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Chronic low back pain is a significant and widespread problem that is pervasive among Post-9/11 veterans. Injuries acquired during deployments to war conflicts are the leading predictors of chronic low back pain experiences in this population. A gap remains in the research related to the chronic low back pain experiences specific to Post-9/11 female veterans. The purpose of this dissertation was to provide a preliminary understanding of the chronic low back pain experiences in female combat veterans and how they made sense of their pain, in light of patriarchal military traditions.

Using one-on-one interviews, 10 Post-9/11 female veterans shared their chronic low back pain experiences. Narrative thematic analysis and the conceptual framework of feminist standpoint theory were used to contextualize the narratives. Feminist standpoint theory suggested that the minority or oppressed within an institution had a greater understanding of that institution than those who are privileged by it (Harding, 1991). Analysis revealed two core narratives: the injury experience and living with pain, my new normal. The injury experience were stories that described the distinct etiology of back injuries and subsequent low back pain in Post-9/11 women. The living with pain, my new normal story, explicated the life-altering impact of chronic low back pain in these women post-deployment.

The experiences of chronic low back pain in Post-9/11 female veterans are complex. However, through narrative understandings, women's stories may help shape back pain care practices and future policies for female combat veterans. Additionally,

narratives may provide context to the gendered military standards and expectations that have been created and utilized, while also contributing to the chronic low back pain research in Post-9/11 female veterans.

UNDERSTANDING THE EXPERIENCES OF CHRONIC LOW BACK PAIN IN
POST-9/11 FEMALE VETERANS

by

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Approved by

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This is dedicated to my Savior, Lord, and Father, Jesus Christ.

For without him I am nothing but through him “All Things are Possible!”

APPROVAL PAGE

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CHAPTER I

INTRODUCTION

For decades, female veterans have served their country with unselfish valor and commitment. Their readiness to put their country and others first has become a testament of true heroism and nobility. Females make up less than one-fourth of the U.S. armed forces, but their presence has advanced the culture of gender neutrality within military roles (Bielawski et al., 2014; Driscoll et al., 2015; Green et al., 2017; Kelly et al., 2014). Until recently, females have served in military roles that precluded their participation in combat roles. Roles such as Army Rangers and Air Force Parajumpers, once exclusive only to male military personnel, have now become accessible roles for female (Gatchel & Schultz, 2014; Haskell et al., 2012; Roy & Lopez, 2013).

Following the 2013 removal of the national ban prohibiting females from serving in combat roles, the number of females participating in combat roles has increased at rapid rates (Conard & Scott-Tilley, 2015; Naylor et al., 2017). It is currently estimated that up to 300,000 females have been deployed to the Iraqi and Afghanistan (Post-9/11) war missions with many experiencing multiple re-deployments (Conard & Scott-Tilly, 2015; Muirhead et al., 2017; Naylor et al., 2017). As females increasingly serve in combat-related roles, their risk for injuries increase. Exposures to combat and trauma arenas have augmented both physical and mental illnesses in female Post-9/11 veterans

resulting in complex disabilities post-deployment (Muirhead et al., 2017; Newins et al., 2019).

The most frequently presenting condition in post-deployed 9/11 veterans are musculoskeletal (MSK) with back, joint, and neck conditions becoming the leading diagnoses (Driscoll et al., 2015; Higgins et al., 2014). MSK conditions have not only become increasingly widespread among military personnel, but they are highly pervasive among females deployed to combat war theaters (Cosio & Lin, 2013; Higgins et al., 2014). Comparatively, female combat veterans are more likely to suffer from MSK injuries than their male counterparts (Haskell et al., 2012; Schoneboom et al., 2016). Many contributory factors have increased the risk of injury for females serving in combat war theaters. Prolonged times in heavy body armor, participation in vigorous physical training, and heavy infantry load transports without gender exclusions are leading predictors of MSK injuries among female Post-9/11 veterans post-deployment (Bader et al., 2018; Haskell et al., 2012; Patel et al., 2016).

Musculoskeletal injuries in female Post-9/11 veterans are also highly indicative of poorer subsequent function and mobility, with researchers strongly correlating these injuries to chronic pain episodes post-deployment (Gaskin & Richard, 2012; Saper et al., 2016). Each year over 50% of females who served during the Post-9/11 war missions have a diagnosis of painful MSK-related conditions (Veterans Health Administration, 2017). Not only do female Post-9/11 veterans report greater MSK pain intensity, duration, and pain-related disabilities than male Post-9/11 veterans, but they are less likely to have significant improvement to their pain intensity with pain management

therapies (Driscoll et al., 2015; Haskell et al., 2012; Kerns & Heapy, 2016; Patel et al., 2016).

Pain-related MSK conditions are a significant problem within the female Post-9/11 veteran population. War-related injuries and traumas make chronic MSK pain experiences in female veterans unique and unlike the chronic pain of nonmilitary females (Gatchel & Schultz, 2014). Combat trauma resulting from ongoing exposures to threats of violence, and death, combined with the psychological and social stressors of war have significant implications for the exacerbation of chronic MSK pain post-deployment (Crum-Cianflone & Jacobson, 2014; Driscoll et al., 2015; Gauntlett-Gilbert & Wilson, 2013; Haskell et al., 2012; Higgins et al., 2014; Nayback-Beebe & Yoder, 2011; Stratton et al., 2014). Chronic pain episodes are further intensified in females who experience military sexual trauma (MST) events. An estimated 54% of female Post-9/11 veterans have experienced one or more MST events during deployment (Driscoll et al., 2015; Kerns & Heapy, 2016; Naylor et al., 2017). These MST experiences are further contextualized with the occurrence of childhood interpersonal physical sexual trauma experiences that affect an estimated 51% of enlisted Post-9/11 female combat veterans (Driscoll et al., 2015; Higgins et al., 2014).

The prevalence of chronic MSK pain in female veterans post-deployment is well documented in the literature (Haskell et al., 2009; Haskell et al., 2012; Matthias et al., 2014; McAndrew et al., 2016; Naylor et al., 2017). Additionally, the emergence of chronic low back pain (cLBP) diagnoses in this sub-population are becoming increasingly frequent (Driscoll et al., 2015; Kerns & Heapy, 2016). Currently, it is

estimated that 20% of female Post-9/11 veterans report cLBP post-deployment making cLBP one of most frequently diagnosed MSK pain condition in this sub-population group (Haskell et al., 2012; Higgins et al., 2014; Stratton et al., 2014).

The prevalence of cLBP among female Post-9/11 veterans raises significant concerns regarding sustained life quality post-deployment (Kerns & Heapy, 2016). Female Post-9/11 veterans who develop cLBP may be at greater risk for poorer trajectories related to function, mobility, and sexual reproduction. This is due to over 50% of post-deployed female veterans, being on average aged 44 and younger (Murphy et al., 2016).

As females increasingly complete deployment tours to war missions, the frequency and complexity of cLBP occurrences in this population will rise (Driscoll et al., 2015; Gauntlett-Gilbert & Wilson, 2013). The long-term sequelae of cLBP in female combat veterans have physiological, psychological, and social implications. Thus, the explorations into the experiences of cLBP in female Post-9/11 veterans is not only warranted but paramount to improving chronic pain outcomes in this sub-population.

Theoretical Considerations

Theoretical viewpoints are an important consideration when exploring human phenomena. Theorizing provides explanations about life's experiences by creating a lens by which the lived experience is better understood (Streubert & Carpenter, 2011). Theories serve as a platform from which new insights regarding phenomena emerge. These insights provide meaningful inquiry for both the researcher and the participant

(Frisby et al., 2009). If meaning and veracity are positioned within experience, the unique experiences of women must be considered.

Characteristically, the nature and disposition of women are inherently different from men (Kokushkin, 2014; Rowland et al., 2017). Differences in the experiences of men and women have been widely recognized and documented over the last three decades. However, many of the differences were often described using traditional theories situated in linear male perspectives (Covington & Zaplin, 2007; Harding, 1991). With the evolution of feminist epistemologies, the woman's voice has become distinct within the human experience challenging the traditional patriarchal interpretations of women's experiences (Gilligan, 1982). Shaped by research on the woman's voice and their experiences, feminist theory has created opportunities to view the experiences of women as equally valuable as the experiences of men (Gilligan, 1982; Harding, 1991). Many feminist scholars have suggested that the social positioning of women inherently allows them to view the world and their experiences differently from men, allowing for the emergence of the woman's voice (Harding, 1991; Hill, 1998).

As we look at the social positions of women, specifically those who have served in the U.S. armed forces, it is within the context of the intrinsically patriarchal ideologies that have historically influenced this military subgroup. Organizationally, the U.S. armed forces function within the confines of an androcentric framework and often exclude many of the experiences and contributions of female military personnel (Eichler, 2017). These exclusions relegate females within the military to exist as a marginalized sub-group (Harding, 1991; Hill, 1998). Hence, for female veterans, it is essential that their

experiences, specifically the cLBP experiences of female Post-9/11 veterans, are not only heard but heard from their standpoint.

Standpoints provide multiple ways of knowing regarding experiences (Harding, 1991; Kokushkin, 2014; Rolin, 2016). The standpoint paradigm allows for the intersection of cultural differences that not only mediate experiences but explicate understanding of those experiences in marginalized groups (Stevens et al., 2017). The complexities of the cLBP experience in female combat veterans can only be fully understood from the standpoint of a female situated in a male-dominated military culture. Soliciting standpoints from female Post-9/11 veterans is vital because of the inherent value in understanding the pain experiences of women who have served during combat war missions. Reframing the cLBP discourse from the standpoint of female Post-9/11 veterans may provide further contextualization of their pain experiences ultimately improving tailored assessments, and treatment strategies for women with cLBP diagnoses (Gatchel et al., 2018; Taylor et al., 2013).

Conducting an inquiry into the cLBP experience that is etched within the unique social position of the female Post-9/11 veteran is critical. Earlier pain models developed during the 19th and 20th centuries followed a more biomedical approach to understanding the chronic pain experience (Turk & Gatchel, 2002). Pain theories such as specificity theory, pattern response theory, gate control theory, and the neuromatrix theory of pain identified pain as an exclusively neurological and sensory experience that excluded many psychological or social inferences (Gatchel et al., 2007; Turk & Gatchel, 2002). These pain theories suggest that the pathophysiological components of pain are

the only way in which pain could be understood and have proven beneficial in understanding and treating episodic pain occurrences where the focus is curative (Gatchel et al., 2018).

Additionally, a conceptual pain model, the biopsychosocial model of pain (BPS), has provided a heuristic approach to the exploration of the chronic pain experiences using interrelated conceptualizations (Engel, 1977; Hulla et al., 2016; Turk & Gatchel, 2002). However, most of the tenets within this model have frequently been underutilized in studies (Bunzli et al., 2013; Koenig et al., 2014; Morasco et al., 2014). The most frequently used tenet of the model was the psychosocial tenet, leaving gaps in the model's ability to provide a guided approach of how social and biological factors provide true conceptual meaning to the chronic pain experience.

Currently, there is a lack of studies that have used theoretical underpinnings to guide inquiries into the experiences of cLBP in female Post-9/11 veterans (Taylor et al., 2013). This void in the literature creates an opportunity for a framework constructed from a feminist perspective and may provide ways of knowing and insights into the complexities of cLBP in female combat veterans, specifically from the women's voice (Harding, 1991; Sprague, 2001). One theory that provides a framework in which the experiences of women may be better understood is the feminist standpoint theory.

Harding's (1986) feminist standpoint theory examines how oppressed groups come to understand the world in which they live. The emergence of standpoint theory as a feminist critical theory began with the works of Marx and Engels in the 1800s, who took the stance that social class relations are best understood by exploring the lives of

those who have been relegated by societal systems and not by the ruling class of those systems (Harding, 1986; Hartsock, 2004). This epistemology provides an environment by which one can observe patterns about relations that distinguish practices of power and one that solicits the emergence of new knowledge regarding woman and their experiences (Harding, 1991). This theoretical approach allows for the creation of what is called alternative knowledge. Alternative knowledge is a knowledge that is situated within a specific time, place, experience, and relative power. Because knowledge is always situated within one's social context allowing for an "individual standpoint," there is intrinsic value in the new knowledge gained from the experiences of women and other unprivileged groups (Eichler, 2017; Harding, 2004; Hartsock, 1998; Rolin, 2016; Stevens et al., 2017).

Several conceptual themes are inherent within standpoint theory. First, standpoint theory examines the dichotomy of knowledge and power and their ability to coexist and sustain each other (Harding, 2008; Hartsock, 1998; Rolin, 2016). Secondly, standpoint theory recognizes the hierarchical social categories characteristic within civilization (Hartsock, 1998; Rolin, 2016). The theory proposes that the world is comprised of dualistic opposites, the ruled and the rulers. This societal norm is perceived as natural and many times understood from constructs formulated by those situated in the ruling class (Harding, 2008; Rolin, 2016). The third theme within standpoint theory suggests that those who are oppressed acculturate to the world created by their oppressors. This false perception becomes the reality the dominated ultimately accept as their world (Harding, 2008; Stevens et al., 2017). Fourthly, standpoints help to uncover the practices of power

used within dominant institutions. Entrenched institutionalized oppressive dogmas are what drive inferior systems of power. Changes in these systems can only be accomplished by generating new knowledge through science and reformative legislation (Hartsock, 1998; Rolin, 2016; Rowland et al., 2017). Lastly, standpoints create a culture of emancipation for the marginalized. The transformative power in the achievement of a standpoint is the conduit by which one can see the world from the perspective of their own lives (Hartsock, 1998; Rolin, 2016).

Feminist standpoint theory privileges the voices of women. Through their narratives, visibility and understanding regarding their experiences are explicated (Kokushkin, 2014; Rolin, 2016). A feminist epistemology may provide a lens into what is not known regarding the cLBP experiences in female Post-9/11 veterans, given the multi-faceted dimensions of the woman's self and her social position in the world (Harding, 2009; Kokushkin, 2014; Sprague, 2001; Wood, 1992). Standpoint feminism not only creates knowledge that originates from the women's experience, but it addresses issues that are exclusive to women (Harding, 1986). Using standpoint theory as a framework to understand the gendered experiences of female Post-9/11 veterans with cLBP may provide new insights regarding the chronic pain experiences in women who served in combat military theaters. Thus, standpoint theorizing is the lens through which this researcher investigated the experiences of cLBP in female Post-9/11 veterans.

Purpose of the Study

A narrative descriptive design was employed to understand the experiences of cLBP in female Post-9/11 veterans. Understanding these experiences is paramount to not

only improving pain assessment, management, and treatment outcomes, but also to enhancing evidence-based nursing interventions in female veteran care. Understanding the experiences of cLBP in female Post-9/11 veterans is vital to identifying gender-specific strategies that may improve pain management outcomes.

Although there is evolving research on musculoskeletal pain conditions in Post-9/11 female veterans, little is known regarding the experiences of cLBP in this subpopulation. Chronic lower back pain is a complex phenomenon that is unique to the individual (Gatchel et al., 2007). Understanding the cLBP experiences of female veterans may help give credence to the uniqueness of this population while capturing their lived experience of cLBP. Seeing the world from the vantage point of women may be useful in creating therapeutic pain management strategies vital for female Post-9/11 veterans. The purpose of this study was to explore the stories of female Post-9/11 veterans who experience chronic non-cancer lower back pain resulting from an injury sustained during deployment tours to Iraqi and Afghanistan war missions. Riesman's narrative design was used to elicit the interconnected cLBP story.

Research Question

The central research question for this study is: What are the experiences of female Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn veterans who experience chronic low back pain? Sub-questions include (a) What are the gender-specific cLBP treatment management needs of female Post-9/11 veterans?; and (b) What is the impact of cLBP on life interference in female Post-9/11 veterans?

