

AGGREGATE SEXUAL TRAUMA LOAD, QUALITY OF LIFE, AND  
PSYCHIATRIC COMORBIDITY IN VETERANS WITH  
MILITARY AND CIVILIAN SEXUAL TRAUMA

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## DEDICATION

To Michael, for making it all possible.

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by

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by

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ABSTRACT

Over the last two decades, Military Sexual Trauma (MST) has received growing national attention. Among veterans, approximately 24% of women and 1% of men have experienced MST. Veterans with MST are particularly at-risk for a variety of mental health concerns, including Posttraumatic Stress Disorder (PTSD) and depression. MST survivors are also likely to experience diminished quality of life, including engagement in risk-taking behaviors, marital problems, and interpersonal difficulties. This suggests that individuals with higher lifetime

incidence of sexual trauma (including MST) may be at increased risk for poorer outcomes in quality of life and psychiatric symptoms. Moreover, relatively little attention has been paid to examining the differences in psychological sequelae among those who have experienced sexual trauma as children, and those whose sexual trauma exposure is limited to adulthood. To date, the majority of sexual trauma literature has focused primarily on civilian trauma, and comparatively few studies have specifically examined quality of life sequelae in Veterans with MST. This study examined aggregate sexual trauma load (i.e. lifetime incidence of sexual trauma, childhood sexual assault, and severity of sexual trauma) as a predictor of overall quality of life and severity of PTSD and depressive symptoms. Categorical linear regression analyses were performed on the variables of interest as predictors of scores on the Quality of Life Inventory (QOLI), Clinician Administered PTSD Scale (CAPS), and Quick Inventory of Depressive Symptomatology (QIDS). A significant relationship was found between history of childhood sexual assault and severity of depression symptoms. Further, a non-significant trend was found between total incidence of prior sexual trauma and overall quality of life. No significant differences were found among the other variables of interest. Results highlight the need for specific attention to depressive symptomatology and the commonplace nature of severe sexual trauma in this population, as well as the need for future research with more heterogeneous and diverse samples. Conclusions, limitations, and implications are discussed.

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## LIST OF COMMONLY USED ABBREVIATIONS

**PTSD** – Posttraumatic Stress Disorder

**MST** – Military Sexual Trauma

**CSA** – Childhood Sexual Assault

**VHA** – Veterans Health Administration

**MDD** – Major Depressive Disorder

**WHO** – World Health Organization

**DSM-IV-TR** – Diagnostic and Statistical Manual of Psychiatric Disorders, Fourth Edition, Text Revision

**DSM 5** – Diagnostic and Statistical Manual of Psychiatric Disorders, Fifth Edition

**QoL** – Quality of Life

**QOLI** – Quality of Life Inventory

**QIDS** – Quick Inventory of Depressive Symptomatology

**CAPS** – Clinician Administered PTSD Scale

**SAEQ** – Sexual Abuse Exposure Questionnaire

## CHAPTER ONE

### Introduction

Over the last two decades, Military Sexual Trauma (MST) has received growing national attention. Data from the Veterans Health Administration (VHA) national MST screening report suggests that among veterans, approximately 24% of women and 1% of men have experienced MST (VHA, 2013). As noted by Surís and Lind (2008), while women within this population appear 20 times more likely to experience MST than men, the number of men in the military exceeds that of women by approximately 20-fold; consequently, the actual number of men and women who report MST is roughly equivalent. Further, the experience of sexual trauma increases vulnerability for a variety of mental health concerns, including Posttraumatic Stress Disorder (PTSD; Seedat & Stein, 2000; Yaeger, Himmelfarb, Cammack, & Mintz, 2006) and depression (Kilpatrick et al., 2003; Resick, 1993), and studies have demonstrated that Veterans who experience MST are *particularly* at-risk for the development of psychiatric symptoms (Black et al., 2004; Kimerling et al., 2010). MST survivors are also likely to experience greater overall health concerns, such as physiological symptoms and chronic illness (Sadler, Booth, Nielson, & Doebbeling, 2000), as well as diminished quality of life, including increased engagement in risk-taking behaviors, marital problems, and interpersonal difficulties (Shipherd, Pineles, Gradus, & Resick, 2009).

Of particular concern, a history of sexual trauma is associated with re-victimization (Follette & Polusny, 1996) and increased complexity of psychiatric symptomatology (Cloitre et al., 2009). When considered in aggregate, the results of this research suggest that individuals with higher lifetime incidence of sexual trauma (including MST) may be at increased risk for poorer outcomes in quality of life and experience of health-related and psychiatric symptoms. Moreover, while the study of childhood sexual abuse (CSA) is well documented in research literature, relatively little attention has been paid to examining the differences in psychological sequelae among those who have experienced sexual trauma as children, and those whose sexual trauma exposure is limited to adulthood. One study examining this dichotomy among civilians suggests that the addition of CSA is related to increased symptom incidence and complexity (Cloitre et al., 2009). Specific to military populations, Surís, Lind, Kashner, & Borman (2006) found that female veterans with a history of CSA reported significantly poorer outcomes in physical, psychiatric, and quality of life functioning than those without a CSA history. However, this phenomenon has largely been overlooked within the study of Veterans and MST survivors.

To date, the majority of sexual trauma literature has focused primarily on civilian trauma, and comparatively fewer studies (see Surís et al., 2006) have specifically examined quality of life sequelae in veterans with MST. The present

study will investigate the relationship between aggregate sexual trauma load (i.e. cumulative history of sexual trauma, age range of first sexual trauma experience, and trauma severity) and PTSD symptoms, psychiatric comorbidity (i.e. depression), and perceived quality of life, in order to better understand the effect of trauma load in this unique population. Finally, this study proposes to leverage this understanding in discussion of targeting future therapeutic interventions to the specific needs of this increasingly visible and diverse population.

## CHAPTER TWO

### Background & Literature Review

#### Posttraumatic Stress Disorder

Societies throughout recorded history have documented traumatic events as fundamental and defining cultural phenomena. From prehistoric paintings, to classical arts and literature, to modern popular media and scientific discourse, trauma has remained a constant and universal facet of the human experience. In fact, roughly half of all people in the United States will be exposed to a traumatic event during their lifetimes (Elliott, 1997; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Further, it is not uncommon for individuals to experience changes in cognition, emotional responsiveness, and behavior as a result of exposure to a traumatic event (Breslau, 2002). Despite the apparent ubiquity of trauma in human culture, the vast majority of people do not endure longstanding psychological distress as a result of their experiences (Kessler, et. al, 1995; Kessler, Chiu, Demler, & Walters, 2005). However, for some individuals the experience of trauma can result in subsequently long-term, debilitating, and functionally impairing psychiatric symptoms. This symptomatic framework (i.e. numbing of responsiveness, intrusive thoughts about the traumatic event, increased arousal, and avoidance of

reminders of the event) forms the clinical basis of Posttraumatic Stress Disorder (PTSD; American Psychiatric Association, 2000).

The experience of PTSD symptoms has been described for well over a century, by such terms as “shell shock” and “battle fatigue” (Fichtner, Poddig, & de Vito, 1997). With the return of United States military personnel from the Vietnam conflict, PTSD-like symptoms (i.e. mood disruption, nightmares, dissociation, increased arousal, etc. – then coined “Vietnam syndrome”) gained increased national attention. In 1980, with publication of the third edition of the Diagnostic and Statistical Manual of Psychiatric Disorders (DSM III; American Psychiatric Association, 1980), these “psychic consequences of war” were officially recognized as antecedent to psychiatric illness (i.e. PTSD; Destefano, 1988; Gersons & Carlier, 1992).

Results of the National Comorbidity Survey Replication (Kessler et al., 2005) suggest lifetime prevalence of PTSD among adult Americans is 6.8%, and women (10.4%) are twice as likely as men (5.0%) to be diagnosed. PTSD symptoms also appear to persist longer in women (Breslau, 2002). Along racial lines, lifetime prevalence of PTSD is highest among individuals who identify as black, non-Hispanic (8.7%), and lowest among Asians (4.0%; Roberts, Gilman, Breslau, Breslau, & Koenen, 2011). Alarming, PTSD is often left untreated within racial minority populations, with less than half seeking intervention (Roberts et al., 2011). Further, a study of PTSD within a large community sample

by Breslau et al. (1998) demonstrated that exposure to assaultive violence (attributable to roughly 40% of PTSD cases) is higher in men, racial minorities, and individuals of low socioeconomic status, suggesting that inclusion in these demographic groups places an individual at particular risk for the development of PTSD symptoms. Not surprisingly, PTSD is common among members of the United States military, with prevalence rates falling between 12% and 30% depending on era of service (Kang, Natelson, Mahan, Lee, & Murphy, 2003; Kulka et al., 1990; Magruder et al., 2004; Seal et al., 2009). However, PTSD is most prevalent among those who have experienced rape. In a community sample, approximately one-third of female rape survivors experienced PTSD following the assault (Kilpatrick, Edmunds, & Seymour, 1992). Similarly, Frazier et al. (1995) found that over half of all women who experienced sexual assault also experienced PTSD during their lifetimes.

### *Clinical Presentation*

PTSD is characterized by a hallmark triad of cognitive, emotional, and behavioral symptom clusters: intrusive re-experiencing, avoidance and emotional numbing, and hyper-arousal. Research indicates that avoidance and numbing are particularly indicative of PTSD (Foa, Riggs, & Gershuny, 1995; North, Suris, Davis, & Smith, 2009). In fact, Foa et al. (1995) further suggest that effortful avoidance and emotional numbing alone are the most finely tuned differentiators

between those individuals who develop PTSD and those with a non-pathologic response to trauma. Although PTSD shares similar symptoms with other psychiatric disorders (i.e. irritability, hypervigilance, sleep disturbance, etc.), the link to traumatic exposure (i.e. qualifying exposure) sets PTSD apart as distinctive. As with many other psychiatric disorders, the subjective experience of PTSD is highly individualized, and the severity and presentation of PTSD symptoms varies across numerous demographic variables, including the specific severity, temporal proximity, and duration of the traumatic event (American Psychiatric Association, 2000). For example, Ehlers and Steil (1995) found that while intrusive memories are common among trauma survivors, the subjective meaning assigned to their content varies widely, and this variability may play a large role in individual responses to PTSD symptoms and patterns of coping. Individuals with PTSD are also likely to experience high levels of social withdrawal, isolation, and symptoms of social anxiety (Hofmann, Litz, & Weathers, 2003; Orsillo, Heimberg, Juster, & Garrett, 1996). Not surprisingly, difficulties with interpersonal relationships among individuals with PTSD are well-documented in research (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004; Ruscio, Weathers, King, & King, 2002). On a deeper level, Laffaye, Cavella, Drescher, & Rosen (2008) found that among veterans, more severe PTSD symptoms predicted an increase in perceived interpersonal stress. This suggests that social support (i.e. social interaction – generally considered a protective

factor) may in some cases actually exacerbate the experience of perceived distress. Individuals with PTSD also often experience emotional and affective dysregulation, especially if they have survived severe childhood trauma (Charuvastra & Cloitre, 2008). Research suggests that these symptoms (often observed as uncontrolled outbursts, emotional lability, and increased feelings of guilt and shame) may impede memory processing in standard PTSD treatment (Daghighi, Rolfe, Golden, Dunn, & Barnard, 2008).

Partly due to the wide individual variability associated with the experience of PTSD symptoms, diagnostic conceptualization of PTSD has historically been a much debated topic (North et al., 2009). A majority of research has focused on conceptualizing PTSD symptomatology using factor typology models (Elhai et al., 2011; King, Leskin, King, & Weathers, 1998; Simms, Watson, & Doebbellin, 2002; Yufik & Simms, 2010). In short, this approach seeks to dissect symptom clusters into their most salient and independent components, in order to create the most comprehensive representation of PTSD symptomatology. Models have ranged in scope between 2- and 4-factor variations, each centered around various iterations of the hallmark symptoms of PTSD. Recent studies (Elhai et al., 2011; Pietrzak, Tsai, Harpaz-Rotem, Whealin, & Southwick, 2012) suggest a 5-factor model of PTSD symptoms appears to best represent the “unique dimensionality of PTSD symptoms,” with the hyper-arousal symptom cluster separated into two distinct factors: “dysphoric arousal” (i.e. predomination of

mood-related symptoms) and “anxious arousal” (i.e. predominated by anxiety-based symptom presentation). These two categories allow more subtle and precise delineation of symptoms into mood-based or anxiety-based clusters. Despite the subtle differences in symptom clustering found in the typological approach, the aggregate findings of the extant literature suggest that individuals with PTSD can be broadly divided into “externalizing” (i.e. aggressiveness, impaired impulse control, and high rates of substance use) and “internalizing” (i.e. introversion, negative emotionality, higher rates of mood disorders) classes (Pietrzak et al., 2014). The sum of this research is critically important to the understanding, treatment, and management of PTSD, because it reinforces the notion that symptom presentation is highly individualized, with respect to the immediate valence of any one distinct symptom or symptom cluster.

PTSD is also associated with significant cognitive impairment, specifically related to declines in memory and attention (Golier & Yehuda, 2002; Vasterling et al., 2002; Wolfe & Schlesinger, 1997). In their study of Vietnam Veterans, Bremner et al. (1993) found poorer performance in tasks of verbal memory among participants with PTSD. Kertzman, Avital, Weizman, & Segal (2014) found that individuals with PTSD performed poorly in tests of information processing, motor reaction, and inhibition, and suggest that impaired inhibition is a key component in the development and maintenance of intrusive, re-experiencing symptoms. Moreover, Holmes, Brewin, & Hennessy (2004) found

that impaired verbal abilities (demonstrated in individuals with PTSD across the literature) may result in diminished suppression of intrusions; this suggests that decreased verbal ability increases risk for development of PTSD, as well as increased symptom complexity and severity. Further, many studies have demonstrated broadly impaired performance among individuals with PTSD on tasks of learning and acquisition of new information, sustained attention, word fluency, and perseveration (Brandes et al., 2002; Uddo, Vasterling, Brailey, & Sutker, 1993; Vasterling, Brailey, Constans, & Sutker, 1998) as well as processes related to memory (Bremner, Vermetten, Afzal, & Vythilingam, 2004; Golier & Yehuda, 2002; Vasterling & Brailey, 2005).

