumed that the relationship between the word veteran and everything that encompasses the care of female veterans is understood by all associated with this population. Whether it is in providing appropriate veteran's women's health care, being aware of the available services, or understanding the necessity of providing adequate amount of properly trained staff, and allocation of time, resources and gender specific centers, nurses have the potential and ability to further assist and make a difference in the overall well-being of female veterans.

The results of this study further support the findings of previous studies. The importance of providing individualized healthcare to this population cannot be underestimated. Not only is a focus needed on how to care for female veterans, but on all of the facets connected to each individual, patient, provider and system.

Recommendations for Future Study

Based on the review of relevant studies and results of this study, the following are recommendations for future study:

1. A study should be completed to include a larger sample, and wider age range along with use of experimental research design.
2. Because this study represents a very small sample of female veterans seeking care at in the VA system, research to evaluate whether results may be generalized to other female veterans in other VA centers should be completed.
3. Instruments that address specific populations' needs, should be developed and validated.
4. Exploration of other predictors' variables for QOL and depression, and a more detailed medical and social history are needed to examine what other factors may be significantly associated with the overall wellbeing of female veterans. A qualitative

inquiry may be useful when attempting to find more predictor variables that may be significantly associated with QOL and depression of female veterans.

5. Seeking funding will provide the necessary support of future female veterans' studies: different methods; participants incentives; providers and staff; researcher.
6. Exploring other outcomes that contribute to QOL and depression such as sexual dysfunction may be useful when investigating gender specific differences.

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APPENDICES

Appendix A: International Mean Standard Deviation Reference Values

Note to Reader

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International Mean Standard Deviation Reference Values

	Total score		Psychological score		Somato-vegetative score		Urogenital score	
	<i>n</i>	<i>Mean (SD)</i>	<i>n</i>	<i>Mean (SD)</i>	<i>n</i>	<i>Mean (SD)</i>	<i>n</i>	<i>Mean (SD)</i>
Europe	4,246	8.8 (7.1)	4,453	3.4 (3.4)	4,485	3.6 (2.9)	4,465	1.9 (2.2)
North America (US)	1,376	9.1 (7.6)	1,426	3.4 (3.5)	1,440	3.8 (3.1)	1,437	2.0 (2.3)
Latin America	3,001	10.4 (8.8)	3,002	4.9 (4.9)	3,006	4.1 (3.6)	3,005	1.4 (2.2)
Asia	1,000	7.2 (6.0)	1,000	2.9 (2.9)	1,000	3.3 (2.7)	1,000	1.0 (1.6)

Appendix B: Menopause Rating Scale (MRS)

Note to Reader

Reprinted from International versions of the Menopause Rating Scale (MRS) by Heinemann, L. A., Potthoff, P., & Schneider, H. P., 2004, *Health Quality Life Outcomes*, 1, 28, pg. 3. Copyright 2003 by Heinemann et al; licensee BioMed Central Ltd. Open Access.

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Menopause Rating Scale (MRS)

Which of the following symptoms apply to you at this time? Please, mark the appropriate box for each symptom. For symptoms that do not apply, please mark 'none'.

Symptoms:

	none	mild	moderate	severe	very severe
Score =	0	1	2	3	4
1. Hot flushes, sweating (episodes of sweating)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Heart discomfort (unusual awareness of heart beat, heart skipping, heart racing, tightness).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Sleep problems (difficulty in falling asleep, difficulty in sleeping through, waking up early).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Depressive mood (feeling down, sad, on the verge of tears, lack of drive, mood swings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Irritability (feeling nervous, inner tension, feeling aggressive)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Anxiety (inner restlessness, feeling panicky).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Physical and mental exhaustion (general decrease in performance, impaired memory, decrease in concentration, forgetfulness)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Sexual problems (change in sexual desire, in sexual activity and satisfaction)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Bladder problems (difficulty in urinating, increased need to urinate, bladder incontinence).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Dryness of vagina (sensation of dryness or burning in the vagina, difficulty with sexual intercourse)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Joint and muscular discomfort (pain in the joints, rheumatoid complaints)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix C: Patient Health Questionnaire (PHQ-9)

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(Use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING 0 + + +
=Total Score:

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues, with an educational grant from Pfizer Inc. No permission required to reproduce, translate, display or distribute.