Definitions of Terms

For this study, the following definitions are used:

1. **Combat female veteran:** Female veterans who were deployed Post-9/11 to Iraqi and Afghanistan war missions and identified as female at birth.
2. **Chronic low back pain (cLBP):** Chronic pain generally affecting the lumbar area of the back designated as vertebrae L1 thru L5 and S1 (Gatchel et al., 2007). A specific of non-specific back pain that lasts for more than three months (National Institutes of Neurological Disorders and Stroke, n.d.).
3. **Chronic non-cancer pain:** “An unpleasant sensory and emotional experience associated with actual or potential tissue damage” . . . persists for more than three months beyond the time of expected normal healing (Cohen & Raja, 2020, p. 128).
4. “Musculoskeletal conditions comprise more than 150 diagnoses that affect the locomotor system; that is, muscles, bones, joints and associated tissues such as tendons and ligaments . . . They range from those that arise suddenly and are short-lived, such as fracture, sprains and strains, to lifelong conditions associated with ongoing pain and disability” (World Health Organization, 2020, “Introduction,” para. 1). For this study, lower back conditions are explored.

Assumptions

The following assumptions were made for this study:

1. The use of individual interviews will allow for exploration into the female veteran's perception of her chronic lower back pain, daily function, and support from healthcare providers, family, friends, and her community.
2. The experiences of female Post-9/11 veterans are based on their perception of events, people, and circumstances surrounding their experiences with chronic lower back pain.
3. Participants may have perceptions related to the effects of gender and societal bias perceived or actual that may influence their perceptions of chronic lower back pain as a female veteran.

Summary

Female Post-9/11 veterans are a unique population whose health has been meaningfully impacted by the experiences of war post-deployment. Afghanistan and Iraq female veterans experience MSK injuries and trauma during deployments to war zones resulting in chronic pain and altered functionality once they return home (Ahern et al., 2015; Driscoll et al., 2015; Naylor et al., 2017). Because cLBP in the female Post-9/11 veteran population is a growing phenomenon, it is important that we fully begin to understand their experiences from the woman's voice. Earlier chronic pain research done in Post-9/11 female veterans has not fully captured the rich experiences of cLBP in this population. Previous research has only investigated the chronic MSK pain conditions in female Post-9/11 veterans broadly. This study will be the first of its kind to specifically

explore the cLBP experiences in the female Post-9/11 veteran population using a qualitative approach.

CHAPTER II

LITERATURE REVIEW

Introduction

Chronic non-cancer pain (CNCP) is described as one of the most frequently diagnosed health illnesses in the United States, surpassing the number of adults collectively affected by heart disease, diabetes, and cancer (Dahlhamer et al., 2018; Gatchel, 2015). While the pervasiveness of CNCP in America is striking, it is also one of the most common symptoms reported by Post-9/11 veterans (Bader et al., 2018; Naylor et al., 2019; Schoneboom et al., 2016). Unlike other war conflicts, the Iraq and Afghanistan war missions represent the longest sustained U.S. military operation since the Vietnam War (Gallagher, 2016). Injuries sustained during the conflicts in the Middle East create a cascading effect on the overall health of veterans post-deployment, which have resulted in physical, psychological, cognitive, and psychosocial impairment (Naylor et al., 2019).

Combat and non-combat war injuries sustained during these conflicts serve as leading indicators for long-term painful disorders among Post-9/11 veterans (Gallagher, 2016; Simmonds et al., 2015). It is projected that of the millions of military personnel deployed to Iraqi and Afghanistan war missions, 50% of returning male military personnel and up to 75% of female military personnel experience CNCP post-deployment (Schoneboom et al., 2016).

Chronic non-cancer pain is a complex and diverse illness that has a uniquely negative impact on veterans. As the incidence of CNCP in Post-9/11 veterans continues to rise, there is a need to better understand its magnitude. This review examined the current evidence related to CNCP in the Post-9/11 population and includes common comorbid pain influencers and various CNCP treatment modalities. The overall objective of this appraisal is to provide a preliminary analysis of CNCP in the Post-9/11 veteran population.

Methods

Search Strategy

With the assistance of a university librarian, a focused literature search identifying studies published between 2009 through July 2019 was conducted in CINAHL, PubMed, Scopus, and ProQuest, using the following terms, and combined keywords related to pain: (Chronic pain, chronic non-cancer pain, long-term pain, persistent pain veterans) and terms related to veterans (military, military veterans, servicemen, servicewomen, soldiers, women veterans, female veterans, Veteran Health, war, Iraqi and Afghanistan, Operation Enduring Freedom, Operation Iraqi Freedom, Operation New Dawn, Post-9/11, United States Department of Veterans Affairs). Additional applicable articles were identified using the reference lists of full-text articles. See Table 1 for the search strategy report.

Data Extraction

Studies identified for this inquiry included (a) chronic non-cancer pain as the primary or secondary variable; (b) samples that included U.S. veterans who served in

Post-9/11 wars with chronic non-cancer pain resulting from a combat injury; (c) and investigations conducted in Veterans Health Administration (VHA) health care facilities or utilized VHA data warehouses. Excluded citations were comprised of (a) commentaries, clinical reviews, editorials, and expert census reports; (b) research not investigating Gulf-war chronic non-cancer pain; (c) and non-English publications.

Data Analysis

The approach used to appraise studies included followed Whitemore and Knafel's (2005) appraisal guidelines. Methodological rigor, target population representation, and analysis strengths were evaluated for each study. Mazurek-Melnyk and Fineout-Overholt's (2010) rating scale, "Hierarchy of Evidence," was used to evaluate the strength of evidence in each study. The rating scale ranges started from level 1, representing the highest quality of study strength, through level 7 representing the lowest quality. Studies in this review were primarily categorized as moderate (Level 4) to low quality (Level 6).

Results

As documented in Figure 1, the search yielded 311 publications. After screening titles and removing duplicates, the search identified 261 publications, which led to a total of 21 studies meeting full criteria for this review. All studies were published in peer-reviewed journals. Studies were comprised of eight retrospective analytical designs, two cross-sectional descriptive designs, four qualitative designs, two prospective observational designs, two descriptive observational study designs, two secondary

analytical designs, and one randomized control trial. See Table 2 for a summary of reviewed studies.

Study Samples, Settings, and Data Sources

The sample sizes for the studies included in this review ranged from 26 participants to 450,319 participants with an average age of 41 years. Eighty-eight percent of studies were comprised of samples that were almost entirely male (76%-100%). The remaining 12% of studies included samples representative of up to 50% female. All studies were conducted within the Veterans Health Administration (VHA) systems. Data sources for retrospective studies and secondary analyses included the VA corporate data warehouse, VA national patient care database, decision support systems secondary survey data, and VA computerized medical record systems. The remaining studies used data from the Department of Defense Manpower Data Center and VHA registries.

Prevalence of Chronic Non-Cancer Pain

Chronic non-cancer pain prevalence in Post-9/11 veteran populations showed wide-ranging variability among samples in this review with estimates ranging from 10% to 80% (Driscoll et al., 2015; Lew et al., 2009). The prevalence of CNCP in this population is particularly remarkable, with one report suggesting a steady yearly increase in the number of new CNCP diagnoses among post-deployed 9/11 veterans (Kerns et al., 2011).

Improved body armor has augmented survival rates among veterans after combat injuries but has resulted in a broad range of injuries that have put military personnel at risk for CNCP post-deployment. Rigorous physical training requirements, heavy body

armor, military heavy packs, and war theater motor vehicle accidents have been identified as predictors of CNCP conditions (Bader et al., 2018; Giordano et al., 2018; Stratton et al., 2014). It is estimated that army and marine veterans deployed to the conflicts of Iraqi and Afghanistan carry infantry loads that weigh, on average, 100 to 120 pounds (U.S. Government Accountability Office, 2017). Phillips et al. (2016) rigorously surveyed 359 Post-9/11 veterans and identified that while 44% of CNCP injuries were combat-related, 56% were sustained while in non-combat war arenas. This same analysis also found that 68% of Post-9/11 veterans experienced non-blast injuries, while 32% of injuries were blast related.

The literature identified several CNCP types in Post-9/11 veterans.

Musculoskeletal (MSK) pain conditions rates surpassed the number of Post-9/11 veterans collectively diagnosed with mental health conditions (Kerns et al., 2011). Several other studies found that 60%–85% of Post-9/11 veterans who received care at Veteran Health Administration (VHA) facilities were diagnosed with one or more MSK pain conditions (Edmund et al., 2018; Gallagher, 2016). Of veterans treated at VHA facilities from 2002 to 2011, the number of veterans treated for spine-related problems increased by 55% (Sinnott et al., 2017).

One study using ICD-9 codes found the prevalence of MSK conditions in Post-9/11 veterans increased incrementally from year one [OR=0.91 (0.87, 0.95)] each year after deployment for 7 years [OR=1.18 (1.05, 1.31)]. The study also identified women as more likely to have MSK [OR 1.32(1.24, 1.40)], back problems [OR=1.06 (1.01, 1.11)],

and joint problems [OR=1.36 (1.21, 1.53)] within one year of deployment with increased occurrence throughout 7 years (Haskell et al., 2012).

Back, joint, and neck pain represented the most common CNCP location for Post-9/11 veterans in over 50% of the studies (Bair et al., 2015; Driscoll et al., 2015; Green et al., 2017; Haskell et al., 2012; Lew et al., 2009; Macey et al., 2011; Naylor et al., 2017; Phillips et al., 2016). Among military branches, 62% to 83% of CNCP conditions post-deployment were seen in Post-9/11 veterans who served within the Army (Bair et al., 2015; Haskell et al., 2009; Haskell et al., 2012; Macey et al., 2011; Outcalt et al., 2014; Seal et al., 2018; Vanneman et al., 2018). These results are consistent with previous research done describing the high rates of CNCP conditions within military branches of service. In contrast, Higgins et al. (2014) found that persistent pain was more likely to occur in veterans who served within the Air Force (OR=0.57 [0.43, 0.74]).

Estimates throughout the civilian and veteran literature note significant CNCP differences between sexes. Overall females are 1.5 times more likely to experience higher pain prevalence, chronicity, and lower pain thresholds than males (Driscoll et al., 2015; Mansfield et al., 2016; Roche & Harmon, 2017; Tait & Chibnall, 2014). Some researchers found significantly higher pain intensities $p<0.009$ and pain interference $p<0.009$ in females when surveying 875 Post-9/11 veterans (Naylor et al., 2019). With females deployed to the combat theaters of Iraqi and Afghanistan, they are at significantly higher risks for injuries and subsequent pain disorders than in past war missions (OR=1.38 [1.13-1.68]) (Higgins et al., 2014). Excessive weight burdens and bulk of improved body armor without body frame considerations and tailoring are among

the many causal factors for injury in female Post-9/11 veterans (U.S. Government Accountability Office, 2017). Blasts, burn pit usage, and military sexual trauma (MST) are common traumas that influence pain severity in female Post-9/11 veterans (Bader et al., 2018). Driscoll et al. (2015) surveyed 460 Post-9/11 female veterans and found that although females experience lower levels of combat trauma than males, they have significantly higher incidences of childhood interpersonal trauma $p < 0.001$, and military sexual trauma $p < 0.001$ that attenuate CNCP experiences post-deployment.

Naylor et al. (2017) surveyed 3,162 Post-9/11 female veterans and found that the rates of headache, muscle soreness, and total pain significantly affected females more than males post-deployment ($p < 0.008$). Smoking was also found to be a mediating factor in MSK pain intensities, with female Iraq and Afghanistan veterans who smoked more likely to experience pain than those who did not (OR=2.73 [1.16-6.41]) (Green et al., 2017).

Treatment Strategies

Treatment modalities used for CNCP management are broad in their scope. Historically, opioids and adjunctive pain therapies have been common treatment methods for CNCP in Post-9/11 veterans (Bielawski et al., 2014; Gallagher, 2016). Providers in the VHA were found to frequently prescribe opioid therapies to Post-9/11 veterans who experienced parallel CNCP and moderate to severe traumatic brain injuries (TBI) despite the associated risks for adverse outcomes (RR=3.5, 95% [CI=2.85-4.47]) (Seal et al., 2018). Vanneman et al. (2018) surveyed 49,885 Post-9/11 veterans with chronic lower back pain (cLBP) and found that 65% were prescribed opioids as the first line of pain

management therapies. Of patients who preferred using nonpharmacological treatment modalities, 43% were also prescribed an opioid as adjunctive therapy.

In a retrospective data cohort, of 762 Post-9/11 veterans with CNCP scores over 3 on the numeric pain rating scale, 64% of veterans were prescribed at least one opioid therapy over 12 months. Of those prescribed opioids, 59% were prescribed opioids short term (less than 90 days), with 41% prescribed longer-termed therapies (Macey et al., 2011). This same study found that male veterans were more likely than females to receive long term opioid therapies (OR=1.208 [0.793-1.840], $p<0.002$).

Sex variations in pain treatment regimens show higher usage and adherence to nonpharmacological pain therapies in female veterans relative to males. In a cohort of 324 Post-9/11 females participating in chronic pain rehabilitation, females were not only prescribed opioids less often and at lower doses than males ($p<0.003$), but they were also significantly more likely to be prescribed concurrent sedative prescriptions as part of a pain management regimen (Murphy et al., 2016).

Emerging interdisciplinary chronic pain management curricula that include nonpharmacological and pharmacological approaches have begun to show promising results not only in decreased CNCP episodes, but also increased functionality in veteran populations (Chou et al., 2016; Salt et al., 2016). A stepped-care intervention program in 241 Post-9/11 veterans with chronic musculoskeletal pain found that veterans who participated in a stepped-care intervention program comprised of self-management strategies, analgesics, and brief cognitive-behavioral therapies significantly decreased

their CNCP severity (-6.6 [95% CI, -10.5 to -2.7]), related disability (-1.9 [95% CI, -2.6 to -0.9]), and pain interference (-0.8 [95% CI, -1.3 to -0.3]; Bair et al., 2015).

Edmond et al. (2018) examined nonpharmacological modality variances and identified in a sample of 460 Post-9/11 veterans that exercise, movement therapies, and non-opioid pain therapies showed significant improvements to CNCP experiences in female veterans (OR=1.82, [95% CI=1.146, 2.84], $p<0.009$). Furthermore, in this same sample psychological and behavioral therapies showed significant improvements to CNCP overall in veterans with poorer mental health (OR=2.88, 95% [CI=2.11, 3.93], $p<0.001$).

Literature on the mind-body connection and pain activity has also emerged and suggests positive pain management outcomes in patients with CNCP symptoms. Matthias et al. (2012) surveyed 26 Iraqi and Afghanistan veterans to see if a greater understanding of one's beliefs and attitudes associated with CNCP improved pain management outcomes. Veterans found that cognitive-behavioral therapies (CBT), physical therapy, or self-management activities such as physical activity, yoga, and patient pain education improved not only their CNCP cycles and functionality, but also their ability to recognize physical and psychosocial influences that exacerbate pain, in addition to managing pain through actions and thoughts.

The cyclic nature of CNCP in which fear, avoidance, and mood create patterns of maladaptive responses to pain treatment efforts provides an opportunity for other alternative pain treatment modalities (Kim et al., 2017). Behavioral Activation (BA) a promising behavioral treatment modality has been used in people with CNCP to target

fear and avoidance behaviors consistent with chronic pain sufferers. Behavior Activation suggests that re-engaging in purposeful movement activities helps disrupt the harmful cycles of pain, fear, avoidance, and mood resulting in less disability and improvements to the overall quality of life (Kim et al., 2017). Other researchers suggest that CNCP is best treated using a biopsychosocial treatment approaches (Gallagher, 2016; Gatchel, 2015). Outcalt et al. (2017) also found pain experiences, memory, and emotions mutually contribute to how that pain is perceived. Understanding the multidimensional experiences of chronic pain may help to provide better treatment strategies.

Discussion

This integrative review included 21 publications that focused on chronic non-cancer pain in Post-9/11 military veterans. Findings demonstrate that injuries sustained throughout deployment tours increase the risk of CNCP post-deployment. Combat-related injures (penetrating wounds caused by mine blast, and improvised explosive devices, gunshots and injuries resulting from motor vehicle accidents), and non-combat injuries acquired from the rigors of training, the daily use of heavy body armor apparel, and difficult battlefield conditions contribute to CNCP-related experiences in veterans post-deployment. Researchers have identified an association between multiple deployment tours, a branch of service (Army), and higher rates of injury.

Several sources of data elucidate the high rates of MSK pain conditions and headache prevalence in veterans post-deployment (U.S. Department of Veterans Affairs, 2017). Researchers have found that musculoskeletal type injuries, particularly in backs and joints, can influence the development of long-term chronic pain in Post-9/11

veterans. Chronic lower back pain was identified as the leading pain location among Post-9/11 veteran's post-deployment.