### *Diagnosis*

PTSD is unique among psychiatric disorders, in that its conceptual basis is organized around exposure to a causal event. In fact, exposure to an extreme stressor or traumatic event is required for diagnosis. Specifically, the fourth edition (text revision) of the Diagnostic and Statistical Manual of Psychiatric Disorders (DSM-IV TR; American Psychiatric Association, 2000) describes diagnostic criteria for PTSD as:

- A. **The person has been exposed to a traumatic event in which both of the following were present:**

1. the person experienced, witnessed, or was confronted with an event or events that involved actual threat or threatened death or serious injury, or a threat to the physical integrity of self or others
2. the person's response involved intense fear, helplessness, or horror

**B. The traumatic event is persistently re-experienced in one (or more) of the following ways:**

1. recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions
2. recurrent distressing dreams of the event
3. acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or while intoxicated)
4. intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
5. physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event

**C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:**

1. efforts to avoid thoughts, feelings, or conversations associated with the trauma
2. efforts to avoid activities, places, or people that arouse recollections of the trauma
3. inability to recall important aspects of the trauma
4. markedly diminished interest or participation in significant activities
5. feeling of detachment or estrangement from others
6. restricted range of affect (e.g. unable to have loving feelings)
7. sense of foreshortened future (e.g. does not expect to have a career, marriage, children, or a normal life span)

**D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:**

1. difficulty falling or staying asleep
2. irritability or outbursts of anger
3. difficulty concentrating
4. hypervigilance
5. exaggerated startle response

**E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than 1 month.**

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning (p. 467)

It is important to note that while the present study relied on the above criteria from DSM-IV TR in assessment and diagnosis of PTSD, the American Psychiatric Association has recently published the fifth edition of the DSM (DSM 5; APA, 2013). Because DSM 5 includes significant changes to the diagnosis and classification of PTSD (see Appendix C for full DSM 5 PTSD criteria), this discussion would be remiss without its brief mention.

Broadly, the changes in DSM 5 reflect differences in two key areas: classification and diagnostic criteria. In DSM 5, PTSD was removed from the anxiety disorders category, and a class of disorders specifically related to trauma and stress was created. This classification system is intended to more accurately reflect the distinctive nature of PTSD (and similar disorders), by recognizing exposure to a traumatic event as a unique qualifier. The balance of PTSD updates in DSM 5 is related to diagnostic criteria, specifically the deletion, addition, and realignment of symptoms and symptom clusters. Friedman, Resick, Bryant, and Brewin (2011) found that criterion A2 - which required an individual to experience “fear, helplessness, or horror” as a result of exposure to trauma (APA, 2000, p. 467) - did not improve diagnostic accuracy. This criterion was subsequently removed. Three symptoms were added within the criteria sets: persistent and distorted blame of self or others (criterion D), persistent negative

emotional state (criterion D), and reckless or destructive behavior (criterion E). Finally, the three historical symptom clusters were divided into four: intrusion, avoidance, negative alterations in cognitions and mood, and alterations in arousal and activity.

### *Psychiatric Comorbidity*

PTSD is highly comorbid with other psychiatric disorders. In fact, studies indicate that the overwhelming majority of individuals with PTSD – roughly 90% – meet criteria for at least one additional psychiatric disorder (Breslau, Davis, Andreski, & Peterson, 1991; Keane, Brief, Pratt, & Miller, 2007; Kessler et al., 1995). Psychiatric comorbidity appears to affect men (59%) slightly more commonly than women (44%; Kessler, et al, 1995), and incidence is even higher within military populations. Among comorbid psychiatric disorders, depression, substance use disorders, and anxiety disorders are the most common (Bruce et al., 2001; Kessler et al., 1995), and more than half of all individuals with PTSD also meet criteria for Major Depressive Disorder (MDD; Bruce et al., 2001; Campbell et al., 2007; Magruder et al., 2004; Mellman, Randolph, Brawman-Mintzer, Flores, & Milanese, 1992). In their study of Veterans of the Vietnam Conflict, Kulka et al. (1990) found that 98.9% of individuals diagnosed with PTSD also met criteria for additional psychiatric diagnoses, and 28% met criteria for MDD. DeRubeis et al. (2005) found that 17% of an outpatient sample with moderate to

severe MDD also had comorbid PTSD. Other studies indicate that PTSD is comorbid with depression in as many as 50% of patients (Hankin, Spiro, Miller, & Kazis, 1999; Kessler et al., 1995; Nixon, Resick, & Nishith, 2004). In short, the question of psychiatric comorbidity in individuals with PTSD is generally a matter of “which,” not “if.”

Research has attempted to identify the mechanism of action responsible for psychiatric comorbidity found in PTSD. While significant overlap in diagnostic criteria and independent vulnerability models may partially explain the notable association of PTSD with other psychiatric disorders, research often points to *shared vulnerability* as a likely model of causality (Breslau, Davis, Peterson, & Schultz, 2000; North, Suris, & Adewuyi, 2011; Davidson & Foa, 1991; Keane & Wolfe, 1990; O’Donnell, Creamer, & Pattison, 2004). In their study of PTSD in women, Breslau, Davis, Peterson, & Schultz (1997) found that preexisting psychiatric disorders (specifically major depression) increased potential risk for PTSD via two distinct pathways. First, pre-existing disorders may disproportionately increase the probability of *exposure* to a traumatic event, relative to the general population. For obvious statistical reasons, increased traumatic exposure poses greater risk for developing PTSD. Second, a pre-existing disorder may increase an individual’s risk for developing PTSD *after* exposure to the traumatic event. This suggests that pre-existing depression may

intensify the severity of PTSD-like symptoms, leading to increased risk for developing full-blown PTSD.

Similarly, research indicates that comorbid psychiatric disorders may arise *consequent* to the development of PTSD (Breslau et al., 1997; North et al., 2011). This suggests that PTSD may be a risk factor for the development of other psychiatric conditions. In their study of primary care patients, Campbell et al. (2007) found that patients with PTSD-depression comorbidity had increased symptom severity, poorer prognosis, and delayed treatment response. This shared vulnerability model suggests a dependent relationship between PTSD and depression, and lends itself to a conceptualization of PTSD-depression following trauma as a single response to traumatic experience (O'Donnell et al., 2004; van der Kolk, Pelcovitz, Roth, & Mandel, 1996).

### *Impact on Quality of Life*

The World Health Organization (WHO, 1948) defines “quality of life” (QoL) as well-being in three distinct domains: physical, mental, and social. In fact, QoL as a construct extends well beyond an individual’s disease state (or lack thereof) to include his or her own subjective appraisal of life satisfaction (Angermeyer & Kilian, 1997). While the WHO’s definition has been in place for nearly 70 years, the research does not agree on a consistent, definitive summation of QoL as a construct. For example, Katschnig (2006) notes that QoL measures

may be improperly distorted by an individual's *acute* mental state (i.e. depressed, manic, etc.), which may alter his or her perceptions. In contrast to traditional measures of healthcare outcomes (which place vantage on life expectancy), in recent years, the medical and mental health fields have directed increasing emphasis toward outcomes targeted to an individual's perceived life *quality* (Kaplan, 2003). While QoL outcomes in chronic physical illnesses (i.e. cancer, etc.) have been well-documented, specific QoL sequelae related to psychiatric disorders have comparatively been under-represented.

Zatzick et al. (1997) found poorer outcomes among Vietnam veterans with PTSD in psychological wellbeing, perceived physical health, and perceived overall functioning than those without PTSD. Studies have also identified PTSD as a predictor of decreased QoL (Holbrook, Hoyt, Stein, & Sieber, 2001; Zatzick, Jurkovich, Gentilello, Wisner, & Rivara, 2002). Hansson (2002) suggests that QoL appears most diminished in individuals with PTSD and panic disorder. In their 1997 study, Schonfeld et al. found that individuals with PTSD experienced specific declines in QoL that surpassed those of chronic physical illnesses. For example, negative effects of PTSD on "physical functioning" were greater than those of arthritis or diabetes; chronic conditions known for their physically debilitating symptoms. This study also found that PTSD had a significant negative impact on individuals' perceived emotional functioning. In their community study, Rapaport, Clary, Fayyad, & Endicott (2005) found that 59% of

individuals with PTSD experienced severe impairment in global QoL. A meta-analysis of QoL and anxiety disorders (Olatunji, Cisler, & Tolin, 2007) found that PTSD was associated with a significantly larger effect size than other anxiety disorders in impairment of QoL across multiple domains.

With specific regard to military populations, PTSD has been associated with diminished QoL across numerous domains. In veterans, PTSD is associated with increased unemployment (Magruder et al., 2004; Smith, Schnurr, & Rosenheck, 2005; Zatzick et al., 1997) and decreased job performance. For example, Hoge, Terhakopian, Castro, Messer, & Engel (2007) found that Iraq veterans with PTSD were more likely to miss two or more days of work than those without PTSD. Formerly homeless veterans with PTSD are 85% more likely to become homeless again (O'Connell, Kaspro, & Rosenheck, 2008). Research has also associated PTSD with declines in functioning across marital, family, and social domains (Cohen, Hien, & Batchelder, 2008; Dekel & Solomon, 2006; Norman, Stein, & Davidson, 2007). For example, Kulka et al. (1990) found elevated divorce rates among Vietnam veterans with PTSD, while Goff, Crow, Reisbig, & Hamilton (2007) found that increased PTSD symptom severity was positively correlated with poor overall relationship functioning. Sadler et al. (2000) found that women who experienced MST were more likely to endorse lower health-related QoL, chronic health problems, and use of prescription medication related to emotional problems than women without similar

experiences. This cohort was also less likely to complete college or report an annual income greater than \$25,000. In their study of Vietnam-era veterans, Schnurr, Hayes, Lunney, McFall, & Uddo (2006) found that increased PTSD symptom severity was associated with poorer overall QoL. In addition, the same study found that improvement in PTSD symptoms was positively correlated with improvement in QoL outcomes. Similarly, other studies have built growing evidence that improvement in PTSD symptoms generally translates to improved QoL (Rapaport, Endicott, & Clary, 2002; Tucker et al., 2001).

### **Military Sexual Trauma**

PTSD is highly prevalent among members of the United States military, and rates appear to vary based on era of service. However, research suggests lifetime prevalence of PTSD among individuals with active duty exposure is 1.5-3.5 times higher than that of the general population, regardless of service era (Magruder & Yeager, 2009). Kulka et al. (1990) found prevalence rates of 15% - 30% among combat-exposed individuals of the Vietnam era. In their study of veterans in VA primary care clinics, Magruder et al. (2004) found PTSD rates of 11.5%. Seal et al., (2009) found that PTSD is easily the most common psychiatric diagnosis among veterans of recent military action in Iraq and Afghanistan (Operations Iraqi Freedom and Enduring Freedom - OIF & OEF), with prevalence rates between 21% - 23%.

As discussed, PTSD is highly prevalent among survivors of sexual assault (Kessler et al., 1995; Kilpatrick et al., 1992). With particular regard to members of the military, the experience of sexual trauma may pose specific and elevated risk for development of psychiatric symptoms (i.e. PTSD, depression, etc.), as well as decreased perceived quality of life, difficulty with civilian adjustment post-service, and increased health-related symptoms (Kimerling et al., 2010; Surís & Lind, 2008). Military Sexual Trauma (MST) refers to sexual assault, or repeated, threatening sexual harassment experienced during military service (VA, 2012). MST has received increased national attention since 1991, with news of the US Navy's "Tailhook scandal." More than 100 officers in the Navy and Marine Corps were formally accused of sexual misconduct during an official military event. As a result, Congress enacted The Veterans Health Care Act of 1992 (Public Law 102-585, 1992), which authorized mandatory screening for MST at VA facilities. Subsequent congressional action (Public Law 103-452, 1994) mandated VHA provision of sexual trauma services to MST survivors, as well as expansion of services to include both men and women.

VHA national MST screening data suggests that among VHA-utilizing veterans, approximately 24% of women and 1% of men have experienced MST (VHA, 2013). As noted by Surís and Lind (2008), while women within this population appear 20 times more likely to experience MST than men, the number of men in the military exceeds that of women by approximately 20-fold;

consequently, the actual number of men and women who report MST is roughly equivalent. Barlas, Higgins, Pflieger, & Diecker (2013) found similar results in their study of active-duty service members, with 21.7% of women and 3.3% of men endorsing unwanted sexual contact related to their military service. The National Violence Against Women Survey (Tjaden & Thoennes, 2000) found that approximately 16.7% of women and 3% of men in the United States have experienced attempted or completed rape, suggesting that rates of sexually-related trauma for women in the military are higher than civilian cohorts. In addition, individuals with MST are more likely than those without to develop psychiatric symptoms and health-related concerns (Surís & Lind, 2008; Shipherd et al., 2009). In female veterans, Surís, Lind, Kashner, Borman, & Petty (2004) found that individuals with MST were nine times more likely to develop PTSD, compared to those without sexual trauma history. MST survivors are also more likely than those without MST to develop issues with alcohol abuse, specifically binge drinking (Creech & Borsari, 2014; Skinner et al., 2000). Shipherd et al. (2009) found that MST in both men and women was associated with decreased perceived physical health, compared to those without MST.

Understanding actual occurrence rates of MST is further complicated, because research indicates that actual MST prevalence rates may be higher than reported rates (Burns, Grindlay, Holt, Manski, & Grossman, 2014). This may be especially true for male survivors. Surveillance data (VHA, 2013) suggests that

men (38%) are less likely than women (54%) to seek MST-related mental health treatment. Turchik et al. (2013) identified several barriers to MST treatment in male survivors, noting that stigma-based concerns (i.e. shame, self-blame, privacy concerns, etc.) were present in 100% of their sample. Research also suggests that post-assault concerns related to masculine identity and socially expected gender roles may pose unique issues for male survivors of MST (Turchik & Edwards, 2012).

### **Aggregate Sexual Trauma Load**

Because this study examined the impact of sexual trauma in three key areas: cumulative incidence, early-life experience (i.e. childhood sexual trauma), and severity of sexual trauma, the term “aggregate sexual trauma load” is used to broadly describe the unique phenomenological sequelae of these three core constructs.

### *Cumulative History of Sexual Trauma*

Previous exposure to sexual trauma is well-established in the literature as a risk factor in both civilian and military populations for future sexual trauma, as well as associated psychosocial problems (Black, Heyman, & Smith Slep, 2001; Campbell, 2002; Coker et al., 2002; Seedat & Stein, 2000; Surís et al., 2004). As an individual’s incidence of sexually traumatic experiences increases, so

apparently does their propensity for decreases in psychosocial functioning, perceived quality of life, and psychological functioning. However, comparatively little research has examined the specific sequelae of cumulative sexual trauma history.

In their study of United States marines with MST, Shipherd et al. (2009) found that greater *volume* of MST in men was associated with worse perceptions about physical health. Barrera, Graham, Dunn, & Teng (2013) found that veterans of OEF/OIF who reported a higher frequency of traumatic events during deployment (including MST) were more likely to be diagnosed with PTSD. The same study found similar results when considering post-deployment traumatic events among the same cohort. In addition, specific endorsement of sexual trauma was associated with higher incidence of comorbid PTSD and panic disorder. Iverson, Mercado, Carpenter, & Street (2013) found that among veteran women, unwanted sexual experiences doubled the risk for intimate partner violence. In a German community sample, increased incidence of traumatic events was associated with higher rates of PTSD (Perkonig, Kessler, Storz, & Wittchen, 2000). Bright & Bowland (2008) suggest that women in civilian populations are twice as likely as men to develop PTSD, most likely due to greater prevalence of sexual trauma. Similarly, Surís et al. (2004) found that women veterans who experience military sexual assault are nine times more likely to develop PTSD than those without sexual assault histories. Cumulative trauma

is also related to increased PTSD symptom complexity. Cloitre et al. (2009) found an “additive effect,” in that increased cumulative trauma exposure was positively associated with increased symptom complexity.