Appendix D: Chart Audit Form

Levels of Distress Chart Audit Form (page 1 of 6)

Date of Data Collection: _____

Study ID#: _____

Demographics

1. **Age:** _____
2. **Gender:** Female
3. **Ethnic Background**
 - 1) Caucasian
 - 2) African American
 - 3) Asian/Pacific Islander
 - 4) Eskimo/Native American Indian
 - 5) Mixed (specify)
 - 6) Other (specify)
4. **Hispanic**
 - 1) Yes
 - 2) No
5. **Marital Status**
 - 1) Never Married
 - 2) Married
 - 3) Not married but living with a partner
 - 4) Divorced or separated
 - 5) Widowed
6. **Lives with** _____
7. **Employment Status**
 - 1) Unemployed: [] disabled [] retired [] supported by other
 - 2) Employed Full-time Hours/week _____
 - 3) Employed Part-time Hours/week _____
 - 4) On leave [] with pay [] without pay
 - 5) Retired
 - 6) Other (specify)

Appendix D Continued

Levels of Distress Chart Audit Form (Page 2 of 6)

Date of Data Collection: _____

Study ID#: _____

8. **Level of Education**
- 1) Less than high school
 - 2) High school graduate/GED
 - 3) Vocational/Technical degree beyond High School
 - 4) Some College
 - 5) Community College Degree (AA/AS)
 - 6) College/University degree (BA/BS)
 - 7) Master's Degree
 - 8) Doctoral Degree

9. **Household Income**
- 1) Under \$4,999
 - 2) \$5,000 – 14,999
 - 3) \$15,000 – 24,999
 - 4) \$25,000 – 39,999
 - 5) \$40,000 – 69,999
 - 6) 70,000+

10. **Insurance – ALL that apply**
- 1) _____ Tricare
 - 2) _____ Blue Cross/Shields
 - 3) _____ Humana
 - 4) _____ Aetna
 - 5) _____ Medicaid
 - 6) _____ Medicare
 - 7) _____ None

Military History

11. **Branch of Military Service**
- 1) Army
 - 2) Marine Corps
 - 3) Coast Guard
 - 4) Navy
 - 5) Air Force
 - 6) National Guard

12. **Total Years of Service** _____

13. **Highest Rank Achieved** _____

Appendix D Continued

Levels of Distress Chart Audit Form (Page 3 of 6)

Date of Data Collection: _____

Study ID#: _____

14. Any Deployments?

- 1) Yes
- 2) No

15. Any combat zone deployments?

- 1) Yes
- 2) No

16. Tours of Duty

- 1) 1
- 2) 2
- 3) 3
- 4) 4 or more

17. Location of Deployment all that apply

- 1) Vietnam
- 2) Kosovo
- 3) Persian Gulf
- 4) Iraq
- 5) Afghanistan
- 6) Other

18. Principal type(s) of traumatic experiences encountered while in the military

	No	Yes
Witness death or execution		
IED blast or combat explosion		
Witness major injuries (nonlethal)		
Physical assault		
Sexual assault		

19.

1. Use of Medications

2. Categories of any prescription medications taking:

Class of Medication	No	Yes	Daily	Weekly	Other
Pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anti-Depression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anti-Anxiety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anti-Seizure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix D Continued

Levels of Distress Chart Audit Form (Page 4 of 6)

Date of Data Collection: _____

Study ID#: _____

Social History

- 20. Do they smoke?**
1) Yes
2) No
- 21. How much they smoke? _____**
- 22. Any alcohol use?**
1) Yes
2) No
- 23. How much alcohol do they drink? _____**
- 24. Any recreational drug use?**
1) Yes
2) No
- 25. Which recreational drugs? _____**

Gynecological History

- 26. History of abnormal pap smears**
1) Yes
2) No
- 27. If yes, when was the last abnormal Pap smear? _____**
- 28. History of abnormal mammograms?**
1) Yes
2) No
- 29. Surgical procedures on female organs?**
1) Yes
2) No
- 30. Hysterectomy? Date? _____**
1) Yes
2) No
- 31. Reason for Hysterectomy _____**

Appendix D Continued

Levels of Distress Chart Audit Form (Page 5 of 6)