Data represent epidemiological studies that identify disparities in the prevalence of injury severity and CNCP in female Post-9/11 veterans. Female veterans deployed to the combat zones with concurrent ongoing exposure to physical, emotional, and mental threats during deployment were at higher risk for mental and physical and social illnesses. MSK, back, and joint pain conditions are significantly more likely to be reported by females. Several studies address the cumulative psychological stressors that often accompany CNCP experiences in Post-9/11 veterans. Most studies focused particularly on the unilateral causality of mental illnesses on CNCP conditions in Post-9/11 veterans. However, considerations should be given to bidirectional causalities in chronic pain and mental health illnesses.

Sustained efficacy in many different treatment modalities for CNCP in Post-9/11 veterans varied within studies. Surgeries, pharmacological and nonpharmacological therapies had mixed outcomes (Gatchel, 2015). Although treatment guidelines exist, evidence suggests only modest effectiveness among current pain treatments. Opioids remain the leading prescribing choice for MSK pain types in Post-9/11 veterans, although often prescribed with concurrent nonpharmacological treatments (NPT). However, researchers found that opioid regimens independent of complementary and integrative approaches lack sustained pain relief and carry an increased risk for augmented pain, unintentional death, and addiction. Studies that demonstrate sustained efficacy in opioid

treatment modalities for CNCP conditions are limited in the veteran population (Salt et al., 2016; Sinnott et al., 2017).

Some researchers suggest that biopsychosocial approaches used to treat CNCP engage patients in better self-pain management. Although stepped-care pain management models emphasize interdisciplinary biopsychosocial approaches to pain management for CNCP and are used within VHA health systems, few studies report the use of this model in female Post-9/11 veterans with CNCP (Bielawski et al., 2014). Researchers also report that treatment approaches such as CBT, physical therapy, and BA show promising results in decreasing pain, and increasing functionality in the Post-9/11 veteran population (Kim et al., 2017; Krein et al., 2016; Matthias et al., 2012).

Some studies focused on prescribing practices for CNCP, noting significant differences in prescribing practices between male and female Post-9/11 veterans. Disparities in prescribing practices continue despite prescribing guidelines and literature that suggest higher pain intensities and longer pain intervals in female veterans with CNCP (Gallagher, 2016; Haskell et al., 2012; Whitehead, 2018). Female Post-9/11 veterans are an estimated 20 years younger than their male counterparts and are diagnosed with CNCP illnesses at earlier ages. Thus, the long-term sequelae of CNCP in female Post-9/11 may have significant implications for early and ongoing treatment. Gaps in the literature provide opportunities for sex-specific CNCP pain care approaches.

Limitations

There were some limitations to this review. First, because participant samples were Post-9/11 veterans with CNCP, results may not apply to veterans from other war

eras or veterans with acute and cancer-related pain. Second, lack of heterogeneity within samples resulted in CNCP results that were largely found in male Post-9/11 veterans. No studies examined CNCP in exclusive homogenous female Post-9/11 veteran samples.

Lastly, trials were conducted at VHA facilities and were predominantly based on data from electronic medical records and the Department of Defense maintained databases in which generalizability would be limited. Some studies collected CNCP data from self-reported questionnaires, which may be subject to recall bias. The limitations in this literature review highlight the inherent opportunities for further CNCP research in the Post-9/11 veteran population.

Implications for Practice and Research

The implications for nursing noted in this study are education- and research-focused. As clinicians, evidence-based nursing interventions are paramount to sustained patient-centered care. As inter-professional practice models across health care systems continue to expand, the role of nursing becomes an integral part of the healthcare team. Nurses are uniquely positioned to design nurse-driven pain educational models that reshape standards of pain care and improve self-efficacy with veteran populations. Enhancing nursing knowledge regarding CNCP care management, CNCP stigmas and cycles, and comprehensive CNCP assessments may help in earlier identification of CNCP difficulties, and more sustained pain control within Post-9/11 veteran populations (Schoneboom et al., 2016).

The need for future research in Post-9/11 veteran populations has been highlighted in this review. Longitudinal designs that contribute to understanding the

quality of life indicators of pain may provide an opportunity for improving CNCP outcomes. Currently, there is growing research interest regarding understanding sex-specific CNCP pain illnesses in the veteran Post-9/11 population (Cook et al., 2014). Little is still known about the experiences of CNCP in the female Post-9/11 veteran population from the female's perspective. As CNCP research continues to expand, the experiences in female Post-9/11 veterans may contribute to the overall body of pain knowledge.

National pain health care priorities within the veteran's population have been aimed at reducing opioid overdose rates. The opioid crisis has not only changed prescribing practices among VHA providers, but it has also changed the trajectory of CNCP management. New rigorous dispensing criteria and enhanced opioid risk management surveillance have resulted in a decline in opioid prescriptions dispensed for CNCP diagnoses, particularly in veteran populations (Gallagher, 2016). Considering opioid safety initiatives, studies that explore rebound pain management challenges and their impact on the health and well-being of Post-9/11 veterans may better inform pain management strategies and current CNCP treatment modalities.

Conclusion

The magnitude of CNCP illnesses within the Post-9/11 veteran population is vast. War theater injuries and exacerbating interconnecting psychological illnesses provide a basis for persistent CNCP within this veteran population. This review highlights the complex nature of CNCP in Post-9/11 veterans with implications for early comprehensive pain assessments, sustained efficacy in treatment modalities, and sex-

specific CNCP treatment variances. Understanding the exclusivity of CNCP experiences in Post-9/11 veteran populations is a healthcare priority.

As new legislation (VA MISSION Act of 2018) expands community health care provider choices for veterans, careful considerations to the CNCP management needs of Post-9/11 population becomes essential for both VHA and non-VHA clinicians (U.S. Department of Veterans Affairs, 2019). While the MISSION Act of 2018 now provides veterans access to a wide range of healthcare services outside VHA facilities, there are implications for diminished continuity of CNCP care. The impact of Post-9/11 veterans seen in non-VHA settings with providers who are unfamiliar with their unique CNCP needs may have negative long-lasting consequences. The difficulties of CNCP in Post-9/11 veterans may be understood best through ongoing pain education and scientific inquiry. Research that better informs healthcare providers of the unique pain care needs of Post-9/11 veterans may result in more enriched clinical evaluations and sustainable pain management outcomes.

Figure 1

Chronic Non-Cancer Pain Among Post-911 Veterans: An Integrative Review

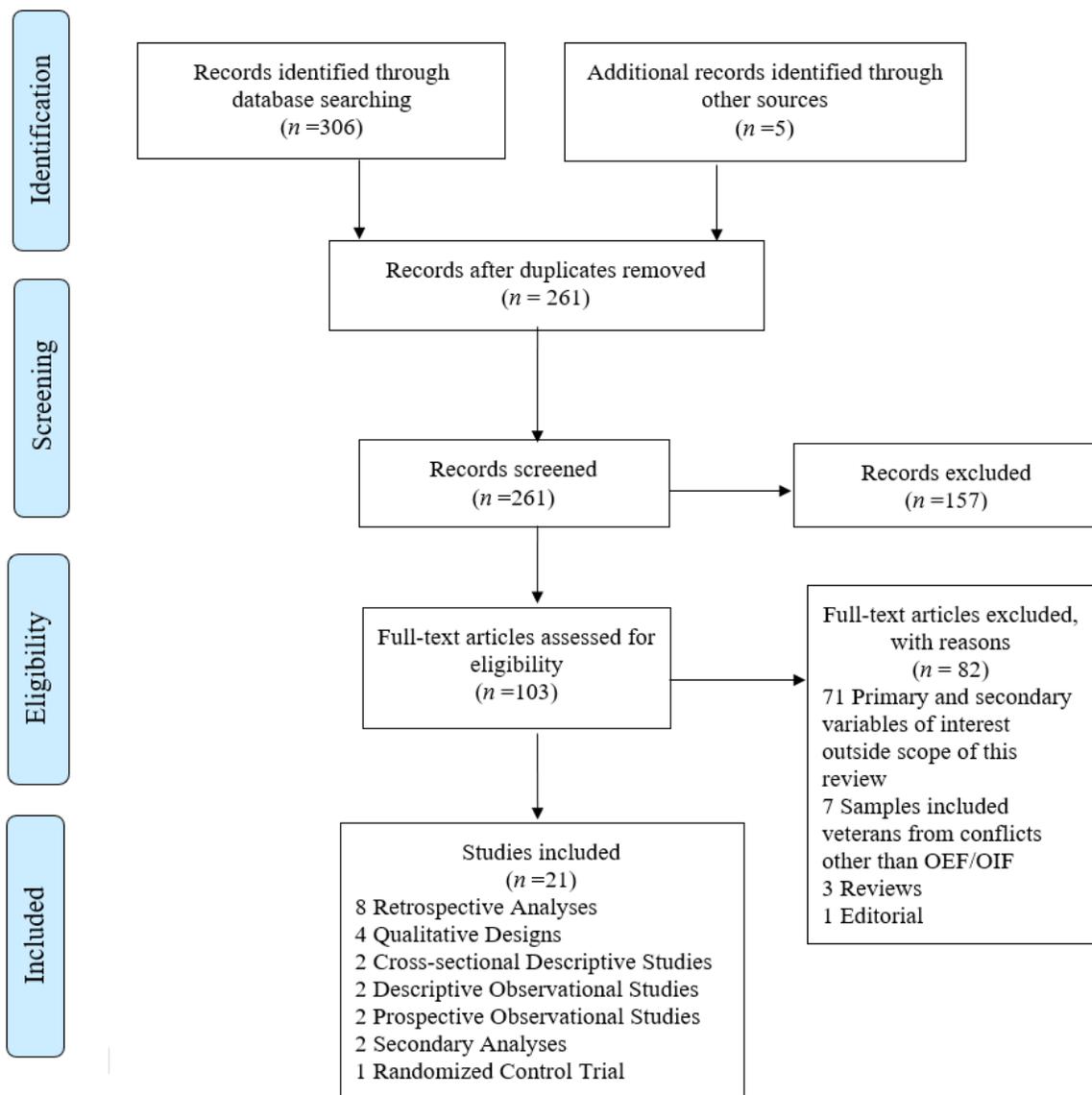


Table 1

Search Strategy Report: Chronic Non-cancer Pain in Post-9/11 Veterans

Set #		Results
Database: CINAHL		
1	MH "Chronic Pain" AND MH "Veterans United States"; (MM "Chronic Pain") AND (MM "Veterans") AND (MH "United States+") Boolean/Phrases: Chronic pain AND (veterans or military or soldiers or servicemen or servicewomen) OR veteran OR war; Pain AND (veterans or military or solders or servicemen or service women) AND chronic; Veterans AND chronic pain; Chronic pain AND veterans NOT cancer	44,034
2	MH "chronic pain" AND MH "OEF/OIF veterans" OR (veterans or military or soldiers or servicemen) Key word searches: veterans AND (OIF/OEF OR OIF OR operation Iraqi freedom OR OEF OR operation enduring freedom) AND chronic pain; Chronic pain NOT cancer AND OEF/OIF (OEF/OIF OR operation enduring freedom OR operation Iraqi freedom); Chronic pain AND united states or America or USA or U.S. AND (OEF/OIF OR operation enduring freedom OR operation Iraqi freedom) NOT cancer pain	52,377
3	Key word searches: Chronic pain OR persistent pain OR long term pain AND female veterans or women veterans NOT cancer pain; Chronic pain OR persistent pain OR long term pain AND female veterans OR women veterans AND united states OR America OR USA or U.S. NOT cancer; Chronic pain OR persistent pain OR long term pain AND women or female or woman or females AND Iraq veteran AND Afghanistan veterans; Chronic non-cancer pain or chronic pain or long-term pain AND women or female or woman or females OEF/ OIF (OEF or operation enduring freedom or OIF or operation Iraqi freedom veterans) NOT cancer.	4,541
4	#1, #2, and #3	127
5	# 4 Limit 2009-current: English, United States, Human	73
Database: PubMed		
1	"United States" [Mesh]and (("Veterans" [Mesh]) AND "Chronic Pain" [Mesh]) NOT "Neoplasms" [Mesh] not cancer , (((("Chronic Pain"[MAJR]) AND "United States"[MeSH Terms]) AND "Veterans"[MAJR]) AND "United States Department of Veterans Affairs"[MeSH Terms], Chronic pain AND veterans Key word searches: Chronic pain AND (veterans or military or soldiers or servicemen or servicewomen) OR veteran OR war; Veterans AND chronic pain NOT cancer;	58,053
2	MH "chronic pain" AND MH "OEF/OIF veterans" OR (veterans or military or soldiers or servicemen); "Veteran Health" AND chronic pain NOT cancer Key word searches: united states AND chronic pain AND veterans AND (oef or operation enduring freedom or oif operation Iraqi freedom); chronic non cancer pain AND OEF or operation enduring freedom AND OIF operation Iraqi freedom	52,280

Table 1

Cont.

Set #		Results
Database: PubMed (cont.)		
3	Key word searches: Chronic pain OR persistent pain OR long term pain AND female veterans or women veterans NOT cancer pain; Chronic non cancer pain AND female veterans; Operation enduring freedom AND Iraqi freedom female veterans AND chronic pain NOT cancer; Chronic pain OR long term pain AND women veterans AND united states NOT cancer; Chronic non-cancer pain or chronic pain or long-term pain AND women or female or woman or females OEF/OIF (OEF or operation enduring freedom or OIF or operation Iraqi freedom veterans) NOT cancer.	4,612
4	#1, #2, and #3	133
5	#4 Limit 2009-current: English, United States, Human	99
Database: Scopus		
1	“Veterans AND chronic pain;” chronic pain AND military personnel AND NOT cancer, chronic pain AND military veterans AND NOT cancer, veteran health AND chronic pain NOT cancer, chronic pain AND America AND military or soldiers or servicemen AND NOT cancer pain, chronic pain AND America AND military or soldiers or servicemen OR veterans OR war AND NOT cancer pain	718
2	enduring freedom AND Iraqi freedom AND veterans AND “chronic pain”, “chronic pain” AND OEF/OIF veterans AND NOT cancer, chronic pain AND military veterans AND NOT cancer, AND Iraqi AND Afghanistan	734
3	Chronic non cancer pain OR persistent pain AND female veterans or women veterans; Chronic pain OR persistent pain long term pain AND female veterans or women veterans NOT cancer pain; Chronic pain AND America AND military or soldiers or servicemen AND female AND NOT cancer pain; “Chronic non cancer pain” or persistent pain AND female veterans or women veterans AND Iraqi AND Afghanistan	113
4	#1, #2, and #3	45
5	#4 Limit 2009-current: English, United States, Human	41
Database: ProQuest Nursing & Allied Health Database		
1	“Veterans AND chronic pain;” chronic pain AND military personnel AND NOT cancer, chronic pain AND military veterans AND NOT cancer, chronic pain AND America AND military or soldiers or servicemen AND NOT cancer pain	46,705
2	chronic pain” AND “OEF/OIF veterans” OR (veterans or military or soldiers or servicemen); (chronic non cancer pain) AND (OEF/OIF veterans), chronic non cancer pain AND OEF or operation enduring freedom AND OIF operation Iraqi freedom, chronic pain AND military veterans AND NOT cancer, AND Iraqi AND Afghanistan	121,222
3	Chronic non cancer pain) AND (OEF/OIF veterans) AND female, Operation enduring freedom AND Iraqi freedom female veterans AND chronic pain NOT cancer, Chronic pain OR persistent pain long term pain AND female veterans or women veterans NOT cancer pain	1,203
4	#1, #2, and #3	159
5	#4 Limit 2009-current: English, United States, Human	93

Table 2

Summary of Reviewed Studies

Author (Date)	Objective	Sample (setting)	Study design	Relevant findings	Quality of evidence
Bair et al. (2015)	Evaluate a stepped care intervention for chronic musculoskeletal pain is more effective than usual care in reducing pain-related disability, pain interference and pain severity	N=241 POST 9/11 (VHA)	Randomized control trial	<p>*Stepped Care intervention combined analgesics self-management strategies and CBT veterans with chronic pain, pain related disability, pain interference and pain severity had significant improvements to their pain</p> <p>*Compared to the usual care group the intervention group exhibited significant improvements in all pain outcomes at 9 months.</p> <p>*Patients in the intervention group demonstrated a 30% improvement in Roland Morris Disability scores.</p> <p>* Multimodal chronic pain management approaches that combine pharmacological and nonpharmacological approaches may be beneficial for OEF/OIF veterans.</p>	2
Driscoll et al. (2015)	Examine co-currently the role of trauma, support, and family conflict as predictors of key dimensions of the chronic pain experience in males and female veterans	N=460 OEF/OIF/OND veterans (VHA)	Cross-sectional	<p>* In this sample significant lower chronic pain threshold were seen in female OEF/OIF veterans.</p> <p>*Relative to men childhood trauma and interpersonal trauma and military sexual trauma are significantly associated with chronic pain.</p> <p>*In this sample women reported lower levels of trauma then men.</p>	4
Edmond et al. (2018)	Examine the use of Non-Pharmacological pain treatment modalities among female veterans with chronic pain	N=460 POST 9/11 veterans (VHA)	Cross-sectional Secondary Analysis	<p>* In this sample 42.1% veterans reported pain lasting 1 to 4 years with 40.9% reporting pain lasting 4 years or longer.</p> <p>* Common chronic non cancer pain types among all OEF/OIF/ OND veterans consists of joint pain</p>	4

Table 2

Cont.