### *History of Sexual Trauma in Childhood*

Women in the military are more likely than their civilian counterparts to report a history of childhood sexual abuse (CSA). For example, Surís et al. (2004) found that 27% of female veterans in their study endorsed CSA. Similarly, Zinzow, Grubaugh, Monnier, Suffoletta-Maierle, & Frueh (2007) found that between 27% and 49% of female veterans reported a history of CSA, compared with between 17% and 32% of civilian women. Research has demonstrated that CSA places both men and women at increased risk for sexual re-victimization (Stermac, Reist, Addison, & Millar, 2002). Specific to the military, Iverson et al. (2013) found that women with early-life sexual trauma were three times more likely to experience intimate partner violence than those without such a history. Additionally, Sadler, Booth, Mengeling, & Doebbeling (2004) found that history of CSA was specifically related to increased incidence of MST.

CSA is also a well-documented risk factor for myriad psychological issues. Numerous studies demonstrate associations between CSA and mood and anxiety disorders (Green et al., 2010; Jonas et al., 2011; Wingenfeld et al., 2011),

as well as severe psychopathology, such as schizophrenia (Heins et al., 2011; Steel, Marzillier, Fearon, & Ruddle, 2009) and personality disorders (Grover et al., 2007; Laporte, Paris, Guttman, & Russell, 2011; Wingenfeld et al., 2011).

Individuals with CSA are also more likely to report decreased functioning in psychosocial, health-related, and quality of life domains. For example, Walter, Buckley, Simpson, & Chard (2014) found that female veterans with CSA *and* MST were less likely to be employed (full or part-time) than those with just MST alone. CSA survivors are more likely than those without CSA to engage in “high risk” sexual behaviors (i.e. unprotected sex, sexual partners who use IV drugs, multiple sexual partners, etc.). Dube et al. (2005) found that individuals with CSA were more likely to report marital and family problems than those without CSA history. The same cohort was also more likely to endorse substance “problems” – both for themselves and their partners (i.e. “married an alcoholic”). Individuals with a history of CSA also report more health care utilization (i.e. hospital and physician office visits) than those without such a history (Newman et al., 2000; Sickel, Noll, Moore, Putnam, & Trickett, 2002), as well as increased endorsement of pain, fibromyalgia, and gastrointestinal symptoms (Hulme, 2000; Newman et al., 2000; Walker et al., 1997). Additionally, CSA is associated with overall negative health perceptions (Najman, Nguyen, & Boyle, 2007), and increased behavioral health risk factors, such as smoking, substance use, and obesity (Aaron & Hughes, 2007; Chartier, Walker, & Naimark, 2009).

### *Severity of Prior Sexual Trauma*

Resultant sequelae of sexual trauma may also be dependent upon the severity of the trauma. Limited research in CSA suggests increased trauma severity as a risk factor for increased re-victimization, symptom severity, and decreased quality of life. In their study of female undergraduate students, Fortier et al. (2009) found that increased severity of sexual abuse directly predicted use of avoidant coping, which in turn predicted sexual re-victimization. This study relied on the Computer Assisted Maltreatment Index (CAMI; DeLillo et al., 2009) as a measure of CSA severity. The CAMI severity score is a summed composite of discrete “severity indicators” (i.e. frequency, duration, specifics of the experiences, perpetrator relationship, number of perpetrators, and force). Rodriguez, Ryan, Rowan, and Foy (1996) found that in a clinical sample of individuals with CSA, more severe abuse was associated with increased severity of PTSD symptoms. In this study, “severity” was calculated using the Sexual Abuse Exposure Questionnaire (SAEQ; Rodrigues et al., 1996), and represents a measure of increasingly invasive sexual abuse experiences (see APPENDIX C for a complete list of items). Of note, the same measure and severity methodology is used in the present study. Myers et al. (2006) found similar results in their study of HIV-positive women, suggesting that severity of CSA was more predictive of PTSD symptoms as it increased. In this study, severity was operationalized as the

interplay among the type of abuse (i.e. “frottage” vs. “penetration”), relationship to the perpetrator, re-victimization with different perpetrators, and duration of trauma. Participants’ traumas were rated as “more severe” with increased physical invasiveness, relational closeness to the perpetrator, and increased numbers of trauma events. Of important note, a consistent theme in this literature suggests that the *invasiveness* of the trauma contributes heavily to concept of *severity*. While this appears to be a documented method for quantifying *severity*, it appears that no studies (including the present study) have examined participants’ qualitative *perceptions* about trauma severity in arriving at an operational definition of this construct. In addition, a review of the literature revealed no non-CSA studies that specifically examine trauma severity (in any definition) as a predictor of decreased psychological and psychosocial functioning.

## **Summary**

PTSD is a prevalent and debilitating disorder that manifests across myriad demographic, temporal, and contextual factors. Since sexual trauma has been demonstrated to be significantly related to the development of PTSD, individuals with a history of sexual trauma appear particularly at risk for symptom development, as well as associated psychological and psychosocial sequelae. As discussed, the majority of sexual trauma literature has focused primarily on civilian trauma, and fewer studies have specifically examined quality of life

sequelae in veterans with MST. In addition, given increased attention on the proliferation of sexual trauma among members of the armed forces, as well as research evidence suggesting significant negative effects of such trauma in childhood, the absence of research specifically examining trauma severity as a variable in PTSD outcomes represents a remarkable dearth in the literature. The present study investigated the relationship between aggregate sexual trauma load and PTSD symptoms, depression comorbidity, and QoL, in order to better understand the effect of trauma load in this diverse, unique, and increasingly visible population.

## **CHAPTER THREE**

### **Aims & Hypotheses**

#### **Overall Aim**

The primary aim of this study was to investigate the relationship between aggregate sexual trauma load (i.e. cumulative history of sexual trauma, age of first sexual trauma experience, and trauma severity) and PTSD symptoms, depression comorbidity, and perceived quality of life, in order to better understand the effect of aggregate sexual trauma load in this unique population.

#### **Aim One**

This study sought to examine the relationship between cumulative history of sexual trauma (i.e. total number of lifetime sexual traumas) and perceived quality of life, symptoms of Posttraumatic Stress Disorder (PTSD), and depression comorbidity among Veterans who have Military Sexual Trauma (MST)-related PTSD.

#### *Hypothesis 1a*

Veterans with higher cumulative history of sexual trauma will report significantly diminished perceived quality of life, compared to Veterans with lower cumulative history.

#### *Hypothesis 1b*

Veterans with higher cumulative history of sexual trauma will report significantly more severe PTSD symptoms, compared to Veterans with lower cumulative history.

*Hypothesis 1c*

Veterans with higher cumulative history of sexual trauma will report significantly more symptoms of depression, compared to Veterans with lower cumulative history.

**Aim Two**

This study sought to examine the relationship between temporal type of sexual trauma (experienced in childhood and adulthood or adulthood only) and perceived quality of life, symptoms of PTSD, and symptoms of depression among the Veteran cohort. Of note, since eligibility criteria required MST for inclusion in the parent study, all participants have at least some history of sexual trauma during adulthood (i.e. MST).

*Hypothesis 2a*

Veterans with a history of childhood sexual abuse (CSA) will report significantly lower quality of life, compared to veterans without a history of CSA.

*Hypothesis 2b*

Veterans with a history of CSA will report significantly more severe PTSD symptoms, compared to veterans without a history of CSA.

*Hypothesis 2c*

Veterans with a history of CSA will report significantly more symptoms of depression, compared to veterans without a history of CSA.

**Aim Three**

This study sought to examine the relationship between sexual trauma severity and perceived quality of life, symptoms of depression, and symptoms of PTSD among the Veteran cohort.

*Hypothesis 3a*

Veterans with a history of more severe sexual trauma will report significantly lower quality of life, compared to those with a history of less severe sexual trauma.

*Hypothesis 3b*

Veterans with a history of more severe sexual trauma will report significantly more severe PTSD symptoms, compared to those with a history of less severe sexual trauma.

*Hypothesis 3c*

Veterans with a history of more severe sexual trauma will report significantly more severe symptoms of depression, compared to those with a history of less severe sexual trauma.

## **CHAPTER FOUR**

### **Method**

The present study was conducted as a secondary analysis, using baseline data from a randomized, controlled, clinical trial of psychotherapy for PTSD that compared Cognitive Processing Therapy (CPT) with Present Centered Therapy (PCT). All procedures related to the study were conducted in compliance with the Institutional Review Board (IRB) of the VA North Texas Health Care System (VAN THCS), Dallas VA Medical Center. Participants were voluntarily enrolled in this study, and consisted of male and female patients in the VAN THCS who were diagnosed with MST-related PTSD. The VAN THCS includes the Dallas VA Medical Center, Sam Rayburn Memorial VA Center in Bonham, and the Fort Worth Outpatient Clinic.

### **Participants**

A total of 481 individuals were screened for the parent study, and were recruited via advertisements and recruitment letters, as well as study promotion in therapy groups, veterans' centers, and clinician referrals. Potential participants were individually screened for eligibility, and were provided with a detailed description of the study as part of a written, in-person informed consent

procedure. This description included the purpose of the study, treatment conditions, time commitment, and payment.

In order to be included in the parent study, participants were required to meet the following criteria:

- a. Veteran or active duty status with a current diagnosis of MST-related PTSD
- b. The MST event occurred at least 3 months prior to study entry
- c. Identification of the MST event as associated with the most severe current distress
- d. Presence of at least one clear memory of the traumatic event
- e. Receipt of no other psychotherapeutic treatment during the 6-week duration of study-related active treatment (attendance at support groups, psychotherapy for other conditions, or brief “check-ins” with existing therapist were acceptable)
- f. Stability of psychiatric medication regimen (if applicable) for at least 6 weeks prior to study participation
- g. Ability to give consent to participate in the study

Participants were excluded from participation in the parent study for any of the following:

- h. Active substance dependence within three months of study entry

- i. Current engagement in psychotherapy specifically targeted toward PTSD
- j. Presence of current psychotic symptoms
- k. Presence of current, unstable Bipolar disorder
- l. Active, prominent suicidal or homicidal intent
- m. Severe cognitive impairment
- n. Current involvement in a violently aggressive relationship

Of the 481 individuals screened for participation, 320 were excluded from the study following initial screening. 161 participants were enrolled, and of those, 32 were withdrawn prior to randomization. 129 participants were randomized to receive either CPT or PCT. The CONSORT flow chart for participants within this study is summarized in Figure 1 of Appendix B.

### **Procedure**

All participants were seen on an outpatient basis. After successful completion of preliminary screening, informed consent, and subsequent enrollment in the study, participants were administered a baseline assessment which included a combination of clinician-administered and self-report measures across a broad range of psychosocial and psychological functioning (See *Measures*, below). During this assessment, eligibility was confirmed and baseline data was collected. Participants were compensated in the amount of \$50.00

(USD) if they met eligibility criteria and \$20.00 (USD) if they did not meet eligibility requirements. Following baseline assessment in the parent study, eligible participants were randomized to receive either CPT or PCT, and received 12 individual psychotherapy sessions (once or twice per week, depending on participant preference). Following the intervention, treatment completers (defined as participants who completed 12 psychotherapy sessions) were administered follow up assessments within 7 days of their final psychotherapy session, as well as at 2, 4, and 6 months post-treatment. For the present study, only assessment made during the baseline encounter was included in analysis.

## **Measures**

Assessments were administered at the baseline encounter, including measures of PTSD symptomatology, sexual trauma history, quality of life, and depression. In addition, basic demographic information was collected during the baseline encounter. Assessments utilized in the present study are: the Clinician Administered PTSD Scale (CAPS; Blake et al., 1990), used to confirm PTSD diagnosis and assess specifics of PTSD symptom profile, including symptom severity; the Sexual Abuse Exposure Questionnaire (SAEQ; Rowan, Foy, Rodriguez, & Ryan, 1994), used in the proposed study to assess type of sexual trauma experienced, as well as trauma severity; the Quality of Life Inventory (QOLI; Frisch, 1994), used to assess quality of life outcomes; and the 16-Item

Quick Inventory of Depressive Symptomatology, Self-Report (QIDS-SR16; Rush et al., 2003), used to assess depressive symptoms. Additionally, demographic and life event data were also obtained, specifically four questions adapted from the National Violence Against Women Survey (Tjaden & Thoennes, 2000) aimed at assessing each participant's aggregate sexual trauma load (i.e. total number of sexual trauma experiences). Of special note, due to the gender specific nature (i.e. use of the term "vagina," etc.) of these assessment questions, different versions were prepared for male and female participants. Differences between versions were semantic in nature and did not alter the nature of the information derived. A complete listing of questions in both versions may be found in Appendix F.

#### *Clinician Administered PTSD Scale (CAPS)*

The CAPS (DSM-IV TR version) was used to confirm current PTSD diagnosis, as well as assess severity of PTSD symptoms. The CAPS is a 30-item, semi-structured clinical interview that measures the frequency and intensity of 17 PTSD symptoms (as outlined in DSM-IV TR) on a behaviorally anchored 5-point Likert-type scale, from 0 ("never") to 4 ("daily or almost daily"). The CAPS contains five global rating questions regarding the effect of these symptoms on social and occupational functioning, a validity indicator, and an indicator of "improvement" since previous assessment (for repeated administration). Severity of PTSD symptoms is measured on a 5-point scale, from 0 ("absent") to 4

(“extreme/incapacitating”). Test-retest reliability ranges from  $r = .90$  to  $.98$ , with internal consistency (Cronbach’s  $\alpha$ ) for the 17 symptoms at  $.94$ . The total severity score is highly correlated to other measures of PTSD, including the Mississippi Scale for Combat-Related PTSD ( $r = .91$ ; Keane, Caddell, & Taylor, 1988). The CAPS has long been considered a gold standard assessment for PTSD.