Date of Data Collection: _____

Study ID#: _____

32. Abdominal or vaginal hysterectomy? _____

33. Ovaries removed?

- 1) Yes
- 2) No

36. Frequency of menstrual periods _____

37. Length of menstrual periods _____

38. Sexually active?

- 1) Yes
- 2) No

39. If not, how long since last sexual activity? _____

40. Is sexual partner

- 1) Male
- 2) Female
- 3) Both

41. History of sexually transmitted infections?

- 1) Yes
- 2) No

42. If yes, which sexually transmitted infection? _____

43. History of sexual trauma not related to military experience

- 1) Yes
- 2) No

44. Number of pregnancies _____

45. Number of deliveries _____

Appendix D Continued

Levels of Distress Chart Audit Form (Page 6 of 6)

Date of Data Collection: _____

Study ID#: _____

46. Full term deliveries?

- 1) Yes
- 2) No

47. **Type of deliveries**

- 1) Vaginal _____
- 2) Cesarean Section _____

48. **Weight of largest baby born vaginally** _____

49. **Reason for being at the women's health specialty clinic** _____

50. **Goals of Therapy in the women's health specialty clinic** _____

51. **Referred to the clinic by** _____

Results of MRS

52. **Psychological Subscale** _____

53. **Somatic Subscale** _____

54. **Urogenital Subscale** _____

55. **Total of MRS** _____

Results of PHQ-9

56. **Column 1 Several Days** _____

57. **Column 2 More Than Half the Days** _____

58. **Column 3 Nearly Every Day** _____

59. **Total of PHQ – 9** _____

60. **Question 10 of PHQ – 9** ___Not difficult at all ___ somewhat difficult
___ Very difficult ___ extremely difficult

Appendix E: Approval Letters

Appendix E: Institutional Review Board Approval Letter



RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813) 974-7091

10/3/2016

Gail Powell-Cope, Ph.D.
James A. Haley Veterans' Hospital
8900 Grand Oak Circle
Tampa, FL 33637

RE: **Exempt Certification**

IRB#: Pro00027934

Title: Levels of Distress Among Women Veterans Attending a Women's Health Specialty Clinic Within the VA

Dear Dr. Powell-Cope:

On 9/29/2016, the Institutional Review Board (IRB) determined that your research meets criteria for exemption from the federal regulations as outlined by 45CFR46.101(b):

(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Your study qualifies for a waiver of the requirements for the informed consent process for this retrospective chart review as outlined in the federal regulations at 45CFR46.116 (d) which states that an IRB may approve a consent procedure which does not include, or which alters, some or all of the elements of informed consent, or waive the requirements to obtain informed consent provided the IRB finds and documents that (1) the research involves no more than minimal risk to the subjects; (2) the waiver or alteration will not adversely affect the rights and welfare of the subjects; (3) the research could not practicably be carried out without the waiver or alteration; and (4) whenever appropriate, the subjects will be provided with additional pertinent information after participation.

Your study qualifies for a waiver of the requirement for signed authorization as outlined in the HIPAA Privacy Rule regulations at 45CFR164.512(i) which states that an IRB may approve a waiver or alteration of the authorization requirement provided that the following criteria are met (1) the PHI use or disclosure involves no more than a minimal risk to the privacy of individuals; (2) the research could not practicably be conducted without the requested waiver or alteration; and (3) the research could not practicably be conducted without access to and use of the PHI. A waiver of HIPAA Authorization is granted for this retrospective chart review of James A. Haley VA Hospital female veteran patients aged 40-60 years who attended the women's health specialty clinic between January 1, 2014 and January 1, 2016. This waiver allows the study team and/or its honest broker to obtain PHI of patients in this cohort from the JAHVA electronic medical record (CPRS).

As the principal investigator for this study, it is your responsibility to ensure that this research is conducted as outlined in your application and consistent with the ethical principles outlined in the Belmont Report and with USF HRPP policies and procedures.