Author (Date)	Objective	Sample (setting)	Study design	Relevant findings	Quality of evidence
Edmond et al. (2018) (cont.)				(80%) back pain (80%) and headaches (64%). * In this sample female POST 9/11 veterans more likely to receive rehabilitative therapies that include exercise and movement therapies for chronic pain relative to males. *The most frequently used nonpharmacological modality (NPM) among veterans in this sample was massage therapy. * In this sample when prescribed non-opioids pharmacological therapies Veterans report concurrent use of at least one NPM	
Green et al. (2017)	Examine gender differences in the association between cigarette smoking and moderate to severe musculoskeletal pain in OEF/OIF veterans	N=1,090 OEF/OIF veterans (VHA)	Cross Sectional Secondary Analysis	*Smoking is associated with higher musculoskeletal pain severity in both genders. *Female smokers relative to non-female smokers and men report increased moderate to severe chronic musculoskeletal pain severity.	4
Haskell et al. (2009)	Evaluate sex differences in the prevalence of: overall, moderate-severe and persistent pain and pain assessments in OEF/OIF	N=153,212 OEF/OIF veterans (VHA/ Data Warehouse)	Descriptive Observational	*In this sample there were lower prevalence's of reported pain in women in the first year after deployment. *Veterans in this sample who reported pain were more likely to report moderate- severe pain. *Female veterans were significantly less likely to report pain but when reported moderate-sever pain was reported. *No significant differences by sex in completed pain screenings in this sample.	6

Table 2

Cont.

Author (Date)	Objective	Sample (setting)	Study design	Relevant findings	Quality of evidence
Haskell et al. (2012)	To describe sex differences in the prevalence of painful musculoskeletal conditions in men and women OEF/OIF veterans	N=450,319 OEF/OIF veterans	Descriptive observational	<p>* In this sample the prevalence of painful musculoskeletal, joint, and back, conditions increased significantly in years 1 to 7 years post-deployment for both male and females.</p> <p>* Back, joint, and musculoskeletal were more prevalent in female veterans compared to males with higher increases over time.</p>	6
Higgins et al. (2014)	To examine variations in demographics and high prevalence and high impact medical and mental health conditions characterizing the differences between patients with persistent pain and no pain	N=5,242 OEF/OIF/OND veterans (VHA)	Prospective observational	<p>* Veterans who experience chronic pain are: -Significantly younger -More likely female -More likely enlisted members not reservist -More likely to serve in the army.</p> <p>*PTSD, anxiety, mood disorders, and substance use disorders are highly comorbid in veterans who have pain disorders.</p>	4
Kim et al. (2017)	Illustrate the application of Behavioral Activation in a veteran with chronic low back pain and bilateral foot pain	N=1 (VHA)	Qualitative design case study	<p>* The Behavioral Activation treatment model targets fear and avoidance behaviors consistent with chronic pain sufferers and increases engagement in previously avoided activities to help disrupt the harmful cycle of pain, fear, avoidance and mood</p> <p>* Improvements to pain levels were not significant however less intense thoughts about pain and less engagement in worry about pain was significant as evidenced by the catastrophizing pain scale.</p>	6

Table 2

Cont.

Author (Date)	Objective	Sample (setting)	Study design	Relevant findings	Quality of evidence
Kim et al. (2017) (cont.)				<p>* Veteran reported less disability with increases in recreation, social activity, self-care, sexual behavior on the pain disability index</p> <p>* Veteran also reported improvements to overall quality of life.</p>	
Lew et al. (2009)	Examine the co-prevalence rates of chronic pain, post-traumatic stress disorder (PTSD) and persistent post – concussive symptoms (PPCS) in returning OEF/OIF veterans	N=340 OEF/OIF Veteran (VHA)	Retrospective analysis	<p>*High co-prevalence rates of chronic pain, PTSD and PPCS exist among 96.5% of OEF/OIF veterans in this sample.</p> <p>* Back and headache pain are the most common pain types seen in veterans with chronic pain, PTSD and PPCS.</p>	4
Macey et al. (2011)	Describe the prevalence of prescription opioid used when treating chronic non-cancer (CNCP) pain and to identify correlates of receiving prescription opioids for (CNCP) in OEF/OIF veterans	N=762 OEF/OIF Veterans (VHA)	Retrospective analysis	<p>*Opioid therapy is a common treatment method for chronic non-cancer pain (CNCP) in veterans</p> <p>*In this sample two-thirds of OEF/OIF veterans with CNCP were prescribed opioids over 1 year with over one-third prescribed opioids on a long-term basis.</p> <p>* patients prescribed long term opioids had greater prevalence of chronic neck and joint pain.</p> <p>* Depressive, PTSD and nicotine use were seen in veterans prescribed opioid therapy.</p>	4

Table 2

Cont.

Author (Date)	Objective	Sample (setting)	Study design	Relevant findings	Quality of evidence
Macey et al. (2011) (cont.)				* Adjunctive pain therapies such as NSAID acetaminophen or antidepressants are often mutually prescribed in veterans with CNCP.	
Matthias et al. (2012)	Understand the perceptions of a multicomponent musculoskeletal chronic pain intervention used in OEF/OIF veterans and whether perceptions varied based on treatment responses	<i>N</i> =26 OEF/OIF Veterans (VHA)	Qualitative design	* Veteran recognition of the pain mind connections and pain activity connections was gradual in sample. * Evolution regarding understanding the thoughts, attitudes, beliefs associated with chronic pain, help in managing pain. * Two broad themes emerged in this sample: Learning to recognize the physical and psychosocial factors related to chronic pain and learning to manage chronic pain through actions and thoughts.	6
Matthias et al. (2014)	Explore the OEF/OIF veterans understanding of how their chronic pain evolved	<i>N</i> =26 OEF/OIF Veterans (VHA)	Qualitative design	* In this sample, experiences related to chronic pain and related social support emerged in two broad themes: ** The emotional toll of pain and, ** Perceptions of support A range of negative emotions such as frustration, hopelessness, depression, anger and fear were described by veterans * Support emerged from various sources including significant others, co-workers, and other veterans.	6

Table 2

Cont.

Author (Date)	Objective	Sample (setting)	Study design	Relevant findings	Quality of evidence
Murphy et al. (2016)	Examine the sex variations between veterans participating in interdisciplinary chronic pain rehabilitation	N= 324 OEF/OIF Veterans (VHA)	Retrospective analysis	<p>* In this sample interdisciplinary pain rehabilitation improved chronic pain symptoms in female and male veterans.</p> <p>*Male veterans in this sample had higher reports of fear at discharge and follow-up relative to females.</p> <p>*Females in this sample reported shorter pain durations lacked the ability to maintain sustained improvements to pain intensity or pain related sleep challenges and more likely to have head or limb pain.</p>	4
Naylor et al. (2017)	Examine gender differences pain symptoms and comorbid psychiatric and function in OEF/OIF veterans	N= 3,162 OEF/OIF Veterans (VHA)	Retrospective analysis	<p>*In this sample females reported higher levels of headaches, muscle soreness and total pain than males.</p> <p>* In this sample poor psychological function was positively associated with chronic pain conditions in both genders.</p> <p>* In this sample no significant gender differences related to function emerged.</p>	4
Naylor et al. (2019)	To examine gender differences in pain intensity and pain interference in POST 9/11 veterans	N=875 POST 9/11 veterans	Cross Sectional Retrospective analysis	<p>* Females reports higher levels of pain intensity and interference than males</p> <p>* Reports of chronic pain relative to acute pain was more prevalent in both male and female veterans</p>	4

Table 2

Cont.

Author (Date)	Objective	Sample (setting)	Study design	Relevant findings	Quality of evidence
Outcalt et al. (2017)	To gain a deeper understanding of pain centrality from the Iraq and Afghanistan veteran perspective	N=26 OEF/OIF veterans (VHA)	Qualitative design	<p>* Destructive pain perspectives exacerbated pain severity in this sample.</p> <p>* The practice of pain management behaviors such as: **Biopsychosocial pain approaches, Increased activity levels, effective pain communication, and social support moderate chronic pain severity.</p> <p>* Preoccupations with chronic pain impacts of pain centrality.</p>	6
Outcalt et al. (2014)	To identify key aspects of chronic pain, cognitions, and psychological distress associated with comorbid PTSD in POST 9/11 veterans	N=241 OEF/OIF veterans	Retrospective analysis	<p>* Veterans with comorbid chronic pain and PTSD are more likely to have: **amplified physical pain experiences ** emotional experiences that are more disabling and ** greater life interference than those with only chronic pain.</p> <p>In this sample increased catastrophic thinking regarding chronic pain accompanied comorbid PTSD.</p>	4

Table 2

Cont.

Author (Date)	Objective	Sample (setting)	Study design	Relevant findings	Quality of evidence
Outcalt et al. (2014) (cont.)				* In this sample increased depression and anxiety symptoms accompany comorbid chronic pain and PTSD.	
Phillips et al. (2016)	Identify prevalence and severity of pain and psychiatric comorbidities in POST 9/11	N=359 POST 9/11 veterans	Prospective observational	* High rates of concurrent pain and psychiatric disorders exists in OEF/OIF veterans. * Pain complaints are the most common reported problem with more than half of this sample exceeding moderate or severe pain thresholds.	4
Plagge et al. (2013)	Explore the effectiveness and feasibility of a chronic pain intervention using collaborative components and Behavioral Activation	N=58 POST 9/11 veterans	Retrospective analysis	* Collaborative approaches for treatment of PTSD and chronic pain improve overall satisfaction and quality of life in veterans	4
Seal et al. (2018)	Opioid prescribing practices for individuals with chronic pain and TBI	53,124 POST 9/11 veterans	Retrospective analysis	* Veterans with severe TBI were more likely to receive long-term and short-term opioid therapy than those with less severe or no TBI	4
Vanneman et al. (2018)	Describe overall variations in which Non-pharmacological modalities are used for lower back pain independent or in as adjuncts to opioid therapy	49,885 POST 9/11 veterans	Retrospective analysis	* 35% of veterans used both an opioid prescription and at least one Non-pharmacological modality * 65% of VHA patients only received opioids or Lower back pain and no Non-pharmacological Treatment modality	4

CHAPTER III

METHODOLOGY AND DESIGN

Introduction

Previous studies have broadly investigated chronic musculoskeletal (MSK) pain conditions in female veterans (Driscoll et al., 2015; Kerns & Heapy, 2016; Murphy et al., 2016). However, no studies have exclusively examined the chronic lower back pain (cLBP) experiences in female veterans deployed to combat theaters. As females increasingly continue to complete deployment tours and war missions, the complexity of cLBP occurrences in this population will rise. We must begin to understand the cLBP experiences in female Post-9/11 veterans to gain better insight into gender-specific pain assessments, interventions, and treatment modalities. This research used a qualitative inquiry to guide the exploration into cLBP experiences in Post-9/11 female combat veterans.

Methodology

The narrative approach is a commonly used qualitative inquiry method. Narratives provide progressive depictions of events and embody an interpretive epistemological stance that allows for a greater understanding of individualized human behavior (Gerring, 2001; Murray, 2015; Sandelowski, 2004). Narrative inquiries suggest that stories capture the multiple realities inherent in human behavior (Riessman, 2008). Through multiple ways of knowing, the world establishes meanings and trustworthiness

not captured in positivistic forms of knowing. The construction of textual and oral stories are what human beings use to make sense of life's experiences (Creswell, 2013; Gerring, 2001; Riessman, 2008). Individual stories that exist in time and are rooted in context may offer a more complex understanding of one's situated experiences (Riessman, 2008).

Narratives, situated within cultural, societal, or organizational discourses, are instrumental in understanding health characteristics often seen in nursing inquiry (Riessman, 1993; Sandelowski, 1994). Participant narratives create a framework from which storytelling can occur. It is through storytelling that new knowledge and meaning regarding the human experience emerges and the empathetic bonds of human caring are formed. Interpretive philosophical suppositions are also contextualized throughout the narrative inquiry (Riessman, 2008). The interpretative position assumes that meaning is understood best in experience and mediated through stories that give preference to the interpretation (Riessman, 2008; Sandelowski, 2004). A narrative approach using storytelling was used to guide this study (Sandelowski, 1991). It is through this inquiry that the experiences of cLBP in female Post-9/11 veterans may become more visibly understood.

Qualitative methodologies offer unique perspectives into human phenomena within the context of social science (Josselson et al., 2003; Streubert & Carpenter, 2011). This lens into human experiences provides a way to extrapolate meaning about behaviors. Human behaviors and personal interpretations cannot be fully understood using statistical equations exclusively (Sandelowski, 2004). Researchers suggest that traditional empirical research methods are limited in their ability to answer many research questions or explain

complex behaviors (Creswell, 2013; Sandelowski, 2004). Qualitative inquiry has been widely utilized in the veteran female population (Bader et al., 2018; Haskell et al., 2012; Patel et al., 2016). However, few studies have used a descriptive narrative design to help guide their inquiry. Combat female veterans have distinctive cLBP experiences. War injuries and combat trauma are significant influencing factors in their chronic non-cancer pain (CNCP) experiences (Crum-Cianflone & Jacobson, 2014; Gauntlett-Gilbert & Wilson, 2013; Haskell et al., 2012). It is by conceptualizing the interrelated physical and cognitive influences of cLBP that new insights into the cLBP experience in this population may emerge. This study provides an initial understanding of the cLBP experiences in Post-9/11 combat female veterans.

Over the past two decades, the participation of females in the military has significantly increased (Muirhead et al., 2017). Female veterans represent 8% of the total veteran population and are the fastest-growing military sub-population (Bielawski et al., 2014; Driscoll et al., 2015; Green et al., 2017; Kelly et al., 2014). Nevertheless, unlike prior war eras, there is a growing number of female military personnel serving in active combat arenas (Conard & Scott-Tilley, 2015). Participation in combat arenas poses a greater risk of MSK injuries and has become the leading predictors of cLBP post-deployment in female Post-9/11 veterans (Gauntlett-Gilbert & Wilson, 2013). Female Post-9/11 veterans are an exclusive population and are unlike any other populace (Olenick et al., 2015). Many of their chronic non-cancer pain difficulties not only differ from their male counterparts but are characteristically distinctive among females in the general population. Pain injury etiology, past pain experiences, pre- and post-military

sexual trauma, war trauma, and mental health comorbidities all contribute to these differences (Haskell et al., 2012).

The experiences of women are inherently valuable as they help us challenge our understanding of truth and reality (Harding, 2009). How women understand and characterize their lives provides further insights by which meaning regarding experience is elucidated (Wood, 1992). A woman's social position, gender, class, race, sexuality, and innate belief systems collectively contribute to how a woman perceives the world (Bloom, 1998; Harding, 2009; Zinn & Dill, 1996).