#### *Quality of Life Inventory (QOLI)*

The QOLI is a 32-item, self-report, domain-based assessment of life satisfaction, and was used in the present study to measure perceived quality of life. The QOLI was established in 1994 as a supplemental assessment of positive mental health. Based on the concept of *Quality of Life Theory* (see Andrews & Inglehart, 1979; Andrews & Withey, 1976) the QOLI assesses participants across 16 finite domains of life satisfaction (i.e. health, self-esteem, work, love, etc.). Respondents are asked to rate the importance of satisfaction in each domain on a 3-point scale, from 0 (‘not at all important’) to 2 (“very important”). Respondents are similarly asked to rate their level of satisfaction in each domain on a 6-point scale, from -3 (“very dissatisfied”) to 3 (“very satisfied”). The QOLI provides an overall assessment of perceived quality of life (i.e. “high,” “average,” “low,” or “very low”), as well as weighted satisfaction scores in each of the 16 individual domains. The QOLI is a demonstrated reliable assessment, with a test-retest coefficient of  $r = .73$  across two weeks. Internal consistency (Cronbach’s  $\alpha$ )

across the weighted satisfaction scores was .79, and the correlation between the QOLI raw score and weighted satisfaction scores was  $r = .99$ . The QOLI was also significantly correlated with two standard assessments of quality of life, the Satisfaction with Life Scale ( $r = .56$ ) and the Quality of Life Index ( $r = .75$ ; Frisch, 1994).

*16-Item Quick Inventory of Depressive Symptomatology, Self-Report (QIDS-SR16)*

The QIDS (Rush et al., 2003) is a 16-item inventory designed to measure the severity of depressive symptoms. The self-report version was utilized in the present study to measure participants' depressive symptom severity, and items are ranked on a three-point Likert-type scale, yielding a total score that ranges from zero to 27. The authors provided the following recommendations for interpretation of depressive symptoms: 0-5 (no depression), 6-10 (mild), 11-15 (moderate), 16-20 (severe), and 21-27 (very severe; Rush et al., 2003). The QIDS-SR16 has good demonstrated psychometric properties, with high internal consistency (Cronbach's  $\alpha = .86$ ), as well as high correlations with other measures of depression, including the Hamilton Rating Scale for Depression ( $r = .86$ ; (Hamilton, 1960) and the Inventory of Depressive Symptomatology-Self Report ( $r = .96$ ; (Rush, Gullion, Basco, Jarrett, & Trivedi, 1996).

*Sexual Abuse Exposure Questionnaire (SAEQ)*

The *SAEQ* is an 11-item, self-report questionnaire used to assess sexual assault history. In the present study, the *SAEQ* was used to differentiate among participants who experienced childhood sexual assault and those who did not. In addition, scores on the *SAEQ* were used to assess severity of sexual trauma (see Rodriguez et al., 1996). Items on the *SAEQ* identify experience of increasingly invasive sex abuse acts (i.e. “exposure,” “fondling,” “intercourse,” etc.), and are rated with “yes/no/unsure” responses. Participants were asked to read each item and answer whether or not the event was experienced in childhood, as an adult, and/or in the military. For each item endorsed, participants further indicated their relationship to the perpetrator, the frequency of the event, and the duration of the event. The *SAEQ* has demonstrated good reliability, including test-retest reliability coefficients for the first 10 questions ranging from  $r = .73$  to  $.93$  (Rodriguez et al., 1996; Rowan et al., 1994).

## CHAPTER 5

### Results

#### Demographic Statistics

Descriptive results were generated for all demographic variables, including frequencies and percentages for categorical variables and means and standard deviations for continuous variables (see Appendix A, Table 1). Means and standard deviations for the sample were also calculated for all outcome variables, and are detailed in Table 2 of Appendix A. Statistical assumptions and normality for all data were examined prior to analysis to ensure the appropriateness of the analytical approach. With two exceptions (cumulative trauma history and trauma severity), all variables were within normal limits and met requirements for parametric statistical analysis.

The cumulative trauma history variable was outside of normal limits, and was thus appropriately transformed using a  $\log(10)$  procedure. The result of this transformation brought this variable within normal limits for parametric analysis with skewness of .74 ( $SE = .25$ ) and kurtosis of .15 ( $SE = .50$ ). Trauma severity was found to have significant skewedness, with the gross majority ( $n = 106$ , 82.8%) identifying their trauma as “11” (from “0” to “11” on a Likert-type scale). Because of the extreme skew of this distribution, data transformation did not adequately address non-normality in this variable (Hardy, 1993). As such, data was qualitatively bifurcated into equitable categories (e.g.,  $<5.5$  = lower trauma

severity threshold,  $>5.5$  = higher trauma severity threshold) in order to permit subsequent inferential analysis, and limitations of the analysis and interpretation of this variable are detailed in the Discussion section. Statistical significance was set at an alpha level of .05. Statistical analyses were conducted using SPSS version 21.0 (IBM Corp., Summers, NY).

The sample was comprised of 128 veterans with MST-related PTSD. Females represented 88.3% ( $n = 113$ ) of the sample, and males comprised 11.7% ( $n = 15$ ) of the sample. The mean age of the sample was 45.82 years ( $SD = 9.15$  years), and participants completed an average of 14.25 years ( $SD = 2.09$  years) of education. With regard to ethnicity, 39.1% ( $n = 50$ ) of the sample identified as White, non-Hispanic, 42.2% ( $n = 54$ ) was African American, 5.5% ( $n = 7$ ) was Hispanic, 3.1% ( $n = 4$ ) identified as American Indian or Alaskan Native, and 1.6% ( $n = 2$ ) identified as Native Hawaiian or Pacific Islander. The remainder of the sample ( $n = 11$ , 8.6%) identified in the “Other” category, which included individuals from self-identified multi-ethnic backgrounds (i.e. “Mexican-American,” “Lebanese-Irish,” “Cajun-Amish,” “Biracial,” etc.; see Appendix A, Table 1).

With regard to marital status, the majority of participants in the sample were divorced ( $n = 57$ , 44.5%), while 13.3% ( $n = 17$ ) were separated from their partners. Married individuals comprised 21.9% ( $n = 28$ ) of the sample, 3.9% ( $n =$

5) were cohabitating, and 5.5% ( $n = 7$ ) were widowed. The remaining participants ( $n = 14$ , 10.9%) were never married.

Finally, participants represented all four major branches of the United States Military. The Army was most heavily represented by 50% ( $n = 64$ ) of the sample. 19.5% ( $n = 25$ ) served in the Air Force, 5.5% ( $n = 7$ ) served in the Marines, and 22.7% ( $n = 29$ ) served in the Navy. The remaining three participants (2.3%) fell into the “Other” category, which was comprised of individuals who endorsed service in more than one branch (i.e. “Army and Marines” or “Army and Navy”).

There were no significant differences among any of the demographic variables or outcome measures for the present study. Comparisons of descriptive variables and outcome measures are detailed in Table 3 of Appendix A. Due to unquantifiable data for some participants with regard to cumulative sexual trauma history, 36 (28.1%) participants (included:  $n = 92$ ) were excluded from analysis in this aim. No significant differences were found in sociodemographic variables between the included and excluded groups in the cumulative trauma history predictor variable ( $p > .05$ ; see Appendix A, Table 4). Additionally, no significant differences were found in sociodemographic variables between categorical predictor variables (i.e. History of CSA and Trauma Severity;  $p > .05$ ). Comparisons of sociodemographic variables between levels of the CSA predictor

variable are detailed in Table 5 of Appendix A. Comparisons of sociodemographic variables between levels of the trauma severity predictor variable are detailed in Table 6 of Appendix A.

### **Aim 1: Cumulative History of Sexual Trauma and Quality of life, Symptoms of Posttraumatic Stress Disorder (PTSD), and Depression Severity**

The first aim sought to examine the relationships between cumulative history of sexual trauma (i.e. total number of lifetime sexual traumas) and quality of life, symptom severity of PTSD, and symptom severity of depression among veterans with MST-related PTSD. The relationships between cumulative history of sexual trauma and quality of life, symptoms of PTSD, and depression were investigated via simple linear regression analyses.

Cumulative history of sexual trauma was calculated based on information gathered from questions adapted from the National Violence Against Women Survey (Tjaden & Thoennes, 2000), specifically items (three for males, four for females) aimed at assessing total number of previous sexual trauma experiences (see Appendix F).

During data collection, an allowed response of “too many to count” was recorded on some of the aforementioned items for some participants, and these responses were not directly quantifiable for data analysis. Several approaches were attempted to address this, including Mean Imputation (see Donders, van der

Heijden, Stijnen, & Moons, 2006) and “Winsorizing” (see Rivest, 1994). Because these data are merely unquantifiable (rather than missing at random), data approximation methods were deemed inappropriate for this sample. As such, for this aim, data from participants who answered “too many to count” were eliminated prior to analysis. There were no significant differences between groups on any variables ( $p > .05$ ; see Appendix A, Table 4).

Responses to these questions were used to generate a total number of lifetime sexual traumas (i.e. cumulative history). Quality of life was represented by the total score on the QOLI. PTSD symptom severity was represented by the total score on the CAPS (DSM-IV-TR version), as well as combined frequency and intensity sub-scores in each of the three symptom criteria (i.e. B = “re-experiencing,” C = “avoidance and numbing,” and D = “hyper-arousal”). Finally, depression symptom severity was represented by the total score on the QIDS-SR16.

*Hypothesis 1a: Veterans with higher cumulative history of sexual trauma will report significantly diminished quality of life, compared to Veterans with lower cumulative history*

A simple linear regression was calculated to predict participants’ overall quality of life based on their cumulative sexual trauma history. The regression

equation was: predicted QOLI total score =  $31.767 + -5.505 \times$  cumulative sexual trauma history. Participants' cumulative sexual trauma history did not significantly predict their total scores on the QOLI ( $(F(1, 90) = 2.759, p = .10)$ , with an  $R^2$  of .030). The results of the regression analysis are detailed in table 7 of Appendix A.

*Hypothesis 1b: Veterans with higher cumulative history of sexual trauma will report significantly more severe PTSD symptoms, compared to Veterans with lower cumulative history*

#### *Total PTSD Symptom Severity*

A simple linear regression was calculated to predict participants' total PTSD symptom severity based on their cumulative sexual trauma history. The regression equation was: predicted CAPS total score =  $82.817 + 2.039x$  cumulative trauma history. Participants' cumulative sexual trauma history did not significantly predict their total scores on the CAPS ( $(F(1, 90) = .466, p = .496)$ , with an  $R^2$  of .005)(see Appendix A, Table 7).

*PTSD re-experiencing symptom frequency and intensity*

A simple linear regression was calculated to predict participants' PTSD re-experiencing symptom frequency and intensity based on their cumulative sexual trauma history. The regression equation was: predicted CAPS re-experiencing frequency and intensity score =  $22.281 + .364 \times$  cumulative sexual trauma history. Participants' cumulative sexual trauma history did not significantly predict their re-experiencing frequency and intensity scores on the CAPS ( $(F(1, 90) = .081, p = .777)$ ), with an  $R^2$  of .001; see Appendix A, Table 7).

*PTSD avoidance and numbing frequency and intensity*

A simple linear regression was calculated to predict participants' PTSD avoidance and numbing frequency and intensity based on their cumulative sexual trauma history. The regression equation was: predicted CAPS avoidance and numbing frequency and intensity score =  $32.756 + 2.503 \times$  cumulative trauma history. Participants' cumulative sexual trauma history did not significantly predict their avoidance and numbing frequency and intensity scores on the CAPS ( $(F(1, 90) = 2.435, p = .122)$ ), with an  $R^2$  of .026; see Appendix A, Table 7).

*PTSD hyper-arousal frequency and intensity*

A simple linear regression was calculated to predict participants' PTSD hyper-arousal frequency and intensity based on their cumulative sexual trauma history. The regression equation was: predicted CAPS hyper-arousal frequency

and intensity score =  $26.284 + .341 \times$  cumulative sexual trauma history.

Participants' cumulative sexual trauma history did not significantly predict their hyper-arousal frequency and intensity scores on the CAPS ( $(F(1, 90) = .091, p = .763)$ ), with an  $R^2$  of .001; see Appendix A, Table 7).

*Hypothesis 1c: Veterans with higher cumulative history of sexual trauma will report significantly more symptoms of depression, compared to Veterans with lower cumulative history*

A simple linear regression was calculated to predict participants' overall depression symptom severity based on their cumulative sexual trauma history.

The regression equation was: predicted QIDS total score =  $15.112 + .735 \times$  cumulative sexual trauma history. Participants' cumulative sexual trauma history did not significantly predict their total scores on the QIDS ( $(F(1, 90) = .458, p = .500)$ ), with an  $R^2$  of .005; see Appendix A, Table 7).

**Aim 2: Temporal Type of Sexual Trauma (Experienced in Childhood and Adulthood or Adulthood Only) and Quality of life, Symptoms of Posttraumatic Stress Disorder (PTSD), and Depression Severity**

The second aim sought to examine the relationships between temporal type of sexual trauma (i.e. experienced in childhood and adulthood or adulthood only) and quality of life, symptom severity of PTSD, and symptom severity of depression among veterans with MST-related PTSD. The relationships between temporal type of sexual trauma and Quality of life, symptoms of PTSD, and depression were investigated via categorical linear regression analyses.

Temporal type of sexual trauma was categorized as “childhood and adult” or “adult only” based on information gathered from the SAEQ. Specifically, the SAEQ asks participants to respond to items related to various types of sexual trauma experienced during childhood, adulthood, and the military (see Appendix E for sample items). Participants may choose their response to each item from among three choices: “yes,” “no,” or “unsure.” For the purpose of the present study, only participants who answered “yes” to any of the items pertaining to childhood sexual trauma were included in the “childhood and adult” category. Since all participants experienced sexual trauma during adulthood in order to meet inclusion criteria, all other participants (i.e. those who did not endorse CSA) were included in the “adult” category. There were no significant differences between groups on any variables ( $p > .05$ ; see Appendix A, Table 5).

Quality of life was represented by the total score on the QOLI. The level of PTSD symptomatology was represented by total score on the CAPS (DSM-IV-TR version), as well as combined frequency and intensity sub-scores in each of

the three symptom criteria (i.e. B = “re-experiencing,” C = “avoidance and numbing,” and D = “hyper-arousal”). Depression symptom severity was represented by the total score on the QIDS-SR16.

*Hypothesis 2a: Veterans with a history of childhood sexual abuse (CSA) will report significantly lower quality of life, compared to veterans without a history of CSA*

A categorical linear regression was calculated to predict participants' overall quality of life based on their temporal type of trauma history. “Dummy” coding of independent variables was used to ensure appropriateness of statistical analysis (see Miles & Shevlin, 2001). The regression equation was: predicted QOLI total score = 33.457 + -4.074 x temporal type of sexual trauma. Participants' temporal type of sexual trauma did not significantly predict their total scores on the QOLI ((F(1, 126) = 1.995,  $p = .160$ ), with an  $R^2$  of .016; see Appendix A, Table 8).

*Hypothesis 2b: Veterans with a history of CSA will report significantly more severe PTSD symptoms, compared to veterans without a history of CSA*

### *Total PTSD Symptom Severity*

A categorical linear regression was calculated to predict participants' total PTSD symptom severity based on their temporal type of sexual trauma.