Appendix E: Institutional Review Board Approval Letter (continued)



RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX(813)974-7091

10/20/2016

Gail Powell-Cope, Ph.D.
James A. Haley Veterans' Hospital
8900 Grand Oak Circle
Tampa, FL 33637

RE: Exempt Certification

IRB#: Pro00028305

Title: Levels of Distress Among Women Veterans Attending a Women's Health Specialty Clinic
Within the VA

Dear Dr. Powell-Cope:

On 10/20/2016, the Institutional Review Board (IRB) determined that your research meets criteria for exemption from the federal regulations as outlined by 45CFR46.101(b):

(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Your study qualifies for a waiver of the requirements for the informed consent process for this retrospective chart review as outlined in the federal regulations at 45CFR46.116 (d) which states that an IRB may approve a consent procedure which does not include, or which alters, some or all of the elements of informed consent, or waive the requirements to obtain informed consent provided the IRB finds and documents that (1) the research involves no more than minimal risk to the subjects; (2) the waiver or alteration will not adversely affect the rights and welfare of the subjects; (3) the research could not practicably be carried out without the waiver or alteration; and (4) whenever appropriate, the subjects will be provided with additional pertinent information after participation.

Your study qualifies for a waiver of the requirement for signed authorization as outlined in the HIPAA Privacy Rule regulations at 45CFR164.512(i) which states that an IRB may approve a waiver or alteration of the authorization requirement provided that the following criteria are met (1) the PHI use or disclosure involves no more than a minimal risk to the privacy of individuals; (2) the research could not practicably be conducted without the requested waiver or alteration; and (3) the research could not practicably be conducted without access to and use of the PHI. A

Appendix E: James A. Haley Veterans' Hospital Approval Letter (continued)

Research & Development Committee
James A. Haley Veterans' Hospital
13000 Bruce B. Downs Blvd. • Tampa, FL 33612 • 813-972-2000

APPROVAL - Amendment

Date: October 24, 2016
From: Lauren A. DeLand, R.N., M.P.H.
Investigator: Gail M. Powell-Cope, PhD, ARNP
Protocol: Levels of Distress Among Women Veterans Attending a Women's Health Specialty Clinic Within the VA [***IRB Exempt***]
ID: 006436 Prom#: N/A Protocol#: 28305 & 27934

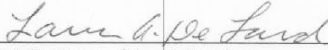
The following items were reviewed and approved at the 10/24/2016 meeting:

- Amendment - Add Pro 28305/Extend HIPAA waiver dates (10/20/2016)
- IRB Approval Letter - EXEMPT 28305 (10/20/2016)
- Privacy Act Officer Checklist - Pre- & Post-IRB Review 28305 (10/20/2016)
- Protocol (10/20/2016)
- Request to Review Research Proposal/Project (09/30/2016)

The following Research & Development Committee members were not in attendance and did not vote: Gail M. Powell-Cope, Ph.D.

The next Continuing Review for this study is scheduled for 09/01/2017. A Continuing Review must be submitted and approved prior to the expiration date.

This research project modification has received administrative and scientific quality review by the VA R&DC. The scientific review finds the project continues to offer: clarity of purpose or hypothesis, appropriateness of study design and procedural repeatability, significance of statistical procedure and/or power, contribution of useful knowledge and relevance to the patient care mission of the Department of Veterans Affairs.



R&D Committee Member

10/24/16

Date

I have been notified by the R&D/C of this approval, and as such approval to continue this research is granted.

ROBERT R.
CAMPBELL 447305
ACOS, Research and Development

Digitally signed by ROBERT R. CAMPBELL 447305
DN: dc=gov, dc=va, ou=internal, ou=people,
0.9.2342.19200300.100.1.1=robert.campbell3@va.gov,
v.o=ROBERT R. CAMPBELL 447305
Date: 2016.10.24 15:26:31 -0400

10/24/2016

Date

Robert R. Campbell, JD MPH PhD is the Acting ACOS for Research Service as well as the Executive Secretary of the R&D Committee

Appendix F: Permission Letter/Statement

Appendix F: JAMA Permission Letter

Permissions <permissions@jamanetwork.com>

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Hello Debbie, I've just received confirmation that you are clear to proceed. Your license covers the type of use you are requesting and the adaptation is acceptable. Please let us know if you have any further questions.

Best regards,
Josh

Joshua Lane

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Devine, Debbie

Yesterday, 6:29 PM

permissions@ama-assn.org

Debbie Devine_39915411427272.pdf117 KB

To whom it may concern:

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Kind Regards,

Debbie

Debbie T. Devine, M.S., ARNP, FNP
Jonas Veterans' Nurse Leader Scholar
Affiliate McKnight Doctoral Fellow
Adjunct Clinical Faculty
USF College of Nursing
12901 Bruce B. Downs Blvd.
Tampa, FL 33612
ddevine@health.usf.edu

Appendix F: BioMed Central Permission Statement



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