Although there is growing research surrounding female veterans and CNCP, there is a need for more theoretical research related to the experiences of cLBP in female Post-9/11 veterans post-deployment. Understanding the cLBP experiences of female combat veterans from a feminist perspective may provide insights into the complexities of cLBP in female combat veterans. A feminist inquiry allowed the researcher to consider the experiences of female Post-9/11 veterans from a perspective that considers the individual veteran woman experience within broader social constructs (Davy, 2011).

Standpoint theory is a feminist epistemology that suggests that women interpret their experiences and the meaning of those experiences within their position in the world (Harding, 2009; Sprague, 2001). A singular aspect of a woman's identity does not determine her standpoint. Multi-faceted dimensions of a woman's identity collectively contribute to how a woman perceives the world (Harding, 2009; Zinn & Dill, 1996). Although gender paradigms contextualize the essence of feminist research, the traditions of this epistemology have been pivotal in changing social inequalities.

Standpoint theory goes beyond valuing any one woman's experience, but it suggests that the experiences of peripheral groups are inherently valuable (Intemann, 2010). The multiple truths inherent in feminist epistemology are relative to one's standpoint within their social realm (Harding, 2009). Understanding the experiences of female Post-9/11 veterans from a perspective that considers the veteran woman's experience provides a new way of knowing as it relates to cLBP.

Both a narrative and feminist approach were used to guide this study. The characteristically parallel nature of these approaches will provide a unique opportunity for the use of language to understand life's events as experienced by female Post-9/11 veterans, and the exploration of imbalances of power regarding sex and class in women veterans. How females understand and characterize their lives provides further insight into the cLBP experiences of Post-9/11 female veterans and contribute to the chronic non-cancer pain literature.

Specific Aim

The purpose of this study was to explore the stories of female Post-9/11 veterans who experience chronic non-cancer lower back pain resulting from an injury sustained during deployment tours to Iraqi and Afghanistan war missions. Riesman's narrative design was used to elicit the interconnected cLBP story. The central question was, what are the cLBP experiences of female veterans who have deployed to Post-9/11 war missions? Other areas that were explored included: (a) What are the gender-specific cLBP treatment management needs of female Post-9/11 veterans, (b) What is the impact of cLBP on life interference in female Post-9/11 veterans.

Sample

Purposive sampling was used to select the participants for this study. Purposive sampling is a common sampling method used in qualitative research (Streubert & Carpenter, 2011). It involves selecting participants based on their ability to provide as much information about the problem statement through their narrative experiences. The participant sample included primarily Army female Post-9/11 veterans who deployed to war zones allowing for greater inclusion of the population. The inclusion criteria included female veterans 21 years and older who reported cLBP experiences for at least one year post-deployment from injuries that occurred during active duty. Exclusion criteria included female veterans who did not deploy to any of the Post-9/11 missions, female veterans who did not experience cLBP as a result of an injury during their military deployment, and male veterans.

Additionally, snowball sampling was used as participants were recruited. The snowball sampling method in qualitative inquiry facilitates recruitment through the personal interactions among participants and their acquaintances (Creswell, 2007). Participants were asked if they are aware of other female veterans who they thought might be interested in the study. Flyers were given to participants to give to other female veterans who currently reported experiencing cLBP and who served during the Post-9/11 war missions. Corresponding to the assumptions of qualitative research, participants were interviewed until no new ideas further emerged from the data, denoting data saturation. Data saturation was reached after interviewing 10 participants.

Setting

The setting used for data collection was convenient, private, and determined by the participant. Locations included the participant's home; private, quiet sections of local dining areas; or private rooms in libraries.

Protection of Human Subjects

Before recruitment, approval for conducting the study and wording of consent forms were obtained from the University of North Carolina at Greensboro Institutional Review Board. Participants were informed about the study's potential benefits and risks before signing a written consent (see Appendix C). Consent documents were verbally read aloud to participants for clarity and opportunities for participants to ask related questions was given. Participants were informed of their right to ask questions during the interview or pause and stop the interview without penalty.

All audio recorded interviews and transcripts were de-identified to maintain data confidentiality. Transcripts were then identified by a number only and stored separately from signed consent forms. All identifying information such as the participants' names and cities of residence were changed. Audio recordings, transcripts, and transcription files were stored on this researcher's password-protected personal computer and uploaded on the universities' online file-share called "Box." All transcripts and consent forms will be destroyed after 3 years.

Data Collection

The recruitment approach for this investigative study included the use of invitational flyers (see Appendix B) placed at various veteran service organizations,

veterans' service group locations, and a women's resource center visited by female veterans. Participants were not recruited from any VHA facilities. After initial participant interest was expressed by either emailing or approaching the researcher, potential participants were contacted by phone and informed about the study's purpose and the duration of interviews. Participants were told that each interview would last between 60 to 90 minutes and all interviews would be face-to-face and audio-recorded interviews. Breaks were provided to participants throughout the interview, and participants were allowed to stop the interview at any time. Participants were also told that they might be re-contacted for a follow-up interview for any clarification regarding their responses.

Once participants gave consent, data collection began. Demographic data included the participant's age, race, branch and length of service, number of deployments, and military occupation were collected to describe the sample. Theory-guided open-ended interview questions were used to generate rich descriptions of the cLBP experiences in female Post-9/11 veterans (see Appendix A). Probe questions were utilized to clarify or gain deeper information from participants. After the interview, participants were given a \$10 gift card to thank them for their time and participation.

Interviews were recorded using two digital recording devices in the event of a device failure. Comprehensive field notes were taken during and shortly after each interview by the researcher to capture gestures, facial expressions, and emotions that could not be captured through the audio recording. Reflections regarding the researcher's thoughts, beliefs, and perspectives related to the study were collected. Interview transcription occurred following each interview.

Data Analysis

Consistent with the narrative approach, data were analyzed and interpreted concurrently (Sandelowski, 1991). A thematic analysis of participant stories was used to address the central research question in this study (Riessman, 2008). Using Braun and Clarke's (2006) steps of thematic analysis, data were analyzed in the following sequence. First, data were transcribed and organized categorically according to the corresponding participant responses and designated interview questions. Secondly, data were read and re-read to gain initial ideas and familiarity. Then, a systematic reading of the data across the dataset was done to identify initial patterns and codes. Next, codes and patterns were grouped into themes. Finally, after eliminating and merging themes, main themes and subthemes were identified.

The use of theory to examine commonalities and inherent assumptions provided a better understanding of the experiences of relegated groups (Silverman, 2006). During this analysis, standpoint theory was applied to emerging themes. The standpoint lens was used to consider the feminist accounts and perspectives that helped contextualize the findings in this study.

In keeping with Braun and Clarke's (2006) systematic approach, themes were further reviewed and refined using an additional two-step review. During the first step, themes, along with their associated codes, were re-examined to ensure that themes emerged from a coherent pattern and that themes were conceptually associated with the research question. The second step examined the validity of the themes relative to the overall data set. During this step, careful inspection of each theme was conducted to

ensure that each theme reflected the meaning inherent throughout the data. Themes selected were those that fully communicated the ethos of the narrative.

Narrative analysis provides a broad perspective that does not relegate its method to just the transcription of data but represents the cooperative process used to understand individual lived experiences (Sandelowski, 1991). A distinguishing factor of thematic narrative analysis is that it recognizes the inherent sequencing already present within a story. Thematic analysis probes the “what happened” within stories, an investigational approach in which personal narratives may be better understood (Riessman, 2008). Narrative thematic analysis and standpoint theory were used cooperatively to enable the lived experiences of cLBP in female Post-9/11 veterans.

Trustworthiness and Credibility

The trustworthiness of a qualitative study is determined and maintained by the degree of rigor, credibility, and objectivity of the findings (Streubert & Carpenter, 2011). Rigor then becomes essential to ensuring the authenticity of data. In order to ensure suitable rigor and research quality in this study, data collection and data analysis were embarked upon as one complete process consistent with the assumptions of social science research (Crabtree & Diccio-Bloom, 2006; Englander, 2012; Streubert & Carpenter, 2011). For this study, an audit trail comprised of field notes, researcher reflections, and decisions about themes were kept. The credibility of the findings was checked using member checking and committee chair debriefing. Adhering to specific data collection techniques while applying systematic application helped ensure the demonstration of scientific rigor.

CHAPTER IV

RESEARCH FINDINGS

Introduction

Injuries acquired during deployment are the leading predictors of chronic non-cancer pain among veterans post-deployment (Gallagher, 2016). Musculoskeletal (MSK) injuries specifically have become one of the most dominant injury types within this population, with females increasingly becoming more susceptible (Muirhead et al., 2017). Musculoskeletal injuries result in pain conditions of the back, joint, and neck that are considerably more prevalent among female veterans (Murphy et al., 2016). Not only do female veterans report chronic non-cancer pain incidences more frequently than their male counterparts, but they are less likely to have significant decreases in their pain intensity (Driscoll et al., 2015; Kerns & Heapy, 2016).

The literature is consistent concerning the prevalence of chronic MSK pain in female veterans post-deployment (Matthias et al., 2014; Naylor et al., 2017). However, the emergence of cLBP diagnoses in this sub-population is becoming progressively more frequent (Kerns & Heapy, 2016). Currently, there is a lack of studies specifically examining the cLBP health effects in Post-9/11 female veterans. A qualitative inquiry into the experiences of cLBP in Post-9/11 female veterans is paramount to understanding the cLBP needs in this sub-population. The purpose of this study was to explore the

stories of Post-9/11 female veterans who experience chronic non-cancer lower back pain that resulted from an injury sustained during deployments.

The principal research question: “What are the experiences of Post-9/11 female veterans who experience chronic lower back pain?” was guided by feminist standpoint theory. Ten Post-9/11 female veterans were interviewed. Data were analyzed using thematic analysis, a method that examines the “what is happening” within stories. Feminist researchers use this data analysis process to identify themes that explain the lives of marginalized groups (Riessman, 2008). This chapter presents the study participants and the research study findings.

Description of Participants

The participants in this study included ten Post-9/11 female veterans who deployed to the Iraqi or Afghanistan war missions. The majority of the woman in this study self-identified as African American. Ninety percent of participants served within the Army, with 50% of the women deploying more than one time. The sample characteristics are presented in Table 3. The biographies that follow, utilizing pseudonyms, briefly describe the distinctive pain story of each participant.

Table 3

Participant Demographics ($N=10$)

Variable	<i>n</i>	%
Race		
African American	7	70
Caucasian	2	20
Native American	1	10

Table 3

Cont.

Variable	<i>n</i>	%
Age		
30-40	7	70
41-51	2	20
52-62	1	10
Branch of Service		
Army	9	90
Air Force	1	10
Military Occupation		
Aerospace control and warning systems operator	1	10
Health Care Administrator	1	10
Logistics	1	10
Medic	2	20
Mechanic	1	10
Police Office	2	20
Platoon Leader	1	10
Signal Corps	1	10
Highest Rank		
Major	3	30
Staff Sergeant	4	40
Sergeant	1	10
Technical Sergeant	1	10
Specialist	1	10
Years Served		
1-5 years	1	10
6-10 years	2	20
11-20 years	5	50
21 years or more	2	20
Deployment Tours		
0-1 tours	5	50
3-5 tours	5	50

Abigail

Abigail, age 36, is an African American woman who served 16 years in the Army. Abigail joined the Army shortly after high school. Encouraged by her younger brother, her decision to serve became one of the most rewarding career choices she has ever made. Abigail deployed three times, with each deployment in support of the Post-9/11 conflicts.

During her time in the army, Abigail experienced a low back injury. Her injury occurred during a basic training exercise. Abigail's subsequent low back pain ensued after this injury. While basic training marked the beginning of Abigail's low back pain journey, it was during Abigail's first deployment to Bagdad that her low back pain became more apparent and constant.

Abigail is a single parent, and her post-deployment cLBP has profoundly impacted the lives of her and her three boys. Simple things such as running and jumping have had to become creatively modified. Abigail's cLBP further compounds her challenges of motherhood as a single woman raising three boys. Despite her injury and pain, Abigail is proud of her time in the Army and hopes that her enlistment becomes an inspiration to her three boys.

Deborah

Deborah, age 38, is an African American woman who served 9 years in the Air Force and Air Force reserves. Deborah's strong family military history influenced her decision to pause her initial college plans and pursue a career in the Air Force. Deborah

completed three deployment tours in support of the Post-9/11 conflicts. Her military career ended painfully and differently than she imagined.

Deborah's low back pain began early in her military career. Her pain was a result of low back injuries that occurred during basic and physical training exercises. As Deborah successively deployed, the exacerbation of her back pain became apparent. The impact of low back pain post-deployment has been significant for Deborah.

Deborah is single, and being socially engaged is important to her. But Deborah's cLBP limits her participation in many of the social activities she once enjoyed. One activity that has been significantly affected by her cLPB is her ability to hike. Deborah lives in the mountains, home of some of the most popular hiking trails in the world. But once considered a wonderful time for engagement, fun, and stress relief, hiking has now become an arduous and painful event that she no longer finds enjoyable.

Ruth

Ruth, age 39, is a Caucasian woman who served 7 years in the Army. Ruth deployed just one time in support of the Iraqi and Afghanistan war conflicts. Inspired by her father's 20-year service in the Army, Ruth decided to join that military branch following high school. While Ruth's military experiences were rewarding, the pain has hallmarked her military career.

Ruth's low back pain developed before her deployment, following an injury during a combative training exercise. After several unsuccessful surgeries, Ruth's lower back pain remains ongoing. Ruth describes her back pain as intrusive and something that has changed her life forever.

Ruth's low back pain has affected many of the activities she once enjoyed. Hiking, gardening, and biking have now become just fond memories. Ruth is a widow, and her low back pain has significantly affected how she relates to her children and a new boyfriend. The frustration of Ruth's low back pain often causes her to respond to her family in ways that are both ill-tempered and detached. Low back pain has been an immense burden for Ruth; it is one she wishes she did not have to bear.

Lois

Lois, age 40, is a Native American woman who served 19 years in the Army. Deploying one time in support of the Post-9/11 conflicts, Lois joined the Army to pay for college. After one semester of working and attending school, Lois decided that joining the Army could provide her an opportunity to finish college. While her decision made it possible for her to obtain two master's degrees, the ongoing price she pays for her back pain continues.

Low back pain for Lois began as a result of an injury during a pre-deployment training exercise just before a deployment mission to Iraq. Lois has undergone several unsuccessful surgeries to correct her injury. However, her pre-deployment injury hallmarked the beginning of her low back pain problems.

Lois has two young children, and they feel the effects of her cLBP. Though they do not understand the complete dynamics of her back pain, they understand that mommy has limitations. The family enjoyed activities, which Lois has to alter. One activity, bike riding, now comes with modifications. Lois still lets her children ride their bikes outdoors, but instead of enduring the pain that comes with riding her bike with them, she

now drives alongside in her car. Lois admits that her version of biking together looks different now, but it works for her low back pain, and her children are okay with it.

Hannah

Hannah, age 51, is an African American woman who served 23 years in the Army and deployed once in support of the Post-9/11 conflicts. Hannah's father, a Vietnam Veteran, was instrumental in her decision to join the Army, but Hannah's personal desire for a more structured and disciplined life was ultimately the true driving force behind her decision to enlist. Hannah has no regrets about her decision to join the Army. Despite her ongoing low back pain, she would not trade her experiences in the Army for anything.

Hannah's low back pain began following a hip injury during a deployment mission to Iraq. Although Hannah's hip was repaired, Hannah suffers from rebounding low back pain as a result of that injury. For Hannah, her back pain has affected both her mental and emotional health.

Hannah is single and the only child of her deceased parents. With very few communal relationships, Hannah's low back pain isolates her. Hannah struggles with back pain-related depression that, at times, is difficult to manage. Hannah has relied on the Veterans Health Administration to help her navigate through her back pain and depression.

Lydia

Lydia, age 38, is an African American woman who served for four and a half years in the Army. As a high school cadet in the Junior Reserve Officers Training Corps (JROTC), her Major ignited Lydia's inspiration to enlist. Lydia did not immediately

enlist following high school, as she was initially unsuccessful in qualifying on the Armed Service Vocational Aptitude Battery (ASVAB). Lydia persisted, and after two more attempts at the ASVAB and two denied medical clearances, she finally raised her right hand to enlist. Lydia's perseverance was palpable, and she considered it an honor to have served her country despite her ongoing back pain.