“Dummy” coding of independent variables was used to ensure appropriateness of statistical analysis (see Miles & Shevlin, 2001). The regression equation was:

predicted CAPS total score =  $83.894 + 1.341 \times$  temporal type of sexual trauma.

Participants' temporal type of sexual trauma did not significantly predict their total scores on the CAPS ( $(F(1, 126) = .237, p = .627)$ , with an  $R^2$  of .002; see Appendix A, Table 8).

### *PTSD re-experiencing symptom frequency and intensity*

A categorical linear regression was calculated to predict participants' PTSD re-experiencing symptom frequency and intensity based on their temporal type of sexual trauma. “Dummy” coding of independent variables was used to ensure appropriateness of statistical analysis (see Miles & Shevlin, 2001). The regression equation was: predicted CAPS re-experiencing frequency and intensity score =  $22.426 + .723 \times$  temporal type of sexual trauma. Participants' temporal type of sexual trauma did not significantly predict their re-experiencing frequency

and intensity scores on the CAPS ( $(F(1, 126) = .380, p = .539)$ , with an  $R^2$  of .003; see Appendix A, Table 8).

*PTSD avoidance and numbing frequency and intensity*

A categorical linear regression was calculated to predict participants' PTSD avoidance and numbing frequency and intensity based on their temporal type of sexual trauma. "Dummy" coding of independent variables was used to ensure appropriateness of statistical analysis (see Miles & Shevlin, 2001). The regression equation was: predicted CAPS avoidance and numbing frequency and intensity score =  $35.170 + -.787 \times$  temporal type of sexual trauma. Participants' temporal type of sexual trauma did not significantly predict their avoidance and numbing frequency and intensity scores on the CAPS ( $(F(1, 126) = .321, p = .572)$ , with an  $R^2$  of .003; see Appendix A , Table 8).

*PTSD hyper-arousal frequency and intensity*

A categorical linear regression was calculated to predict participants' PTSD hyper-arousal frequency and intensity based on their temporal type of sexual trauma. "Dummy" coding of independent variables was used to ensure

appropriateness of statistical analysis (see Miles & Shevlin, 2001). The regression equation was: predicted CAPS hyper-arousal frequency and intensity score =  $26.298 + .505 \times$  temporal type of sexual trauma. Participants' temporal type of sexual trauma did not significantly predict their hyper-arousal frequency and intensity scores on the CAPS ( $F(1, 126) = .259, p = .612$ ), with an  $R^2$  of .002; see Appendix A, Table 8).

*Hypothesis 2c: Veterans with a history of CSA will report significantly more symptoms of depression, compared to veterans without a history of CSA*

A categorical linear regression was calculated to predict participants' overall depression symptom severity based on their temporal type of sexual trauma. A significant regression was found ( $F(1, 126) = 5.875, p < .05$ ), with an  $R^2$  of .045. Temporal type of sexual trauma accounted for 3.7% of the explained adjusted variability in QIDS total score. The regression equation was: predicted QIDS total score =  $15.112 + .735 \times$  temporal type of sexual trauma. The presence of CSA significantly predicted higher total scores on the QIDS. This indicates that participants with CSA endorsed increased depression symptom severity. The results of the regression analysis are detailed in Table 8 of Appendix A.

### **Aim 3: Qualitative Trauma Severity and Quality of life, Symptoms of Posttraumatic Stress Disorder (PTSD), and Depression Severity**

The third aim sought to examine the relationships between qualitative trauma severity (i.e. “high” or “low”) and quality of life, symptom severity of PTSD, and symptom severity of depression among veterans with MST-related PTSD. The relationships between severity of sexual trauma and quality of life, symptoms of PTSD, and depression were investigated via categorical linear regression analyses.

Severity of sexual trauma was ranked on an 11-point scale (“0,” no trauma to “11” most severe trauma), based on information gathered from the SAEQ. Specifically, the SAEQ asks participants to respond to items related to increasingly severe types of sexual trauma experienced during childhood, adulthood, and the military (see Appendix E for sample items). Participants could respond to each item from among three choices: “yes,” “no,” or “unsure.” For the purpose of the present study (per Rodriguez et al., 1996), data from the SAEQ was recoded, with a “1” assigned to “yes” responses and “0” assigned to “no” or “unsure” responses. The most sexually invasive item endorsed “yes” from among the 11 possible choices comprised the severity score. Thus, individual severity scores could *potentially* range from “0” to “11.” However, due to the inclusion requirements of this study (i.e. experience of MST), severity scores *actually* ranged from “1” to “11.”

Because data from this sample was significantly skewed toward more severe trauma, data was bifurcated into two qualitative groups, and designated “low” (< 5.5) or “high” (> 5.5) based on this bifurcation. Limitations related to analysis and interpretation of this variable is detailed in the Discussion section. There were no significant differences between groups on any variables ( $p > .05$ ; see Appendix A, Table 6).

Quality of life was represented by the total score on the QOLI. The level of PTSD symptomatology was represented by total score on the CAPS (DSM-IV-TR version), as well as combined frequency and intensity sub-scores in each of the three symptom criteria (i.e. B = “re-experiencing,” C = “avoidance and numbing,” and D = “hyper-arousal”). Depression symptom severity was represented by the total score on the QIDS-SR16.

*Hypothesis 3a: Veterans with a history of more severe sexual trauma will report significantly lower quality of life, compared to those with a history of less severe sexual trauma*

A categorical linear regression was calculated to predict participants’ overall quality of life based on their qualitative sexual trauma severity. “Dummy” coding of independent variables was used to ensure appropriateness of statistical analysis (see Miles & Shevlin, 2001). The regression equation was: predicted

QOLI total score = 28.125 + -1.358 x qualitative sexual trauma severity.

Participants' qualitative sexual trauma severity did not significantly predict their total scores on the QOLI ( $F(1, 126) = .056, p = .814$ ), with an  $R^2$  of .000; see Appendix A, Table 9).

*Hypothesis 3b: Veterans with a history of more severe sexual trauma will report significantly more severe PTSD symptoms, compared to those with a history of less severe sexual trauma.*

#### *Total PTSD Symptom Severity*

A categorical linear regression was calculated to predict participants' total PTSD symptom severity based on their qualitative sexual trauma severity.

“Dummy” coding of independent variables was used to ensure appropriateness of statistical analysis (see Miles & Shevlin, 2001). The regression equation was:

predicted CAPS total score = 86.050 + -.675 x qualitative sexual trauma severity.

Participants' qualitative sexual trauma severity did not significantly predict their total scores on the CAPS ( $F(1, 126) = .015, p = .902$ ), with an  $R^2$  of .000; see Appendix A, Table 9).

#### *PTSD re-experiencing symptom frequency and intensity*

A categorical linear regression was calculated to predict participants' PTSD re-experiencing symptom frequency and intensity based on their qualitative sexual trauma severity. "Dummy" coding of independent variables was used to ensure appropriateness of statistical analysis (see Miles & Shevlin, 2001). The regression equation was: predicted CAPS re-experiencing frequency and intensity score =  $21.058 + .942 \times$  qualitative sexual trauma severity. Participants' qualitative sexual trauma severity did not significantly predict their re-experiencing frequency and intensity scores on the CAPS ( $(F(1, 126) = .162, p = .688)$ , with an  $R^2$  of .001; see Appendix A, Table 9).

*PTSD avoidance and numbing frequency and intensity*

A categorical linear regression was calculated to predict participants' PTSD avoidance and numbing frequency and intensity based on their qualitative sexual trauma severity. "Dummy" coding of independent variables was used to ensure appropriateness of statistical analysis (see Miles & Shevlin, 2001). The regression equation was: predicted CAPS avoidance and numbing frequency and intensity score =  $37.417 + -1.417 \times$  qualitative sexual trauma severity. Participants' qualitative sexual trauma severity did not significantly predict their avoidance and numbing frequency and intensity scores on the CAPS ( $(F(1, 126) = .262, p = .610)$ , with an  $R^2$  of .002; see Appendix A, Table 9).

*PTSD hyper-arousal frequency and intensity*

A categorical linear regression was calculated to predict participants' PTSD hyper-arousal frequency and intensity based on their qualitative sexual trauma severity. "Dummy" coding of independent variables was used to ensure appropriateness of statistical analysis (see Miles & Shevlin, 2001). The regression equation was: predicted CAPS hyper-arousal frequency and intensity score =  $28.183 + -.808 \times$  qualitative sexual trauma severity. Participants' qualitative sexual trauma severity did not significantly predict their hyper-arousal frequency and intensity scores on the CAPS ( $(F(1, 126) = .168, p = .683)$ , with an  $R^2$  of .001; see Appendix A, Table 9).

*Hypothesis 3c: Veterans with a history of more severe sexual trauma will report significantly more severe symptoms of depression, compared to those with a history of less severe sexual trauma*

A categorical linear regression was calculated to predict participants' overall depression symptom severity based on their qualitative sexual trauma severity. The regression equation was: predicted QIDS total score =  $11.650 + 2.350 \times$  qualitative sexual trauma severity. Participants' qualitative sexual trauma

severity did not significantly predict higher total scores on the QIDS ( $F(1, 126) = 1.630, p = .204$ ), with an  $R^2$  of .013; see Appendix A, Table 9A).

## **CHAPTER 6**

### **Discussion**

#### **Purpose of the Present Study**

As previously discussed, prior research in military, civilian, and childhood sexual trauma suggests relationships between an individual's total incidence of sexual trauma, experience of childhood sexual assault, and trauma severity and overall quality of life, as well as severity of PTSD and depressive symptomatology. Specifically, the aggregate findings of multiple studies indicate that increased trauma load (i.e. increased number of sexually traumatic experiences, childhood sexual assault, and increased severity of sexual trauma) is predictive of decreased quality of life outcomes, as well as heightened severity in symptoms of PTSD and depression (see Chapter 2). However, research investigating these constructs in veterans with MST-related PTSD is largely underrepresented among the extant literature.

The present study sought to determine the relationship between aggregate sexual trauma load and quality of life, PTSD symptom severity, and depression severity in veterans with MST-related PTSD. Specifically, the study addressed these constructs via three aims and across nine hypotheses. The main goals of the study were to determine the extent to which cumulative history of sexual trauma (Aim 1), presence of childhood sexual assault (Aim 2), and severity of past sexual

trauma (Aim 3) predicted a decline in overall quality of life, and increased PTSD and depressive symptom severity within the veteran cohort.

### **Sample Characteristics**

The present study consisted of 128 veterans with MST-related PTSD. While differences among all demographic variables were statistically insignificant, there were some notable variances among the groups. 88.3% ( $n = 113$ ) of the sample was comprised of female veterans, compared to only 11.7% ( $n = 15$ ) male. This is primarily the result of late inclusion of male participants, due to increased funding part-way through the parent study that allowed for recruitment of male participants (see Surís, Link-Malcolm, Chard, Ahn, & North, 2013).

Exactly 50% ( $n = 64$ ) of the sample served in the Army. This is roughly 27 percentage points higher than the next closest military branch (Navy, 22.7%,  $n = 29$ ). The Air Force represented 19.5% ( $n = 25$ ), and the Marines comprised 5.5% ( $n = 7$ ). This is nearly identical to VA population data (Department of Veterans Affairs, 2014), and suggests that the present sample is representative of the larger Veteran population with regard to service branch.

With regard to marital status, more than half of the sample ( $n = 74$ , 57.8%) identified as “divorced” or “separated.” This is in contrast to the Department of Veterans Affairs population data (Department of Veterans Affairs, 2014) that

indicates as of 2014, only 12.4% of living veterans fell into these categories. However, previous research has shown that in female veterans with MST, divorce and separation are more common than the general veteran population. In their study of female veterans with and without MST, Skinner et al. (2000) found that approximately 45% of their sample of female veterans with MST were divorced or separated from their partners. This suggests that our sample is likely an accurate representation of marital status among female veterans with MST. Veterans with PTSD are more likely to experience marital and interpersonal difficulties (Mendlowicz & Stein, 2014). Because the present study specifically recruited participants with MST-related PTSD, this may partially explain the discrepancy between marital status in this sample and the larger veteran population. Furthermore, because interpersonal interaction may actually *increase* PTSD symptom severity, this study highlights the potentially important role of relational issues and social support as a point of intervention within this population.

With regard to ethnicity, while the sample was ethnically diverse, 81.3% ( $n = 94$ ) of participants were self-identified as either White, non-Hispanic or African-American. While this may limit the generalizability of findings to members of less-represented groups, this ratio is roughly in line with the *actual* ethnic representation of all living veterans. In fact, Department of Veterans Affairs population data indicates that in 2014, approximately 94% of all living

veterans fall into these two categorical descriptors of ethnicity (Department of Veterans Affairs, 2014). This suggests that the ethnic representation of participants in the present study was actually *slightly more* diverse than the total recent population of living United States veterans, thus lending support to the generalizability of our findings with regard to this population of veterans.

### **Cumulative History of Sexual Trauma and Quality of Life, Symptoms of PTSD, and Depression Severity**

Prior research suggests that increased incidence of previous sexual trauma places an individual at higher risk for increased severity of PTSD and depressive symptomatology, as well as decreased experience in overall quality of life, when compared with individuals with lower incidence of previous sexual trauma (see Chapter 2). However, this research has primarily focused on civilian populations, and comparatively few studies have examined this relationship among veterans with MST-related PTSD. To that end, we hypothesized that veterans with higher cumulative sexual trauma would experience decreased quality of life, as well as increased severity of PTSD and depressive symptoms.

In general, our findings did not support this hypothesis. Six categorical linear regression analyses did not reveal any significant, predictive associations between cumulative trauma and any of the outcome measures, which suggests that within veterans with MST-related PTSD, an individual's total incidence of

previous sexual trauma is unlikely to predict PTSD or depressive symptomatology. This is contrary to previous research (including MST literature), which suggests that higher incidence of prior sexual trauma is related to decreased quality of life, as well as decreased psychosocial and psychiatric functioning.

In contrast, our analyses did uncover a non-significant ( $p < .10$ ) trend between cumulative sexual trauma and total scores on the QOLI. While this result should be interpreted with caution, it suggests that incidence of previous sexual trauma *may* predict decreased quality of life. This finding (while not significant in the present study) is consistent with previous literature, and is likely to have potentially significant implications for future research.

It is also important to note that with regard to this aim, our results are not inclusive of the entire study sample. As previously discussed, during data collection some participants ( $n = 36$ ) responded to questions about total incidence of prior sexual trauma with an allowed response of “too many to count.” Because these responses are statistically unquantifiable (see Results), data from these participants was eliminated from analysis. In an attempt to preserve data from the entire study sample, several methods were considered to account for this unquantifiable data, including Mean Imputation (see Donders, van der Heijden, Stijnen, & Moons, 2006) and “Winsorizing” (see Rivest, 1994). Unfortunately, because the data in our sample were not missing at random, but rather were statistically unquantifiable, these approaches were deemed inappropriate. This

poses a unique issue for the present study. Participants who responded in this manner were ostensibly among the most traumatized in the sample. As the response suggests, “too many to count” *may* indicate that these participants’ cumulative sexually traumatic history was indeed vast and therefore difficult to recall at assessment. Consequently, elimination of this subpopulation may have inadvertently skewed our results toward statistical non-significance. This limits the application of our results in this aim, and future research should strive to assess cumulative incidence of sexual trauma in a more readily statistically quantifiable manner.