During Lydia's time in the military, a training exercise precipitated her back injury. Although Lydia deployed just once in support of the Post-9/11 conflicts, her back pain has progressively worsened throughout her military career. Lydia's ongoing cLBP competes with life's other priorities making things very difficult for her at times.

Lydia is married, but her cLBP at times causes her to feel siloed. Regardless, Lydia's husband remains patient and supportive. Lydia's back pain has disrupted many of the things she once enjoyed, particularly running. The inability to run and stay physically active has been disappointing for Lydia. Chronic low back pain has changed many things for Lydia, but in her words, she has simply learned to "suck it up, and deal with it."

Anna

Anna, age 48, is an African American Woman who served for 20 years in the Army. Anna completed five deployments with two in support of the Post-9/11 conflicts. Anna's primary reason for joining the Army came from her attraction to the military's standard of structure and discipline. With only two options after her senior year in high school, college, or the military (which she refers to as "books or boots"), she chose to enlist in the Army. Anna asserts that her decision to join the army was undoubtedly one of the best decisions of her life, despite the resulting lasting back pain.

Anna's back pain, which has been ongoing throughout her military career, was precipitated by an injury during a training exercise. Anna has had multiple deployments. Deployments were instrumental in the exacerbation of her low back pain. Anna's day-to-day back pain struggle is one reality from which she wishes she could escape.

Anna is married, and her low back pain has impacted her roles as wife and mother. Everyday tasks such as cooking or basic household responsibilities are things Anna can no longer do. After 35 years of marriage, Anna now refers to her husband as the glue that holds the family together ever since her low back pain challenges. The changes cLBP have created in Anna's life echoed loudly in her interview.

Martha

Martha, age 56, is an African American woman who served 26 years in the Army. Martha deployed three times to the war conflicts of Iraq and Afghanistan. Martha's decision to join the military came from a passion for making the world a better place. That passion was first realized through her Reserve Officers Training Corps (ROTC) experience during college. Martha's ability to excel in ROTC provided her the opportunity to become a Reserve Commissioned Officer by her college sophomore year and ultimately being commissioned as an Army Second Lieutenant. Martha's training experiences were notable, but none of them prepared her for what has become a significant part of her life with back pain.

Martha's low back pain began after a training injury with her unit. Martha admits that subsequent deployments further aggravated that pain. Martha never imagined that her

life post-deployment would be marred by back pain. Although Martha's back pain journey is difficult, she remains optimistic.

Martha is currently divorced, but she vividly recalls how her back pain impacted her relationship with her husband. During her 8-year marriage, there were times Martha's low back pain prevented her from being intimate with her spouse. Martha has no regrets about her military experience. She says pain is just part of serving your country; it is something with which you cope.

Sarah

Sarah, age 40, is an African American woman who served 13 years in the Army. Sarah's decision to join the Army was undeniably altruistic. During her time as a student at the Citadel, she witnessed the collapse of the infamous twin towers in New York City. It was at that point Sarah decided that she would be commissioned in the United States Army following graduation. She stated that she would rather take the war to the enemy than have it brought to America. As one of the first African American females to graduate from the Citadel, Sarah took the oath of an officer in the U.S. Army. Sarah deployed one time in support of the Post-9/11 conflicts. Although Sarah's selfless decision to join the military was admirable, it set in motion a subsequent life of chronic back pain.

During Sarah's time in the military, training exercises precipitated her back injury. For Sarah, the effects of her injury—her low back pain—have been palpable. Life with pain is something Sarah takes just one day at a time. Sarah admits that some days are better than others.

Sarah is married and is the mother of 5-year-old twin girls. Sarah's low back pain interferes with many of the activities she engages in with her children. For example, Sarah can no longer pick up her girls or get on the floor to play with them. As an alternative, she tells them, "mommy can hold your hand if you get on the couch, or you can lie down in the bed with mommy." Sarah's back pain has been a life-changing reality that she takes one day at a time.

Esther

Esther, age 33, is a Caucasian woman who served 15 years in the Army and Army Reserves. College was not one of her goals, so she followed in her stepfather's footsteps and joined the army immediately following high school. Esther deployed four times with each deployment in support of the Post-9/11 conflicts.

Esther's low back pain began during her second deployment mission. Esther injured her back while working on a logistics supply convoy. The intensity of Esther's back pain increased with each of her deployments. Esther's back pain is often debilitating at times, even affecting her ability to get out of bed.

Esther is single, and while she enjoys engaging in social activities, she now must become more thoughtful about the types of activities in which she participates, for example, her ability to attend concerts. Esther now gives great consideration to things such as how long she will be standing, if standing distracts her from having a good time, and if seating is available. Esther's need to be intentional about every activity has taken the joy out of doing it. Back pain for Esther has become frustrating and disruptive.

Study Findings

Themes

The narrative data were examined across participant stories and time for thematic uniformity. The following two major themes emerged from the narrative representing the past (i.e., “The injury experience”) and the present (“Living with pain, my new normal”). Themes and their subthemes are presented below.

Theme One: The Injury Experience

The injury experience was the first major theme that echoed from the voices of these women. The back injuries of these women were not only significant but highly correlated to their cLBP difficulties post-deployment. There were distinct etiologies that framed the low back injury experience of these Post-9/11 women. Spoken from their standpoint, these women described how their low back injuries occurred. Two subthemes were identified in the injury experience stories of these women: (a) painful injuries, and (b) stigma-related care delays.

Painful Injuries. The back injuries encountered by these participants were the direct result of rigorous readiness training regimens. Stringent training routines involve long training hours and require the donning of heavy ill-fitting gear. These factors were significant in the lower back injury occurrences in 90% of these women. Esther vividly recalled how her training experiences caused her back injury. She explained,

my vest, or they call it interceptor multi-threat body armor (IBA), which are about 50-pound bulletproof vests that we wear during our training. Also, not to mention the 10 to 12-hour road marches we had to do, carrying weapons, and being in boots, all of that started to wear and tear on my back I know I injured my back during those times. I mean just wearing the gear alone weighed on my back.

Anna deployed five times but asserted that her lower back was initially injured during a similar training exercise. Anna explained,

They call it the LB, the load-bearing equipment vest. Carrying that at first, and then it changed to another type of vest and you have all this gear you're attaching to it. Then you're carrying your rucksack and then you're marching anywhere, from four to six to eight to 12 miles with that on. Then you put in equipment in there and your gear inside of that and on top of that I was lifting heavy medical chest I know I injured my back because of this. I started having back and neck pain it just became chronic.

Martha's back injury was as a result of an unintended accident that happened during a training exercise. She explained,

it was raining bad that day I was on the back of a vehicle that was navigating through a swampy area. The truck became stuck in the mud patch. As the driver attempted to dislodge, the truck jolted and everyone in the vehicle fell backward and knocked me out the truck I fell out of the truck on my back. I knew then that I was hurt my back has never been the same.

Lois injured her back while loading medical supplies in an ambulance truck. She stated, "my hip gave out during the exercise and I dropped a piece of heavy medical equipment on my shoulder the pain shot all the way down my back I will never forget that day." In contrast to the previous narratives, one of the women's back injury resulted from the rebound effects of another injury. Ruth broke her tibia and fibula during a training exercise. She stated, "although they repaired my leg, my spine was affected and became unaligned, so I guess back was unintentionally injured I have had ongoing lower back pain ever since."

Some women shared that although there were times that some of their exercises did not require intense physical vigor, the rigor of sedentary training exercises equally caused back injuries for these women. Sarah describes how a less tactical exercise and the weight of her military equipment caused her back injury. Sarah stated,

we would sit for about eight, ten hours straight sitting in convoys with all that military gear on us. Kevlar, the flak vest, or interceptor multi-threat body armor (IBA), or protective vest. That kind of gear and then sitting compressed my spine and injured my back. I have had back pain, and neck pain ever since.

Abigail frustratingly also identified the weight of gear during a training exercise as a significant factor in her back injury, explaining, “the gear you carry should have been a two to three-person carry. You try and carry it by yourself without the help that you needed. You just had to try and chuck the load yourself; I injured my back because I was carrying things that were just too heavy.”

Ill-fitting training equipment further intensified the rigor of training exercises for these women. Unisex military gear that disregards body frame differences is standardly given to women military personnel. Lois was quite candid about her frustrations regarding equipment for women and her back injuries. She explained,

in the military, we are one person nothing is ever fitted for us we are not as big as men! You go through the line, and they are like you are a medium, you are a small, you get whatever size they think you are. I am convinced that my injury could have been minimized if my equipment were sized properly. We (women) always have the same gear you know, the same stuff and then we must do the same things (training).

Anna expressed how needed changes regarding the body equipment women are made to wear. “I think they should personalize the body equipment for size because one size doesn't fit all. Some equipment is too large for a small person, and that's when the problem begins properly fitted equipment may have prevented my back injury.”

While some women provided narratives regarding the specific events surrounding their back pain injury, others provided a conceptual perspective regarding their training injuries. Safety during training exercises emerged as a predominant factor in the back injury experience of these women. Women expressed that exercises rarely came with instructions on how to perform them safely. Deborah provided a detailed account of her training experience. She explained,

there really wasn't a focus on proper body mechanics or how the human body worked during training exercises. For example, you are not learning how to have proper form while running the goal was just running. There was no focus on the mechanical and muscular function of your body you are just kind of like doing physical work you get in shape in a way, but I think it also might be to the detriment especially to your back.

Abigail felt that training safety was not a priority and that no efforts were made to help minimize painful injuries. She stated, “I was never told ‘don't lift with your back and lift with your legs’ . . . nobody showed me how to do that; therefore, I injured my back.”

Stigma-Related Pain Care Delays. Throughout the narratives of these women, they described the military culture as one that often misunderstands the legitimacy of low back pain needs in female military personnel. The low back pain needs in females were often interpreted as both a weakness and hindrance to the military's overall mission. These distorted perceptions reinforced the justifications these women used to delay their

back pain care. Sarah described the ambivalence felt by females regarding seeking care for their back pain. She explained, “We knew, but we didn’t know a lot of times that we shouldn’t go to the troop medical clinic (TMC) a lot, because they will be like, you are weak.” Sarah further recalled the harassment she faced by her male counterparts for verbalizing her back pain: “they would say to me, ‘you are always complaining about having back pain.’ The males look at us like, oh yeah, you are not in pain; that is how men look at us like we are weak.” Abigail felt that the military’s lack of responsiveness to the back pain needs of women reinforced pain stigmatizations in female military personnel. She shared,

Being a woman, there is almost no forgiveness, right? So, no one really cares if you are in pain, because it is a suck it up mentality in the military. It is just a keep going mentality. It is very hard, they just want you to take Motrin for your back pain, their drug of choice mostly, and continue the mission.

Deborah agreed that women with back pain suffer in silence due to accusations of being called weak. She stated,

even though I think that many of our male counterparts know that you won’t always be able to do everything, you are still expected to do it if that makes sense. So, when you hurt yourself, especially your back, and you are in a pain, you just keep pushing, you got to!

Other women described the stigma of low back pain as degrading, causing women to delay seeking pain care further. Lois recounted her consequence for trying to seek care for her lower back pain:

when I finally decided to start seeking treatment for my back, I was called a malignant tumor, a detriment to other soldiers for having back pain; those words will forever be etched in my brain. I was told that I was a malingerer and I was trying to stay in the military long enough to have whatever paid for. When it was decided that I had to have surgery my command team started the paperwork to kick me out of the military.

Lois's pain experience resonated with another woman. Ruth shared,

Eventually, I got my back surgery, but it was after I had been called these awful names and after I had been made an example of you know. If you are hurt, this is what is going to happen to you, so people just suck it up and they don't say stuff because they don't want to, you know, be that person.

Ruth went further to explain the reason she was initially silent regarding her low back pain problems: "I felt like I just don't meet up to their you know standards per se. I felt like I was perceived as weak if I was struggling and having back pain."

For some of these women, because the stigma of back pain threatened perceived feelings of acceptance among their male counterparts, and their ability to move forward in their military career trajectory, they remained silent. For Lydia, her goal in joining the military was the opportunity to go to school. Her fear of losing that opportunity silenced her struggles with her low back pain. She explained,

every female that is in the military, or almost every female that is in the military, has the same idea in their mind that I must keep up with my male counterparts. I felt as if I was going to be deemed as inferior if I complained of back pain or I was not going to get brought up for promotions, or I am not going to be brought up for school opportunities.

Esther viewed silence as an easier response for females struggling with back pain, stating:

As a woman, you stand out, and it makes you think that people are judging, so you have to try harder to be better, but if your back hurts, you just have to keep on chugging along, because if you don't, it's like, oh, well, we sort of expected that she's a female, so as a woman you don't just don't try to get help for your back.

Hannah agreed and went on to say,

you just kind of grin and bear it; you don't want to be considered weak. You don't want to be considered that one who's whining, or just can't perform because she had back pain. So, you just kind of smile through it, and keep going through it, and just go home and take an aspirin or a pain pill like ibuprofen or Motrin, and just kind of go, you don't go to the TMC.

Theme Two: Living With Pain, My New Normal

Living with pain, my new normal was the second theme that emerged from the voices of these women. The difficulty of living with cLBP as a female combat veteran was described as an overwhelming experience. Findings suggest that although the effects of cLBP touched each of these women differently, the vastness of its impact has been life-altering for everyone. These women agree that although their cLBP has changed how they now function, reshaping their cLBP paradigm was critical to them moving forward in life.

Described as a journey, these women sought to find new ways of living with their cLBP as an aspiration that remained constant throughout the narratives. In contrast to the first theme in which these women expressed the negative experiences of their back injuries, hope characterized the cLBP experiences of these women as they began to embrace their new cLBP norms. Two sub-themes personified the living with pain as a

new normal experience story in the lives of these Post-9/11 female veterans: (a) life modifications, and (b) controlling my pain.

Life Modifications. For these female veterans living with cLBP, post-deployment created a new life reality. Most participants agreed that they did not use their cLBP as an excuse to stop them from living their lives. They shared their challenges and triumphs readapting to new functional limits. For Deborah, staying healthy was an important aspect of her life. She reflected on how she is learning to reframe staying healthy with cLBP, stating,

I am trying to figure out how to re-approach my health and fitness in a way that is not going to make my back pain situation worse than what it is but help me to become healthier and be able to use my body more appropriately than what I have previously learned.

Deborah continued and described the small changes she has made in staying active:

I now must take my time with activities because I can't move as fast or be as agile as I used to be, I am a lot more thoughtful about my movements now I step and walk very gingerly. When I am at work. I will take the elevator and the stairs, although the stairs might be just to one floor it is better than nothing.

Readjusting life is described by Hannah as challenging, especially when it comes to balancing a healthy lifestyle and her cLBP. She stated, "you know even now I try to stay physically fit but sometimes I walk with a cane. I have problems with my back, and with my neck, but my back pain has just been constant. Like standing, I can only stand up for about an hour." Lois shared her experience with staying active. She shared, "one of the biggest troubles I have had is finding something I can do to remain mobile and to

remain physically active, that doesn't hurt my back more. Last year, I found that I can do cross fit and not be in too much pain." Anna describes herself as adventurous, and although her love for adventurous activities is still alive, she acknowledged, "I know my limits now." Martha described reconciling within herself that cLBP life modifications are a give-and-take. She explained, "I haven't been able to wear heels like I used too, but I started wearing the very low ones like the kitten heels. Most of my shoes are pretty much in tennis shoes form because my lower back pain causes problems with my heels." Martha also talked about her changes in being physically active now: "I have special inserts in my shoes now, and I haven't been able to run. I used to enjoy running in the military."

In contrast to some of the previous narratives, few participants offered a seemingly selfless perspective to their cLBP life modifications. Lydia stated, "With the back pain that I have, I mean, I know there are lots of people that are worse off than me. They don't have a leg, or you know, or who have had their legs amputated. So, I know I miss wearing heels, but that is the least of my worries." Ruth had a similar perspective describing her life adjustments as minimal compared to the ones of her comrades. She shared, "You see Vietnam vets and Korean war vets, and you see the Gulf war vet and you see vets from Afghanistan and Iraq and they come back and they are missing one, two, three, four limbs, and you are like, "I am not missing anything". Other than, I have a few scars and a couple of holes in a bone, but I am not missing anything. So, should I really be complaining?"

Controlling My Pain. Pain management was a critical element in the lives of these Post-9/11 veterans. Most participants agreed that the elusiveness of cLBP management through traditional approaches prompted their exploration into other modalities. The cLBP management journey of most participants described their holistic approach to controlling their pain. Deborah explained how exercise has helped during her exacerbated cLBP episodes. She shared, “Although exercise is what ends up being the thing that I kind of push to the wayside when I am not exercising, I feel my back pain more.” Deborah also reflected on how her weight was instrumental in her back pain: “I need to set up a nutritionist appointment and try to get back on track with my eating and regular exercise regimen. Making that a part of what helps me lose weight. I know that is one thing that will help my cLBP.” Lois uses stretching as her way of managing her cLBP. She explained,

I don’t do any pain management through medication. All my back-pain management is stretching or working out lightly or just focusing. For example, if my back hurts today, I know I need to focus on how to stretch it out, or I can go for a walk, and maybe you know, make it better. I don’t take any medication at all.

Hannah also described the benefits of stretching, sharing: “I have done physical therapy; I have done traditional pain management, and some things have helped, you know, but learning how to stretch has helped my cLBP the most.”

Martha’s experience provided a glimpse of the sustainable effects of physical therapy on cLBP management. She shared,

As soon as I feel anything, I try to take it easier and do something about it. I also went through physical therapy several times in the military for my back pain. I think about 6 weeks and I was taught some different back exercises to do to help. They were given to me at one of my physical therapy appointments years and years ago that I still have. I incorporate that into my workout with my trainer. I've gone back to therapy again, exercising more. My back right now is not bothering me. It's probably been about 6 months since I have had any back pain.

Mindful meditation was a pain management approach that some women used to manage their cLBP. Anna described how her faith and her positive confessions ruled her day when she was in pain. These daily meditation practices provided beneficial results to her cLBP. Her daily mantra included, "No, I'm not going to be in cLBP forever because I say this every day, yesterday was my last day in pain, yesterday was my last day in pain, yesterday was my last day in pain." Anna also uses positive confessions to manage her cLBP. She shared, "today I am pain-free, and some days I do go without pain because I tell myself that. I have some aches here and there, but overall I have good days." Sarah has had positive results using meditation and stretching to manage her cLBP. She described, "Meditation and stretching helps me with my cLBP. I think maybe mentally for me when I exercise, even though it hurts, I just feel better. Maybe it's because I'm in motion versus just sitting still. I felt better."

Although most participants had successfully developed a pain management plan that worked, others highlight some of the challenges they faced consistently controlling their cLBP. Esther describes an appointment recommended by her provider that she thought would help with her back pain. She explained,

I felt like my provider really listened to me about my back pain, so I listened to her suggestion that I go to this chiropractor, but I don't think it's helping at all.

My pain level is still the same whenever I'm up on my feet. I told him that, but his response to that was, "All right, let me add six more sessions." But I'm like "It's not working!"

Ruth has also tried chiropractic approaches but said that it provided minimal sustained relief for her back pain. She explained, "Physically, I will have bouts of back pain that are so bad that I either have to go to a chiropractor to try to get my back adjusted, just so I can deal with the pain." Ruth went further by sharing how she used medications to help her cope with her pain: "Sometimes I just lay in bed and I take medication, I try to stick to things like Motrin and Tylenol to try to cope with my back pain."

Abigail shared her frustrations with traditional pain management approaches and their inability to relieve her cLBP. She shared,

the doctor did prescribe me an over the counter muscle relaxer, and honestly, it doesn't do anything. To me, it's the same as taking a vitamin E, in a pill. It has no effect. They also gave me a lidocaine cream, like I said, even the tens unit doesn't get to the back pain that I am experiencing, so a cream is not going to get to it.

Medication management for cLBP elicited fears of dependencies for Martha. She stated,

the provider that I have is very proactive in meeting my needs. He always asks about my back, and if I'm having any issues, he did prescribe me the medication that I told him about, but I tried it, and it works, but I did not want to take it I don't want to become addicted. My problem is chronic I don't want to take tramadol, I did not want to take that long-term.

Summary

The thematic data analysis uncovered the cLBP experiences of Post-9/11 female veterans. Stories were told from the standpoint of 10 Post-9/11 women representing

different backgrounds, ethnicities, and ages. A brief biographical description of each participant was provided to introduce and better understand the cLBP story of these women. Using a feminist perspective, the analysis identified that the cLBP experiences of these women were collectively replete with injuries that occurred from training exercises, stigmas, and a search for post-deployment cLBP normalcy. Through narrative understanding, these Post-9/11 female veteran's stories may resonate with other Post-9/11 veterans. Implications for practice, nursing education, and research are described in Chapter V.

CHAPTER V

DISCUSSIONS

Introduction

The lived chronic low back pain (cLBP) experiences of Post-9/11 female veterans were examined using a descriptive narrative approach. As participants were recruited, in-depth interviews were used to extract deeper understandings and meanings of the cLBP experiences of these women. Data saturation was reached after 10 Post-9/11 female veterans were interviewed. Narrative, thematic analysis and feminist impressions were used to construct meaning from the data. Two major themes emerged from the data in this study: (a) The injury experience, and (b) Living with pain, my new normal. In this chapter, this study's findings are discussed in conjunction with existing literature on Post-9/11 female veterans. This chapter also presents study implications for practice and further research, as well as the study's limitations.

Discussion

Theme One: The Injury Experience

The injury experience emerged as the first major theme of this study. The injury experience described the distinct causal influences associated with low back pain in Post-9/11 female veterans. This study illuminated the unique low back pain injury experiences of female combat veterans and provided context to those experiences. Painful injuries and stigma-related pain care delays were identified as leading influencers in the injury

experiences of these women. The individual stories of these Post-9/11 female veterans created the unified injury experience story.

Painful Injuries

The back injury experiences of these Post-9/11 women were distinctive. Regimented training and their unique female body frame positioned these women to experience their back injuries in a way that was different from their male counterparts. Although these women served in combat theaters, participants identified gender-neutral military training regimens as precipitating factors to their low back injuries. Training regimens described by these women were replete with long days of heavy lifting, running, and tactical calisthenics.

While robust training regimens are standard within military environments, these women found that training exercises often lacked instructions on how to carry them out properly. Women cited a lack of proper body mechanics, particularly regarding lifting and running, as a contributing factor to their low back injuries. Training regimens often disregarded safety measures and were perceived by some of these women as just a task requiring successful completion. Women also described gear worn during training regimens as injurious. Since the basic design and weight of military gear often disregards female body frame considerations (U.S. Government Accountability Office, 2017), women found that ill-fitting gear was a causative factor in their low back injuries.

Overall, military training standards were described by these women as indiscriminate as it relates to female military personnel. While it is true that structured training regimens are necessary for improving the overall fitness in military personnel

while simulating the rigor and resilience of war, military training standards disregard the physiological differences in female servicewomen (Malloy et al., 2020). The culture of the military is one in which gender is indistinguishable. Consequently, women are expected to meet the same training requirements despite the size and weight variations (Nindl, 2015).

As women continue to make great strides toward equality in the military, training standards that create sex-specific performance environments for women must emerge (Muirhead et al., 2017). Patriarchal training standards continue to be significant factors in the back injury experience of female combat military personnel. But to better understand the impact current training standards have on the low back injuries in Post-9/11 females, we must first contextualize the physical differences between male and female military personnel as it relates to training injuries.

Existing literature identified several physiological differences between male and female service personnel and its impact on training injuries. Body composition and musculoskeletal function differences were two significant factors that affected injury risk and training outcomes in a study of military women (Nindl et al., 2016). This review found, using body mass indexes, that younger male military personnel had 50% more upper body mass and 30% more lower body mass compared to females in the same age category. Females, however, were found to have greater body fat percentages compared to males. Findings suggest that male military personnel may be inherently leaner and have stronger muscle function than females. Because many military training regimes

demand more upper body and lower body strength, male military personnel may experience better training performance and fewer musculoskeletal injuries.

Physiological differences must also be considered as more and more women integrate into the military's various special forces units. Although Special Operation units such as Army Ranger, Navy Seal, and Special Forces now allow women to participate, the training standards of these elite special operation units often disqualify women from these male-dominated positions (Givens et al., 2019). Poorer overall performance and musculoskeletal injuries during training exercises suggest the need for training model expansions that include distinctions for women (Santtila et al., 2015). The physical rigor required for these roles often excludes women from these selective military roles, further perpetuating the entrenched training inequities within the military culture (Patel et al., 2016).

The impact inequitable training standards had on these Post-9/11 women provides an opportunity for improving and restructuring current military training protocols. While both male and female military personnel can experience training injuries, training-related musculoskeletal (MSK) injuries disproportionately affect females (Driscoll et al., 2015; Naylor et al., 2019). A recent study surveyed the injury rates in Army military personnel from 2008 to 2017. Women were found to have higher incidences of MSK injuries that resulted from training exercises. Findings showed that injuries that impact the back, lower extremities, and abdomen were significantly higher in female military personnel than in males (Malloy et al., 2020).

This study privileged the voices of Post-9/11 women to understand better the impact that current military training standards have on back injuries. Narratives support previous studies in which female Post-9/11 veterans report MSK training injuries as precipitating factors for post-deployment chronic back pain problems (Kerns & Heapy, 2016; Patel et al., 2016). Training regimens that consider the bodies of women are critical to reducing the injury risks in female military personnel. The standpoints framed by these women may help challenge the traditional non-gendered military training ideologies currently practiced, shifting the training paradigm toward more sex-specific training protocols.

Stigma-Related Pain Care Delays

Stigmas influenced the painful back injury experiences of these Post-9/11 women. Instances of differences and discrimination regarding their back pain were identified in numerous ways throughout the narratives of these women. Women were perceived as incompetent and weak by their male counterparts when they verbalized their low back pain. Discriminatory harassment such as name-calling was also common for women who verbalized back pain. The responses from male military personnel toward the back pain episodes of these women were punitive and encouraged many women to remain silent about their back pain.

Narratives provided thought-provoking discourse surrounding the perceived gender neutrality surrounding back pain and women deployed to combat war theaters. These findings are consistent with previous literature on war and gender that illustrates how the military has been used to shape masculinity and femininity. Caregiver roles were

often used to characterize women, while the masculinity of men was perceived through war (Enloe, 1983; Goldstein, 2001). Because men and women are socialized differently, the military has created expectations for masculinity, which makes it difficult for female military personnel to display vulnerabilities (Eichler, 2017).

Despite modernizations, the military remains predominantly male-dominated. Patriarchal military standards of weakness and toughness continue to suppress the femininity of female military personnel (Sjoberg, 2013). This phenomenon reflects a tenet of standpoint theory that speaks to the hierarchy prominence in male-dominated cultures (Harding, 2004). Evidence of this tenet can be found in these women's narratives as they identify moments during their pain experience when they felt degraded and dehumanized as women. Although scientists have primarily presumed the standpoints of female veterans as identical to their male counterparts, the perspectives of these women allowed new knowledge to emerge regarding the back pain experiences of Post-9/11 female veterans. The inherently meaningful back pain experiences of these women were realized through the multiple realities of the narrative, which may otherwise have been unknown (Collins, 1998).

The stigmas associated with back pain in this research identified the gendered expectations of pain imposed on female veterans who deploy to combat arenas. Existing literature offered several perspectives on the post-deployment chronic pain experiences of female veterans who deployed to a variety of war missions (Saper et al., 2016; Stratton et al., 2014). But this study highlights the obscured stigma of low back pain encountered by Post-9/11 women during deployment. It also provides context to some of the perceived

post-deployment pain stigmas these women face as veterans. The narratives of these women in no way suggest that the back injury experience of these Post-9/11 female veterans was overtly oppressive. However, improvements to how the military handles the low back pain experiences of these female military personnel were highly recommended.

Theme Two: Living With Pain, My New Normal

The theme, ‘Living with pain, my new normal’ emerged as the second theme of this study. The individual stories of these female combat veterans illustrated the new norms of functioning with cLBP post-deployment. ‘Life modifications’ and ‘Controlling my pain’ characterized the ‘Living with pain, my new normal’ story of these Post-9/11 women.

Life Modifications

Modifying life with cLBP for these Post-9/11 women meant variations to many of their current life regimens. Chronic low back pain life adjustments were continuous throughout the lives of these women and often required readjustments. The challenge of re-normalizing leisure activities and exercise emerged from the narratives of these women. While cLBP presented reasonable opportunities for lost function, women expressed their need to remain active as a way of maintaining their sense of health and well-being. Women found that creatively modifying their physical and social activities allowed them to stay active with minimal cLBP exacerbations.

Chronic low back pain life modifications and the strain of parenting also emerged from the narratives. The tension of adjusting to new cLBP norms as a mother was difficult for many mothers. Disruptions to family activities, followed by feelings of guilt

surrounding the perceived expectations of motherhood, resonated throughout the stories of many of these Post-9/11 mothers. While new functional cLBP norms presented many challenges to the role of motherhood, paradoxically, women cited that new cLBP norms provided meaningful and engaging opportunities for their children as the family adjusted to a new way of functioning.

Researchers have found that the effects of cLBP not only diminish the capacity in which a person functions but inherently impacts their quality of life (Saper et al., 2016). The discussion of life modifications throughout the cLBP narratives substantiates existing scholarship on quality of life in Vietnam and Gulf war female veterans with post-deployment chronic non-cancer MSK pain (Kearns & Heapy, 2016; Patel et al., 2016). But few studies examined cLBP and its influence on the quality of life factors in female combat veterans (Ahern et al., 2015; Burkhart & Hogan, 2015). Previous research also highlighted the negative life-altering realities war-related MSK pain injuries had on maternal roles and the family structure (Ahern et al., 2015; Driscoll et al., 2015; Haskell et al., 2012). However, this scholarship does not provide cLBP insights holistically from the standpoints of female combat veterans.

The narratives offered a glimpse into the life-altering realities of cLBP in the lives of female combat veterans. The reframed perspectives of functioning with cLBP found within these stories illustrated both strengths and resilience. We see the intentionality of these women as they strove to discover new cLBP functional norms for parenting and remaining active. Sadly, these attributes were contrary to the gendered stereotypes of weakness and inability many of these women experienced while deployed. Although the

reframed cLBP perspectives in these narratives created new functional cLBP life norms for these Post-9/11 females, further inquiry on cLBP in female combat veterans and its impact on functionality and family structures are still needed. Data that comprehensively consider the many perspectives of cLBP in female combat veterans may present an accurate conceptualization of the unique relationship between functioning with cLBP and Post-9/11 women.

Controlling My Pain

The narratives provided insight into the cLBP treatment measures used by these Post-9/11 women. While pharmacological and non-pharmacological pain management approaches were used to manage the cLBP in these women, contrasting opinions regarding the effectiveness of the pain approaches emerged within the narratives. Overall ineffectiveness described the pharmacological pain management experience of many of these women. Pharmacological regimens specifically opioid therapies often lacked sustained pain relief and elicited fears of overuse and abuse among women.

These women cited non-pharmacological therapies as providing more sustainable cLBP management and relief. Complementary and Integrative health (CIH) approaches such as meditation, yoga, stretching, chiropractor, physical therapy, and self-affirmations were a few modalities that provided the most sustained cLBP management for these Post-9/11 women. Mind-body pain modalities including cognitive behavioral therapies were not used by any of the women in this study. Overall, non-pharmacological approaches were believed to have contributed to improving their pain intensity and pain quality, a sentiment that echoed throughout the narratives.

Pharmacological pain modalities have historically been considered the treatment of choice for chronic MSK pain management in veteran populations. However, non-pharmacological MSK pain approaches are steadily gaining acceptance (Evans et al., 2018). A randomized trial done in nurse-led yoga therapy was conducted on 150 military veterans with cLBP at a Veterans Affairs Medical Center. Pain intensity was measured throughout three different yoga therapy intervals. Statistically significant reductions to cLBP intensity and improvements to functional scores on the Morris Disability Questionnaire over time were observed throughout each interval in the intervention group compared to the usual care group (Groessler et al., 2017). But while the impact of nurse-led yoga on cLBP in this study was remarkable, a representative sample of female veterans was not visible in this study.