### **Temporal Type of Sexual Trauma (Experienced in Childhood and Adulthood or Adulthood Only) and Quality of Life, Symptoms of PTSD, and Depression Severity**

Childhood sexual abuse (CSA) has been well-studied in previous research, and numerous studies suggest a history of CSA is associated with myriad psychiatric and psychosocial difficulties (see Chapter 2). Female veterans are also more likely than their civilian counterparts to endorse such a history (Surís et al, 2004; Zinzow et al., 2007). In spite of this, alarmingly few studies exist that specifically examine a history of CSA related to quality of life, psychiatric, and psychosocial outcomes in veterans with MST-related PTSD. In order to better understand the effects of CSA in veterans with MST-related PTSD, the present

study sought to examine the predictive relationship of CSA on overall quality of life, as well as symptoms of PTSD and depression. Participants' previous sexual trauma (i.e. childhood and adult or adult only) was assessed using the SAEQ.

Six categorical linear regression analyses were performed, and the results were mixed regarding the three hypotheses of this aim. Results of analyses examining CSA and quality of life, as well as CSA and PTSD symptomatology were non-significant. This is contrary to previous research in indicating that a history of CSA does not predict increased severity of PTSD symptomatology. However, our finding does align with a recent study (Walter et al., 2014) that suggested the presence of CSA did not influence PTSD symptoms or treatment outcomes among a sample of female veterans with MST-related PTSD. In this regard, while contrary to the initial hypothesis, our result lends support to the notion that CSA may be less indicative of more severe PTSD symptom presentation than previously thought, and may pose less importance as an individual treatment consideration in PTSD.

However, it is important to note that in the present sample, participants' PTSD was specifically related to their experience of MST. As noted by Surís et al. (2004), the increased risk for PTSD in individuals with MST is 5 times greater than for those who experience civilian sexual trauma. Further, Yaeger et al. (2006) found that MST was related to higher levels of PTSD than any other kind of trauma, military or civilian. This suggests that participants in our study were

already at increased risk for not only the development of PTSD, but also the development of *more severe* PTSD symptoms. Therefore, the additive effect of CSA on symptomatology in this sample may be more negligible than in other PTSD populations (i.e. civilian sexual assault, combat trauma, etc.) Clearly, future research is necessary to further elucidate the specific nature of this relationship.

Our results were also contrary to previous and widely held research indications that a history of CSA is related to decreased quality of life. While the present study does suggest an inverse relationship between CSA and quality of life, our results showed no significant prediction between these variables. This challenges long-held notions that CSA is related to decreased quality of life in adulthood, and builds an important case for further study of the potentially unique impact of CSA on quality of life in veterans with MST-related PTSD.

Most notable among our findings, a history of CSA significantly predicted increased severity of depression symptomatology ( $F(1, 126) = 5.875, R^2 = .045, p < .05$ ). While the effect size was small (3.4% of the QIDS variability was explained by the presence of CSA), this result is consistent with the overwhelming majority of previous studies in suggesting that the experience of CSA predicts more severe depressive symptoms. This finding has important implications for the treatment of veterans with MST-related PTSD. First, our results demonstrate the necessity for focused assessment and treatment of

depression within this population. Because depression is highly comorbid with PTSD, keen awareness of symptoms of depression among treatment providers is important. Second, because the majority of research literature suggests negative outcomes related to the presence of CSA across psychosocial and psychiatric domains, depression within this population may be overlooked due to less severe presentation in other areas (i.e. PTSD symptom severity). Our study demonstrates that in spite of a statistically non-significant relationship between CSA and some functional outcomes (i.e. quality of life, PTSD symptoms, etc.), CSA is likely an important consideration with regard to depression. This highlights the need for mental health providers to routinely and specifically monitor patients within this population for signs of depression, even in the absence of other potential and more globally and outwardly salient indicators (i.e. increased comorbid symptomatology, decreased reported quality of life, etc.).

### **Qualitative Trauma Severity and Quality of Life, Symptoms of PTSD and Depression Severity**

Finally, this study sought to examine the relationships between trauma severity and the outcome variables of interest. As previously discussed, limited CSA research suggests that increased severity of sexual trauma is related to decreased quality of life, as well as increased symptoms of PTSD and other psychiatric disorders (including depression; see Chapter 2). Based on the results

of previous studies, we hypothesized that increased severity of sexual trauma would predict decreased overall quality of life, increased PTSD symptomatology, and increased symptom severity of depression.

The construct of sexual trauma “severity” is challenging and largely understudied, especially within adult and military sexual trauma research. In fact, to our knowledge no studies that examine trauma severity within individuals with MST exist in the current literature, suggesting that this study is the first of its kind. This may be due in part to the difficulty of operationalizing the term “severity.”

Because the “severity” of one’s traumatic experience is highly individualized, it is difficult to quantify one definitive method of assessment. Limited research in CSA (see Chapter 2) has utilized a number of factors in defining trauma severity (i.e. relationship to the perpetrator, duration, trauma type, etc.), and most consistent among these models is the level of physiological invasiveness involved in the sexually traumatic event.

In prior research, “severity” has consistently been defined (at least in part) by the level of increasingly physiological invasiveness of the traumatic event (i.e. “touching” of genitalia or violation of body integrity vs. offensive remarks, gestures, or images). Consequently, the present study measured trauma severity using the SAEQ as an 11-point scale of increasingly invasive sexually traumatic experiences (see Rodriguez et al., 1996). Outcomes were assessed using the total

score on the QOLI (QoL), total and three symptom frequency and intensity scores on the CAPS (PTSD), and total score on the QIDS (depression).

Our findings did not support our hypotheses in this aim. The results of six categorical linear regression analyses found non-significant relationships between trauma severity and all outcome measures. This suggests that trauma severity is not related to quality of life, or PTSD and depressive symptomatology. However, these results should be viewed with caution, and are not readily applicable due to a major limitation within this aim of the study. Upon data analysis, it was discovered that participants fell overwhelmingly in the most severe category of trauma (“11,”  $n = 120$ ). This caused data in our sample to be irreconcilably skewed with regard to this statistical analysis, and for all practical purposes, nullified the applicability of our results.

However, it is worthwhile to qualitatively examine this characteristic within the sample. This issue brings to light the extreme severity of sexual trauma history within the study sample. The overwhelming majority of participants ( $n = 120$ , 93.8%) endorsed at least one sexually traumatic experience in the “most severe” rating category (i.e. “11” on the SAEQ). Thus, in this sample, severe sexual trauma was common. Coupled with the demonstrated deleterious effects of severe sexual trauma within CSA populations, this qualitative finding suggests that severe sexual trauma exposure may be widespread among veterans with MST. This indicates that in spite of symptom presentation, veterans with MST-

related PTSD *may* present with histories of severe sexual trauma, and mental health providers must be prepared to manage psychiatric and psychosocial sequelae potentially associated with this population. Further elucidation of “severity” as a construct within veterans with MST-related PTSD is a vitally important direction for future research.

### **Limitations & Future Directions**

While care was taken to minimize confounding and mitigating factors, as with all research studies, the present study was not without limitations. The sample for this study was derived from a parent study aimed at longitudinally comparing Cognitive Processing Therapy with Present Centered Therapy in veterans with MST-related PTSD. As such, participants were not originally recruited with specific regard to the current variables of interest. Because of this, the present study faced two major issues related to the subject pool.

First, total incidence of previous sexual trauma was not directly quantifiable among the entire sample. This was due to an allowed response of “too many to count” on items aimed at determining participants’ total incidence of prior sexual trauma. As such, data from 28.1% ( $n = 36$ ) of the sample was excluded from analysis in the first study aim. As previously discussed, because excluded participants were potentially among those with the highest number of cumulative traumas, our results in this aim may not accurately reflect the total

sample. This potentially influenced the non-significance of our results and limits the generalizability of our findings in this aim. Future research in this area should seek to more specifically quantify participants' previous history of sexual trauma via more discriminate response categories (i.e. "one to ten," "ten to twenty," etc.) or requirement that participants provide exact estimations of lifetime trauma incidence.

Secondly, participants in this sample were highly traumatized. The majority of participants in the sample ( $n = 120$ , 93.8%) endorsed at least one sexually traumatic experience of the highest severity rating (i.e. "11") on the SAEQ. While this highlights the breadth and pervasiveness of severe sexual trauma among veterans with MST-related PTSD, the significant skew in the data made an accurate and applicable comparison impossible with regard to this variable. Because severe sexual trauma appears so wide-spread among this sample, future research is clearly warranted in this domain, and should strive to recruit a participant cohort with adequate variability in trauma severity.

With regard to the study sample, a third potential limitation is that the study deliberately included only veterans with MST-related PTSD. While this specific focus is unquestionably warranted, it potentially limits the generalizability of these findings to individuals outside of this unique cohort (i.e. veterans with combat-related PTSD, civilians with sexual trauma-related PTSD, etc.).

Another limitation of the current study is that analysis included only data collected at baseline assessment. Because of issues with treatment fidelity in the parent study (see Surís et al, 2013), longitudinal analysis of participant outcomes was beyond the scope of the current study. Because psychiatric symptomatology (specifically PTSD and depression) and quality of life outcomes are highly sensitive to the effects of time, future research should strive to examine these constructs longitudinally to assess implications over a wider spectrum of participants' life experiences.

A potential limitation is with regard to measurement of the study variables. While all of the measures used in this study are psychometrically sound, several (i.e. QIDS, SAEQ) rely on self-report. Self-report measures are well-known for their potential for bias. While it is unlikely that gold-standard measures such as these have impacted the results of the study, this is nevertheless an important topic for consideration in this and future studies.

A final limitation of the study was the comparatively small sample size of male participants. As discussed, this was due to changes in funding part-way through the study, which allowed for the inclusion of male participants. While analyses of demographic variables revealed no significant differences based on gender, the generalizability of our findings to male veterans with MST-related PTSD may be limited due to the underpowered size of the current sample. Furthermore, because of the unique psychiatric and psychosocial sequelae

associated with male survivors of MST (see Chapter 2), examination of these constructs within a more robust male sample is warranted. Future research should strive to recruit a more balanced study sample with regard to gender.

Finally, future research within these domains should incorporate comparative analysis of the effects of evidence-based treatments within this population. This comparison is likely to more directly determine the most important associated variables in assessing patient symptomatology, planning treatment, and evaluating treatment outcomes in this unique patient population. This kind of investigation is also likely to inform novel approaches to the treatment of MST-related PTSD that focus more succinctly on the wide range of individual characteristics within this cohort.

### **Summary and Implications**

Despite the limitations of this study, the results suggest several notable findings among veterans with MST-related PTSD. First, this study provides evidence that a history of CSA is significantly predictive of increased severity of depressive symptoms, in spite of an absence of such a relationship among other associated variables (i.e. PTSD symptoms and quality of life). This challenges long-held assumptions that individuals who experience CSA are likely to present with more severe psychiatric symptomatology and decreased quality of life, when compared to individuals without such a history. The present study demonstrates

that in veterans with MST-related PTSD, the *additive* effects of CSA are unlikely to significantly increase PTSD or depressive symptoms or decrease quality of life, above and beyond what may already be attributed to MST. It is therefore critically important that mental health providers are keenly attuned to *specific* psychiatric symptoms and presentation (i.e. depression), rather than relying on more *global* assessments of functioning to inform treatment.

Furthermore, this study qualitatively demonstrates that veterans with MST-related PTSD are likely to have experienced severe sexual trauma. While more research is needed to examine the specific implications of trauma severity in veterans in this population, our study suggests that severe sexually traumatic experiences are likely to be common among individuals in this cohort, and mental health professionals should be prepared to effectively assess and treat the unique sequelae associated with a history of severe sexual trauma.

Conversely, the results of this study indicate that total incidence of sexual trauma may be less impactful on psychiatric and psychosocial outcomes than previously thought. This is notable because health care providers may approach patients in this population with the assumption that increased sexual trauma incidence is synonymous with poorer outcomes in these domains. Our results underscore the importance of focusing on individual considerations in treatment, often in spite of historically assumed and evidence based best practices.

Finally, the results of this study demonstrate the fundamental need for more extensive research into discrete and specific sequelae of MST-related PTSD across a broad range of domains. Our findings further suggest that greater variability within the sample (i.e. trauma severity and gender) is an important next step for researchers investigating outcomes within this population. Future research should also include more direct comparisons of the impact of evidence-based treatment in similar samples, as well as investigations of novel approaches to treatment of PTSD and associated issues. To date, the majority of sexual trauma literature has focused primarily on civilian trauma, and comparatively few studies have specifically examined psychiatric and quality of life sequelae in Veterans with MST. More elucidated understanding of MST-related PTSD and its associated psychiatric and psychosocial implications is paramount in targeting future therapeutic interventions to the specific needs of this increasingly visible and diverse population.

**APPENDIX A**  
**Tables**

Table 1: *Demographic Data*

<b>Continuous Variables</b>	<b><i>M</i></b>	<b><i>SD</i></b>	<b>Range</b>
Age	45.82	9.15	24 – 68
Education (years)	14.25	2.09	10 – 20
Cumulative Trauma Exposure <sup>§</sup>	8.35	14.24	1 – 85
<b>Categorical Variables</b>	<b><i>n</i></b>	<b>%</b>	
Gender			
Female	113	88.3	
Male	15	11.7	
Ethnicity			
White, Non-Hispanic	50	39.1	
African-American, Non-Hispanic	54	42.2	
Hispanic	7	5.5	
American Indian/Alaskan Native	4	3.1	
Native Hawaiian/Pacific Islander	2	1.6	
Other	11	8.6	
Service Branch			
Air Force	25	19.5	
Army	64	50.0	
Marines	7	5.5	
Navy	29	22.7	
Other	3	2.3	
Marital Status			
Never Married	14	10.9	
Married	28	21.9	
Cohabiting	5	3.9	
Separated	17	13.3	
Divorced	57	44.5	
Widowed	7	5.5	

<sup>§</sup>Descriptive analysis conducted on included sub-sample ( $n = 92$ ). See table 4 for demographic comparisons of included and excluded groups.