Although current literature suggests that women veterans are more likely to use CIH pain therapies for MSK pain (Evans et al., 2018), evidenced-based CIH studies remain limited and varied in female combat veteran populations. Longitudinal studies that have valid and reliable indicators may help inform cLBP management best practices among female combat veterans. Additionally, future studies that examine sustained cLBP efficacy in both non-pharmacological and pharmacological pain approaches may have significant implications for female combat veterans and serve as a guide for providers considering multi-modal pain management strategies (Salt et al., 2016; Sinnott et al., 2017).

The longstanding concern of pain management in female veteran populations is further highlighted in the narratives of these Post-9/11 women (Giannitrapani et al.,

2018). The stories of these women suggest a need for more sustainable evidenced-based cLBP treatment approaches for female combat veterans. Improving patient-centered cLBP care models is a health priority that may have significant ramifications on back pain care in female combat veterans.

Implications for Nursing Practice and Research

This study is significant in that it highlights the cLBP experiences of female combat veterans. Narratives suggest that the unique factors of institutionalized sex-based bias inherent within military cultures significantly impacts the low back pain experiences of women deployed to combat war missions. While the reality of cLBP in women who deploy to combat operations exists, it has not been adequately acknowledged within healthcare settings. Approaches to pain management for female combat veterans must not only be intentional but strategic among healthcare providers. With an everchanging healthcare system and increasing societal health needs, expanded nursing roles that include pain care are needed.

Nurses are positioned with the ability to play a key role in the low back pain management efforts aimed at female combat veterans. As a practice profession, nursing has always been a leader in the implementation and sustainability of nursing practice and policy. As more females deploy to combat arenas, the need for expanded nursing roles that address the cLBP needs of female combat veterans will increase.

One approach to expanding the current cLBP care models in female combat veterans are nurse-led clinics. Nurse-led clinics that focus on comprehensive pain assessments, cLBP education, and medication safety may better inform current clinical

treatment plans. Nurse-facilitated pain management approaches aimed at reducing back pain chronicity and increasing sustainable treatment measures, while ensuring gender sensitivity, may improve the quality of life in Post-9/11 female veterans.

The complexity of cLBP in female combat veterans also provides unique learning opportunities for nursing students. Expanding nursing curricula to better prepare students to manage the pain care needs of female combat veterans is vital to optimal pain outcomes. Additionally, as nursing roles continue to expand, certified registered nurse anesthetists (CRNAs) and nurse practitioners may be uniquely positioned to collaboratively conduct clinical trials on the effects of pharmacological and non-pharmacological modalities on cLBP in Post-9/11 women veterans (Schoneboom et al., 2016).

The implications for nursing research in complementary integrative medicine (CIM) can have a longstanding impact. Research initiatives involving CIM may help inform chronic back pain treatment changes in female combat veterans. Emerging studies suggest that approaches that combine pharmacological and non-pharmacological approaches may provide more sustainable chronic pain management (Giannitrapani et al., 2018; Vanneman et al., 2018). Furthermore, while specific cLBP diagnoses were not identified in this study, understanding cLBP injury types and its impact on active duty service time in Post-9/11 female veterans may be useful for future nursing research and intervention work.

As a profession, nursing must seek to understand the cLBP experiences and needs of female combat veterans better. Understanding the current roles of women in the military and the impact combat has on cLBP is essential for improving pain management approaches. Evidenced-based nursing interventions are paramount to effective patient-centered pain care.

Additionally, interprofessional health collaborations may provide opportunities for nurses to participate in collaborative teams that help make decisions regarding pain care and nursing practice in female combat veterans (Grady & Hinshaw, 2017). A holistic, comprehensive pain care approach may help to improve cLPB health outcomes in Post-9/11 female veterans and reshape the standards of back pain care.

Military Implications

Policy-driven initiatives that improve the standards and processes for female combat veterans can be transformative. The findings of this study suggest several military policy implications that could change the trajectory of back pain care in females who deploy to combat missions. First, policy implications suggest that policy development processes that include the viewpoints of female combat veterans are critical. Policies created exclusively from the perspectives of men not only reinforce inherent inequities within military cultures but do not adequately capture the unique needs of female veterans (Cheney et al., 2013).

Secondly, policy implications suggested that sex-specific training regimes are necessary. Women within this study noted that training regimes did not consider the unique body frames of females. This implication echoes the first implication in which

female combat veterans must be active participants in the development and implementation of policy standards. Policymakers should consider standards and initiatives that embody the lived realities of females in combat arenas so that training standards have a more conceptual approach.

Another implication captured in the narratives of these women highlighted the need for female-tailored body equipment. Military uniforms should provide sex-specific uniform options to women. Unisex, one-size-fits-all approaches are based on previous male norms. Measuring injury, safety, comfort, and durability outcomes for sex-specific equipment may provide the data policymakers need to reform uniform standards (U.S. Government Accountability, 2017).

Lastly, a final implication for policy derived from this study is greater recognition of the impact of low back pain in females. Including language in national policies that allows for timely, non-retaliatory, comprehensive low back pain treatment may benefit Post-9/11 women. Eliminating language that promotes exclusive pharmacological approaches as pain modalities may also enhance the low back pain trajectory of female combat veterans post-deployment (Interagency Pain Research Coordinating Committee, 2011).

Feminist Standpoint Theory

Feminist standpoint theory suggests that accomplished standpoints are achieved by first being understood as a gendered person, and then challenging gendered expectations (Rowland et al., 2017). The accomplished standpoints in this study resulted from identifying the impact of cLBP on gender in combat military servicewomen,

understanding how these gendered cLBP practices continue and are sustained within military environments, and garnering ideas and practices that improve current standards. The following discussion describes the accomplished standpoints of the Post-9/11 female veterans in this study.

Standpoints were found in the narratives that identified moments of judgment. In their discussions of back pain while deployed, women offered insights into the way low back pain was perceived in male-dominated military environments. Women who reported their cLBP were often labeled as histrionic. Some women discussed hiding their cLBP and rehearsing negative platitudes such as “suck it up” as a way of dealing with their pain. Women also drew an association between reporting their low back pain and being perceived as weak. Through their experiences, women were able to critically examine long-held beliefs regarding gender differences, cLBP, and their capabilities in military environments. Women also suggested that degrading cLBP experiences during military deployments may leave women feeling powerless in their efforts to obtain pain care post-deployment.

Standpoints also emerged from cLBP discussions that recognized functional loss. In these discussions of living with cLBP, women emphasized the impact cLBP had on their mobility post-deployment. The discussions of these Post-9/11 women living with cLBP offered several remedies that mitigated their functional losses. Women cited modified activities and non-pharmacological treatment measures as instrumental influences that helped them reframe function and cLBP.

Additionally, standpoints were found in narratives that provided instances in which women of color with cLBP were indiscriminately mistreated. Chronic low back pain, race, ethnicity, or culture were all factors that contributed to the mistreatment of some of these Post-9/11 women. Women of color, particularly those in higher-ranking positions, observed that their abilities and competency were sometimes put into question not only because they reported cLBP but because of their race, ethnicity, or culture. Although experiences of differences were notable for these women of color, women overwhelmingly attributed their experiences of discrimination and differences regarding their cLBP to gender.

For these women, encounters with gender differences regarding their cLBP further justify feminist standpoint theory. Female combat veterans occupy a position that gives them a unique perspective into the treatment of women who report cLBP in military environments and the gendered expectations of the military. The gendered cLBP viewpoints presented in this study build upon existing scholarship in Post-9/11 women and feminist standpoint theory.

Limitations

There are several limitations to this study that should be considered. First, this study included a self-selection bias. Although results provided rich insights, the bias in qualitative research could threaten study validity. Secondly, findings were unique to the experiences of Army and Air Force veterans deployed to Iraq and Afghanistan war missions. The chronic low back pain experiences of participants do not represent all female veterans deployed to the combat war missions; therefore, no inferences can be

drawn. Finally, data generalizability may be affected by the sample size and study population.

The standpoint theory framework used in this study, along with participant narratives, focused on the ways Post-9/11 female veterans construct and shape their realities of chronic low back pain. Although this study identified the many impacts of injury-induced low back pain on female combat veterans, some factors varied among participants. Despite the potential limitations in this study, limitations were seen as beneficial and became a necessary part of creating foundational data on the cLBP experiences of female combat veterans.

Conclusions

This research study explored the experiences of cLBP in Post-9/11 female veterans throughout time. Narratives chronicled ‘The injury experience’ and ‘Living with pain, my new normal.’ Participants were asked to describe their cLBP military journey during and after deployments and to explore the significance of that pain.

This scholarship provided a forum by which Post-9/11 female veterans could explain their understanding of cLBP and identify constructive ways to negotiate their gendered cLBP experiences better. Existing research suggests several predictors of cLBP in veterans post-deployment that are unique to military personnel (Nahin, 2017; Naylor et al., 2017; Schoneboom et al., 2016). While this study confirms those findings, it also recognizes the distinctive challenges and difficulties female combat veterans with cLBP face post-deployment and provides a more nuanced understanding and context to those experiences.

While many female combat veterans in this study had positive overall views of their military experience, women expressed the need for reformed training standards and initiatives that promote sex-specific back pain awareness. Considering the impact of back injuries in Post-9/11 female veterans are critical. Nurses have a unique opportunity to learn about the inherent realities of cLBP in this subpopulation. As clinicians, we must begin to create environments of health that provide a greater way of understanding and managing the cLBP needs of women deployed to combat theaters. This study suggests that cLBP overwhelmingly affects the lives of female combat veterans.

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APPENDIX A

INTERVIEW PROTOCOL

Title: The chronic low back pain experiences of female veterans who have deployed to Post-9/11 war missions?

Questions:

1. I would like to begin by asking you some basic demographic questions:
 - a. What is your approximate age?
 - b. What branch of service did you serve in?
 - c. What race do you identify with?
 - d. What was your rank?
 - e. What was your occupation in the military?
 - f. How many years did you serve in the military?
 - g. How many times where you deployed?

2. Let's begin by talking a little about your military experience.

Prompt: why you decided to serve

3. Thinking about your military experiences can you tell me the story about how your chronic low back pain started.

Prompt: please share all of your military back pain experiences

4. Can you tell me how your chronic low back pain has affected you?

Prompt: physically, emotionally

5. From your perspective, how did being a female influence your experience in the military?

Prompt: including your deployments and experience in combat

6. From your perspective as a female veteran is your health care provider addressing your chronic lower back pain needs? If so how? If not how can your provider better meet those needs?

Prompts:

 1. Do you feel the cLBP needs of female OEF/OIF/OND veterans are different than male OEF/OIF/OND veterans?
 2. How has your gender influenced your cLBP experience as a female veteran?

7. Given what you have said about your chronic low back experience, where you are today?
8. How have you made sense of your situation?
9. Can you tell me about how you have been supported or failed to be supported during your pain journey?
Prompt: people or systems?
10. Has your pain experience changed your values and beliefs about the military and about being a female soldier?
11. Is there anything else that you can tell me that would help others understand what it is like to be a female veteran with chronic lower back pain?

APPENDIX C**IRB-APPROVED CONSENT FORM****UNIVERSITY OF NORTH CAROLINA AT GREENSBORO**

Project Title: Understanding the Experiences of Chronic Low Back Pain in Post 9-11 Female Veterans

Principal Investigator and Faculty Advisor: Risa Peets MSN, RN & Dr Susan Letvak (Advisor)

Participant's Name: _____

What are some general things you should know about research studies?

You are being asked to take part in a research study. Your participation in the study is voluntary. You may choose not to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. There may not be any direct benefit to you for being in the research study. There also may be risks to being in research studies. If you choose not to be in the study or leave the study before it is done, it will not affect your relationship with the researcher or the University of North Carolina at Greensboro, and it will not impact any care that you may receive at the Salisbury Veterans Health Administration.

Details about this study are discussed in this consent form. It is important that you understand this information so that you can make an informed choice about being in this research study.

You will be given a copy of this consent form. If you have any questions about this study at any time, you should ask the researchers named in this consent form. Their contact information is below.

What is the study about?

This is a research project. We are conducting a research study on the experiences of chronic non-cancer back pain in post 9-11 female veterans. The purpose of this pilot study is to begin to identify factors that affect chronic non-cancer pain in female veterans.

Why are you asking me?

We are looking for female veteran who deployed for at least one year in one of the four branches of service during the post 9-11 combat missions, are aged of 21 years or older, and report experiencing chronic non-cancer back pain for at least one year post-deployment from injuries that occurred while on active duty. You are not eligible to participate in the study if you report experiencing cancer related pain.

What will you ask me to do if I agree to be in the study?

You will be asked to participate in at least one, but no more than two, 60-90 min interview. During the interview, you will be asked questions regarding your chronic pain experiences post-deployment. This will be conducted at a private place most convenient to you.

Is there any audio/video recording?

Participants will meet for one or two times for approximately 60-90 min. The interview will be recorded using two digital recording devices. Two digital recording devices will be used to in the event of a device failure. Because your voice will be potentially identifiable by anyone who hears the recording, your confidentiality for things you say on the recording cannot be guaranteed although the researcher will try to limit access to the recording as further described below.

What are the risks to me?

The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants that include: a breach of confidentiality, emotional distress, discomfort, unanticipated disclosure of illegal activities.

In order to minimize your risk of a breach of confidentiality the interviews will be conducted in a private setting of your choice. The PI and the overseeing advisor will be the only ones that will have access to the digital recordings and transcripts. All digital recordings will be destroyed immediately after transcriptions are recoded and reviewed to protect confidentiality.

In order to minimize your risk of emotional distress interviews will be conducted in a private setting of the participants choice (for example their home). Interview questions will be tailored and will not require participants to recall traumatic events. Interviews will be stopped immediately if there are any signs of distress such as shaking, crying, and increasing voice elevation and you will be allowed to take a break, be interviewed at a different time, or not participate in the study. The VHA help crisis line information will be made available by the PI.

The PI will also minimize your risk of discomfort by providing stretch breaks throughout the interview. You can also verbalize any pain during the interview without consequences.

Questions will be tailored, and will not address specific pain management modalities in order to minimize your risk of disclosing any illegal activity.

If you have questions, want more information or have suggestions, please contact Risa Peets MSN, RN who may be reached at (336) 515-0233 or at rmpeets@uncg.edu and Susan Letvak PhD, RN who may be reached at (336) 256-1024 or at susan_letvak@uncg.edu

If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Integrity at UNCG toll-free at (855)-251-2351.

Are there any benefits to society as a result of me taking part in this research?

The benefits of this type of research is significant because of the growing number of female veterans who have chronic back pain. Understanding the unique chronic back pain needs experiences by female veterans is vital in the development of gender specific pain interventions or other assistance needed.

Are there any benefits to me for taking part in this research study?

There are no direct benefits to specific to the participants in this study.

Will I get paid for being in the study? Will it cost me anything?

There will be no direct costs to you. However, for agreeing to participate in this study you will be given a \$10.00 gift card. The full amount of the \$10.00 gift card will be given to you after you complete the entire consenting and interviewing process.

How will you keep my information confidential?

All information obtained in this study is strictly confidential unless disclosure is required by law. Confidentiality will be protected by only collecting information needed for the study outcomes. Participant list will be stored in a locked safe separate from the data. Consent forms will be stored in a separate folder in a locked file cabinet separate from any interview data. Audio recordings, transcripts, and transcription files, and emails will be stored on the Researchers password protected and fire walled personal computer and uploaded on a UNCG online file share called "BOX". All audio recordings will be destroyed immediately after the interviews are transcribed into a written document. Only the researcher and the faculty advisor, Dr. Susan Letvak (saletvak@uncg.edu, 336-256-1024) will listen to the recordings. Any identifying information you may provide will be deleted from any written transcript and/or fictional names and locations will be used. All transcripts will be destroyed at the end of three years.

What if I want to leave the study?

You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state. The investigators also have the right to stop your participation at any

time. This could be because you have had an unexpected reaction, or have failed to follow instructions, or because the entire study has been stopped.

What about new information/changes in the study?

If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:

By participating in the interview, you are agreeing that you read, or it has been read to you, and you fully understand the contents of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. By participating in the interview, you are agreeing that you are 21 years of age or older and are agreeing to participate, in this study described to you by Risa Peets MSN, RN.

Signature: _____ Date: _____

Witness Signature: _____ Date: _____