Table 2: Means, Standard Deviations, and Ranges of Outcome Variables

<b>Variable</b>	<b><i>M</i></b>	<b><i>SD</i></b>	<b>Range</b>
QOLI Total Score	26.80	15.79	0 – 64
QIDS Total Score	16.20	5.05	2 – 27
CAPS Total Score	84.74	14.98	49 – 115
CAPS Frequency & Intensity Scores <sup>§</sup>			
CAPS-B	22.88	6.38	6 – 36
CAPS-C	34.67	7.56	6 – 47
CAPS-D	26.62	5.39	10 – 36

<sup>§</sup>Abbreviations for CAPS Frequency and Intensity Scores: Criterion B: Re-experiencing (B); Criterion C: Avoidance/Numbing (C); Criterion D: Hyper-arousal (D)

Table 3: *Comparisons of Descriptive Data and Outcome Measures*

Variables	Gender	Ethnicity	Service Branch	Marital Status	Age	Education
	$\chi^2, t, \text{ or } F (p)$					
Gender	n/a	5.101 (0.078)	2.928 (.570)	6.716 (.243)	-.770 (.443)	1.826 (.070)
Ethnicity	5.101 (0.078)	n/a	30.737 (.162)	23.986 (.773)	.544 (.766)	.190 (.979)
Service Branch	2.928 (.570)	30.737 (.162)	n/a	14.665 (.795)	.738 (.568)	1.785 (.136)
Marital Status	6.716 (.243)	23.986 (.773)	14.665 (.795)	n/a	1.944 (.092)	.695 (.628)
Age	-.770 (.443)	.544 (.766)	.738 (.568)	1.944 (.092)	n/a	.630 (.770)
Education	1.826 (.070)	.190 (.979)	1.785 (.136)	.695 (.628)	.630 (.770)	n/a
QIDS	.491 (.625)	.812 (.562)	.709 (.587)	.780 (.566)	1.284 (.170)	.710 (.699)
QOLI	.261 (.794)	.651 (.690)	1.096 (.361)	.634 (.674)	.890 (.647)	.944 (.490)
CAPS Total	-.822 (.413)	.643 (.695)	1.709 (.152)	.381 (.861)	.948 (.560)	1.328 (.230)
CAPS-B <sup>§</sup>	-1.067 (.288)	.994 (.432)	1.083 (.368)	1.072 (.379)	.857 (.695)	1.793 (.077)
CAPS-C <sup>§</sup>	-.942 (.348)	.911 (.490)	.226 (.923)	.507 (.771)	.953 (.554)	.755 (.658)
CAPS-D <sup>§</sup>	-.139 (.889)	.804 (.569)	2.985 (.122)	.171 (.973)	.808 (.763)	1.039 (.414)

<sup>§</sup>Abbreviations for CAPS Frequency and Intensity Scores: Criterion B: Re-experiencing (B); Criterion C: Avoidance/Numbing (C); Criterion D: Hyper-arousal (D)

Table 4: Comparisons of Descriptive Data in Included &amp; Excluded Groups (Aim 1)

Continuous Variables	Included in Total Trauma		Excluded from Total Trauma		<i>t</i> ( <i>p</i> )
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	45.28	9.53	47.19	8.07	1.063 (.290)
Education (years)	14.13	2.00	14.56	2.29	1.036 (.302)
Categorical Variables	<i>n</i>	%	<i>n</i>	%	$\chi^2$ ( <i>p</i> )
Gender					.555 (.456)
Female	80	87.0	33	91.7	
Male	12	13.0	3	8.3	
Ethnicity					5.753 (.451)
White, Non-Hispanic	35	38.0	15	41.7	
African-American, Non-Hispanic	42	45.7	12	33.3	
Hispanic	4	4.3	3	8.4	
American Indian/Alaskan Native	2	2.2	2	5.6	
Native Hawaiian/Pacific Islander	2	2.2	0	0	
Other	7	7.6	4	11.1	
Service Branch					3.135 (.536)
Air Force	17	18.5	8	22.2	
Army	47	51.1	17	47.2	
Marines	6	6.5	1	2.8	
Navy	21	22.8	8	22.2	
Other	1	1.1	2	5.6	
Marital Status					5.091 (.405)
Never Married	11	12.0	3	8.3	
Married	16	17.4	12	33.3	
Cohabiting	3	3.3	2	5.6	
Separated	12	13.0	5	13.9	
Divorced	45	48.9	12	33.3	
Widowed	5	5.4	2	5.6	

Table 5: Comparison of Descriptive Data among Participants With and Without CSA Exposure (Aim 2)

Continuous Variables	CSA exposure		No CSA exposure		<i>t</i> ( <i>p</i> )
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	46.22	9.05	45.13	9.39	-.651 (.516)
Education (years)	14.20	2.09	14.34	2.10	.372 (.711)
Categorical Variables	<i>n</i>	%	<i>n</i>	%	$\chi^2$ ( <i>p</i> )
Gender					.084 (.772)
Female	71	87.7	42	89.4	
Male	10	12.3	5	10.6	
Ethnicity					7.79 (.253)
White, Non-Hispanic	37	45.7	13	27.7	
African-American, Non-Hispanic	30	37.0	24	51.1	
Hispanic	3	3.7	4	8.5	
American Indian/Alaskan Native	3	3.7	1	2.1	
Native Hawaiian/Pacific Islander	2	2.5	0	0	
Other	6	7.4	5	10.6	
Service Branch					2.83 (.586)
Air Force	16	19.8	9	19.1	
Army	42	51.9	22	46.8	
Marines	4	4.9	3	6.4	
Navy	16	19.8	13	27.7	
Other	3	3.7	0	0	
Marital Status					8.06 (.153)
Never Married	6	7.4	8	17.0	
Married	16	19.8	12	25.5	
Cohabiting	4	4.9	1	2.1	
Separated	10	12.3	7	14.9	
Divorced	38	46.9	19	40.4	
Widowed	7	8.6	0	0	

Table 6: Comparisons of Descriptive Data among Participants with “High” and “Low” Trauma Severity (Aim 3)

Continuous Variables	Trauma Severity (“Low”)		Trauma Severity (“High”)		<i>t</i> ( <i>p</i> )
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	40.25	7.83	46.19	9.14	-1.79 (.572)
Education (years)	14.00	1.85	14.27	2.11	-.348 (.501)
Categorical Variables	<i>n</i>	%	<i>n</i>	%	$\chi^2$ ( <i>p</i> )
Gender					1.133 (.287)
Female	8	100.0	105	87.5	
Male	0	0	15	12.5	
Ethnicity					2.44 (.875)
White, Non-Hispanic	3	37.5	47	39.2	
African-American, Non-Hispanic	5	62.5	49	40.8	
Hispanic	0	0	7	5.8	
American Indian/Alaskan Native	0	0	4	3.3	
Native Hawaiian/Pacific Islander	0	0	2	1.7	
Other	0	0	11	9.2	
Service Branch					3.04 (.552)
Air Force	3	37.5	22	18.3	
Army	3	37.5	61	50.8	
Marines	1	12.5	6	5.0	
Navy	1	12.5	28	23.3	
Other	0	0	3	2.5	
Marital Status					4.64 (.461)
Never Married	1	12.5	13	10.8	
Married	4	50.0	24	20.0	
Cohabiting	0	0	5	4.2	
Separated	1	12.5	16	13.3	
Divorced	2	25.0	55	45.8	
Widowed	0	0	7	5.8	

Table 7: *Linear Regression Analyses of Cumulative Trauma History as a Predictor of Outcomes (Aim 1)*

<b>Dependent Variables</b>	<b>B</b>	<b>SE</b>	<b><math>\beta</math></b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>p</b>
QIDS (total score)	.735	1.086	.071	.005	.458	.500
CAPS						
Total PTSD Severity Score	2.039	2.986	.072	.005	.466	.496
Frequency/Intensity Scores						
Re-experiencing	.364	1.282	.030	.001	.081	.777
Avoidance/Numbing	2.503	1.604	.162	.026	2.435	.122
Hyperarousal	.341	1.130	.032	.001	.091	.763
QOLI (total score)	-5.505	3.315	-.172	.030	2.759 <sup>†</sup>	.100

<sup>†</sup> $p < .10$

Table 8: *Categorical Linear Regression Analyses of Temporal Type of Trauma as a Predictor of Outcomes (Aim 2)*

<b>Dependent Variables</b>	<b>B</b>	<b>SE</b>	<b><math>\beta</math></b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>p</b>
QIDS (total score)	2.204	.909	.211	.045	5.875*	.017
CAPS						
Total PTSD Severity Score	1.341	2.756	.043	.002	.237	.627
Frequency/Intensity Scores						
Re-experiencing	.723	1.173	.055	.003	.380	.539
Avoidance/Numbing	-.787	1.390	-.050	.003	.321	.572
Hyperarousal	.505	.991	.045	.002	.259	.612
QOLI (total score)	-4.101	2.870	-.126	.016	2.042	.155

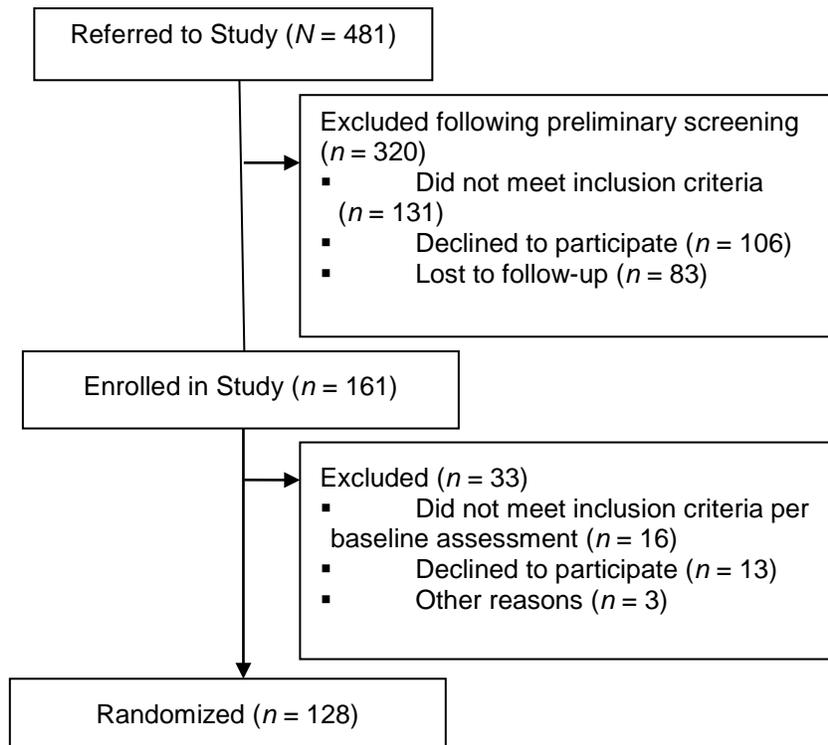
\* $p < .05$

Table 9: *Categorical Linear Regression Analyses of Qualitative Trauma Severity as a Predictor of Outcomes (Aim 3)*

<b>Dependent Variables</b>	<b><i>B</i></b>	<b><i>SE</i></b>	<b><math>\beta</math></b>	<b><math>R^2</math></b>	<b><i>F</i></b>	<b><i>p</i></b>
QIDS (total score)	2.350	1.841	.113	.013	1.630	.204
CAPS						
Total PTSD Severity Score	-.675	5.492	-.011	.000	.015	.902
Frequency/Intensity Scores						
Re-experiencing	.942	2.337	.036	.001	.162	.688
Avoidance/Numbing	-1.417	2.769	-.046	.002	.262	.610
Hyperarousal	-.808	1.974	-.036	.001	.168	.683
QOLI (total score)	-1.358	5.760	-.021	.000	.056	.814

**APPENDIX B**  
**Figures**

Figure 1: *CONSORT Flow Chart*



**APPENDIX C**  
**Full PTSD Criteria: DSM 5**  
**(American Psychiatric Association, 2013)**

A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:

1. Directly experiencing the traumatic event(s).
2. Witnessing (in person) the event(s) as it occurred to others.
3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse).

**Note:** Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

**Note:** In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.

2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).

**Note:** In children, there may be frightening dreams without recognizable content.

3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)

**Note:** In children, trauma-specific reenactment may occur in play.

4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
5. Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

- C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:
1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
  2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
- D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).
  2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., “I am bad,” “No one can be trusted,” “The world is completely dangerous,” “My whole nervous system is permanently ruined”).

3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.
  4. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).
  5. Markedly diminished interest or participation in significant activities.
  6. Feelings of detachment or estrangement from others.
  7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).
- E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.
  2. Reckless or self-destructive behavior.
  3. Hypervigilance
  4. Exaggerated startle response
  5. Problems with concentration

6. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).
- F. Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.
  - G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
  - H. The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.

*Specify whether:*

**With dissociative symptoms:** The individual's symptoms meet the criteria for posttraumatic stress disorder, and in addition, in response to the stressor, the individual experiences persistent or recurrent symptoms of either of the following:

1. **Depersonalization:** Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality or self or body or time moving slowly).

2. **Derealization:** Persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted).

**Note:** To use this subtype, the dissociative symptoms must not be attributable to the physiological effects of a substance (e.g., blackouts) or another medical condition (e.g., complex partial seizures).

*Specify if:*

**With delayed expression:** If the full diagnostic criteria are not met until at least 6 months after the event (although the onset and expression of some symptoms may be immediate).

## APPENDIX D

### Additional Detail for Variables of Interest (by Aim/Hypothesis)

#### Independent Variables (By Aim)

<b>Aim 1:</b> <i>This study seeks to examine the relationship between cumulative history of sexual trauma and perceived quality of life, symptoms of Posttraumatic Stress Disorder (PTSD), and depression comorbidity among Veterans who have experienced Military Sexual Trauma (MST).</i>		
Measure	Variables	Score Range
Clinical Interview Questions	1. Cumulative history of sexual trauma	0 - ∞
<b>Aim 2:</b> <i>This study seeks to examine the relationship between temporal type of sexual trauma (childhood or adult) and perceived quality of life, symptoms of PTSD, and symptoms of depression among the Veteran cohort.</i>		
Measure	Variables	Score Range
SAEQ	1. History of childhood sexual trauma 2. No history of childhood sexual trauma	n/a
<b>Aim 3:</b> <i>This study seeks to examine the relationship between sexual trauma severity and perceived quality of life, symptoms of depression, and symptoms of PTSD among the Veteran cohort.</i>		
Measure	Variables	Score Range
SAEQ	1. Trauma Severity (“Low” or “High”)	0 (none) to 11 (most severe) Bifurcated

#### Dependent Variables (All Aims)

Construct	Measure	Variables	Score Range
Quality of Life	QOLI	1. Total Score	0 to 77
PTSD Symptom Severity	CAPS	1. Total PTSD Severity Score 2. Frequency/Intensity Scores 2a. Re-experiencing 2b. Avoidance/Numbing 2c. Hyperarousal	0 to 136 0 to 40 0 to 56 0 to 40
Depression Symptom Severity	QIDS SR-16	1. Total Score (Continuous)	0 to 5 (None) 6 to 10 (Mild) 11 to 15 (Moderate) 16 to 20 (Severe) 21 to 27 (Very Severe)

**APPENDIX E**  
**SAEQ Items**

	Child	Adult	Military
1. Did a person ever expose his/her genitals to you or disrobe in front of you in a manner which made you uncomfortable?	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____
2. Did a person ever observe you doing personal activities such as undressing, bathing, excreting, or urinating in a manner which made you uncomfortable?	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____
3. Did a person ever have you pose in a sexual manner or have you disrobe for him or her?	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____
4. Did a person ever fondle you, for example kissing you in a lingering, intimate manner or touching you in an intimate area such as the chest, abdomen, genital area, inner thighs, or buttocks, including touching over the clothes?	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____
5. Did a person ever have you observe sexual acts such as intercourse or masturbation?	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____
6. Did a person ever have you manually stimulate his or her genital area?	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____	a) ____ b) ____, ____, ____, ____, ____, ____ c) ____ d) ____

7. Did a person ever have you orally stimulate his or her genital area?	a) _____ b) _____, _____, _____ c) _____ d) _____	a) _____ b) _____, _____, _____, _____, _____, _____ c) _____ d) _____	a) _____ b) _____, _____, _____ _____, _____, _____ c) _____ d) _____
8. Did a person ever manually or orally stimulate your genital area?	a) _____ b) _____, _____, _____, _____, _____, _____ c) _____ d) _____	a) _____ b) _____, _____, _____, _____, _____, _____ c) _____ d) _____	a) _____ b) _____, _____, _____, _____, _____, _____ c) _____ d) _____
9. Did a person ever insert his or her finger(s), or other object(s) into your rectal opening?	a) _____ b) _____, _____, _____, _____, _____, _____ c) _____ d) _____	a) _____ b) _____, _____, _____, _____, _____, _____ c) _____ d) _____	a) _____ b) _____, _____, _____, _____, _____, _____ c) _____ d) _____
10. Did a person ever insert his penis into your rectal opening?	a) _____ b) _____, _____, _____, _____, _____, _____ c) _____ d) _____	a) _____ b) _____, _____, _____, _____, _____, _____ c) _____ d) _____	a) _____ b) _____, _____, _____, _____, _____, _____ c) _____ d) _____
11. Did a person every insert his penis into your genital area?	a) _____ b) _____, _____, _____, _____, _____, _____ c) _____ d) _____	a) _____ b) _____, _____, _____, _____, _____, _____ c) _____ d) _____	a) _____ b) _____, _____, _____, _____, _____, _____ c) _____ d) _____

**APPENDIX F**  
**Questions adapted from the National Violence Against Women Survey**  
**(Tjaden & Thoennes, 2000)**

Version for Male Participants:

Another type of stressful event that many people have experienced is unwanted sexual advances. People do not always report such experiences to the police or discuss them with family or friends. The person making the advances isn't always a stranger, but can be a friend, boyfriend or girlfriend, or even a family member. Such experiences can occur anytime in a person's life -- even as a child, regardless of how long ago it happened or who made the advances.

**DIRECTIONS:** Listed below are several types of unwanted sexual advances that sometimes happen to people. For each event, mark either the first column to indicate that it (A), happened to you personally or the last column (F), if it did not happen to you. For each event that happened to you personally, please indicate the (B), number of times it happened, (C), your age at the time the event happened, (D), your marital status and (E), level of education when the event happened. *Be sure to consider your entire life (growing up as well as adulthood) as you go through the list of events.*

Event	A	B	C	D	E	F
	Happened to me-YES	# of times	Age at time of Event	Marital Status at Time of Event	Educ. Level at Time of Event	Did not happen to me-NO
(1) <i>Has anyone ever made you have oral sex by force or threat of harm? Just so there is no mistake, by oral sex we mean that a man or boy put his penis in your mouth or someone put your penis in his or her mouth or penetrated your anus with their mouth or tongue.</i>						

<i>(2) Has anyone ever made you have anal sex by force or threat of harm?</i>						
<i>(3) Has anyone ever put fingers or objects in your anus against your will by using force or threats?</i>						

### Version for Female Participants:

Another type of stressful event that many women have experienced is unwanted sexual advances. Women do not always report such experiences to the police or discuss them with family or friends. The person making the advances isn't always a stranger, but can be a friend, boyfriend, or even a family member. Such experiences can occur anytime in a woman's life -- even as a child, regardless of how long ago it happened or who made the advances.

**DIRECTIONS:** Listed below are several types of unwanted sexual advances that sometimes happen to people. For each event, mark either the first column to indicate that it (A), happened to you personally or the last column (F), if it did not happen to you. For each event that happened to you personally, please indicate the (B), number of times it happened, (C), your age at the time the event happened, (D), your marital status and (E), level of education when the event happened. *Be sure to consider your entire life (growing up as well as adulthood) as you go through the list of events.*

Event	A	B	C	D	E	F
	Happened to me-YES	# of times	Age at time of Event	Marital Status at Time of Event	Educ. Level at Time of Event	Did not happen to me-NO
<i>(1) Has a man or a boy ever made you have sex by <u>using force</u> or threatening to harm you or someone close to you? Just so there is no mistake, by sex we mean putting a penis in your vagina</i>						

<p><i>(2) Has anyone ever made you have oral sex by force or threat of harm? Just so there is no mistake, by oral sex we mean that a man or boy put his penis in your mouth or someone penetrated your vagina or anus with their mouth or tongue.</i></p>						
<p><i>(3) Has anyone ever made you have anal sex by force or threat of harm?</i></p>						
<p><i>(4) Has anyone ever put fingers or objects in your vagina or anus against your will by using force or threats?</i></p>						

## REFERENCES

- Aaron, D. J., & Hughes, T. L. (2007). Association of childhood sexual abuse with obesity in a community sample of lesbians. *Obesity, 15*(4), 1023–1028.
- Andrews, F. M., & Inglehart, R. F. (1979). The structure of subjective well-being in nine western societies. *Social Indicators Research, 6*(1), 73–90.
- Andrews, F. M., & Withey, S. B. (1976). Social indicators of well-being: Americans' perceptions of life quality.
- Angermeyer, M. C., & Kilian, R. (1997). Theoretical models of quality of life for mental disorders. *Quality of Life in Mental Disorders. New York: Wiley*, 19–30.
- American Psychiatric Association (2015). *Diagnostic and statistical manual of mental disorders* (5<sup>th</sup> ed.). Washington, D.C.
- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4<sup>th</sup> ed., text revision). Washington, D.C.
- American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders* (3<sup>rd</sup> ed.). Washington, D.C.
- Barlas, F. M., Higgins, W. B., Pflieger, J. C., & Diecker, K. (2013). *2011 Health Related Behaviors Survey of Active Duty Military Personnel*. DTIC Document.
- Barrera, T. L., Graham, D. P., Dunn, N. J., & Teng, E. J. (2013). Influence of trauma history on panic and posttraumatic stress disorder in returning veterans. *Psychological Services, 10*(2), 168–76.
- Black, D. A., Heyman, R. E., & Smith Slep, A. M. (2001). Risk factors for male-to-female partner sexual abuse. *Aggression and Violent Behavior, 6*(2), 269–280.
- Black, D. W., Carney, C. P., Forman-Hoffman, V. L., Letuchy, E., Peloso, P., Woolson, R. F., & Doebbeling, B. N. (2004). Depression in veterans of the first Gulf War and comparable military controls. *Annals of Clinical Psychiatry, 16*(2), 53–61.

- Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Klauminzer, G., Charney, D. S., & Keane, T. M. (1990). A clinician rating scale for assessing current and lifetime PTSD: The CAPS-1. *Behavior Therapist, 13*(8), 187–188.
- Brandes, D., Ben-Schachar, G., Gilboa, A., Bonne, O., Freedman, S., & Shalev, A. Y. (2002). PTSD symptoms and cognitive performance in recent trauma survivors. *Psychiatry Research, 110*(3), 231–8.
- Bremner, J. D., Scott, T. M., Delaney, R. C., Southwick, S. M., Mason, J. W., Johnson, D. R., ... Charney, D. S. (1993). Deficits in short-term memory in posttraumatic stress disorder. *The American Journal of Psychiatry, 150*(10), 1377–1381.
- Bremner, J. D., Vermetten, E., Afzal, N., & Vythilingam, M. (2004). Deficits in verbal declarative memory function in women with childhood sexual abuse-related posttraumatic stress disorder. *The Journal of Nervous and Mental Disease, 192*(10), 643–649.
- Breslau, N. (2002). Epidemiologic studies of trauma, posttraumatic stress disorder, and other psychiatric disorders. *Canadian Journal of Psychiatry, Revue Canadienne de Psychiatrie, 47*(10), 923–9.
- Breslau, N., Davis, G. C., Andreski, P., & Peterson, E. (1991). Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Archives of General Psychiatry, 48*(3), 216–222.
- Breslau, N., Davis, G. C., Andreski, P., Peterson, E. L., & Schultz, L. R. (1997). Sex differences in posttraumatic stress disorder. *Archives of General Psychiatry, 54*(11), 1044–1048.
- Breslau, N., Davis, G. C., Peterson, E. L., & Schultz, L. R. (2000). A second look at comorbidity in victims of trauma: the posttraumatic stress disorder-major depression connection. *Biological Psychiatry, 48*(9), 902–9.
- Breslau, N., Davis, G. C., Peterson, E. L., & Schultz, L. (1997). Psychiatric sequelae of posttraumatic stress disorder in women. *Archives of General Psychiatry, 54*(1), 81–87.
- Breslau, N., Kessler, R. C., Chilcoat, H. D., Schultz, L. R., Davis, G. C., & Andreski, P. (1998). Trauma and posttraumatic stress disorder in the

- community: the 1996 Detroit Area Survey of Trauma. *Archives of General Psychiatry*, 55(7), 626–632.
- Bright, C. L., & Bowland, S. E. (2008). Assessing interpersonal trauma in older adult women. *Journal of Loss and Trauma*, 13(4), 373–393.
- Bruce, S. E., Weisberg, R. B., Dolan, R. T., Machan, J. T., Kessler, R. C., Manchester, G., ... Keller, M. B. (2001). Trauma and posttraumatic stress disorder in primary care patients. *Primary Care Companion to the Journal of Clinical Psychiatry*, 3(5), 211.
- Burns, B., Grindlay, K., Holt, K., Manski, R., & Grossman, D. (2014). Military sexual trauma among US servicewomen during deployment: a qualitative study. *American Journal of Public Health*, 104(2), 345–9.
- Campbell, D. G., Felker, B. L., Liu, C.-F., Yano, E. M., Kirchner, J. E., Chan, D., ... Chaney, E. F. (2007). Prevalence of depression–PTSD comorbidity: Implications for clinical practice guidelines and primary care-based interventions. *Journal of General Internal Medicine*, 22(6), 711–718.
- Campbell, J. C. (2002). Health consequences of intimate partner violence. *The Lancet*, 359(9314), 1331–1336.
- Chartier, M. J., Walker, J. R., & Naimark, B. (2009). Health risk behaviors and mental health problems as mediators of the relationship between childhood abuse and adult health. *American Journal of Public Health*, 99(5), 847.
- Charuvastra, A., & Cloitre, M. (2008). Social bonds and posttraumatic stress disorder. *Annual Review of Psychology*, 59, 301.
- Cloitre, M., Stolbach, B. C., Herman, J. L., Kolk, B. van der, Pynoos, R., Wang, J., & Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress*, 22(5), 399–408.
- Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*. Routledge Academic.
- Cohen, L. R., Hien, D. A., & Batchelder, S. (2008). The impact of cumulative maternal trauma and diagnosis on parenting behavior. *Child Maltreatment*, 13(1), 27–38.

- Coker, A. L., Davis, K. E., Arias, I., Desai, S., Sanderson, M., Brandt, H. M., & Smith, P. H. (2002). Physical and mental health effects of intimate partner violence for men and women. *American Journal of Preventive Medicine*, 23(4), 260–268.
- Cook, J. M., Riggs, D. S., Thompson, R., Coyne, J. C., & Sheikh, J. I. (2004). Posttraumatic stress disorder and current relationship functioning among World War II ex-prisoners of war. *Journal of Family Psychology*, 18(1), 36.
- Creech, S. K., & Borsari, B. (2014). Alcohol use, military sexual trauma, expectancies, and coping skills in women veterans presenting to primary care. *Addictive Behaviors*, 39(2), 379–85.
- Dalgleish, T., Rolfe, J., Golden, A.-M., Dunn, B. D., & Barnard, P. J. (2008). Reduced autobiographical memory specificity and posttraumatic stress: exploring the contributions of impaired executive control and affect regulation. *Journal of Abnormal Psychology*, 117(1), 236.
- Davidson, J. R. T., & Foa, E. B. (1991). Diagnostic issues in posttraumatic stress disorder: Considerations for the DSM-IV. *Journal of Abnormal Psychology*, 100(3), 346.
- Dekel, R., & Solomon, Z. (2006). Marital relations among former prisoners of war: Contribution of posttraumatic stress disorder, aggression, and sexual satisfaction. *Journal of Family Psychology*, 20(4), 709.
- Department of Veterans Affairs, Department of the Actuary. (2014). Veteran Population Projection Model (VetPop).
- DiLillo, D.K., Hayes-Skelton, S.A, Fortier, M.A., Perry, A.R., Evans, S.E., Messman Moore, T.L., Walsh, K., Nash, C., & Fauchier, A. (2010). Development and Initial Psychometric Properties of the Computer Assisted Maltreatment Inventory (CAMI): A Comprehensive Self-Report Measure of Child Maltreatment History. *Faculty Publications, Department of Psychology*. Paper 577.
- DeRubeis, R. J., Hollon, S. D., Amsterdam, J. D., Shelton, R. C., Young, P. R., Salomon, R. M., ... Brown, L. L. (2005). Cognitive therapy vs medications in the treatment of moderate to severe depression. *Archives of General Psychiatry*, 62(4), 409–416.

- Destefano, F. (1988). Health-status of vietnam veterans. 1. Psychosocial characteristics. *Journal of the American Medical Association*, 259(18), 2701–2707.
- Donders, A. R. T., van der Heijden, G. J., Stijnen, T., & Moons, K. G. (2006). Review: a gentle introduction to imputation of missing values. *Journal of clinical epidemiology*, 59(10), 1087-1091.
- Dube, S. R., Anda, R. F., Whitfield, C. L., Brown, D. W., Felitti, V. J., Dong, M., & Giles, W. H. (2005). Long-term consequences of childhood sexual abuse by gender of victim. *American Journal of Preventive Medicine*, 28(5), 430–438.
- Ehlers, A., & Steil, R. (1995). Maintenance of intrusive memories in posttraumatic stress disorder: A cognitive approach. *Behavioural and Cognitive Psychotherapy*, 23(03), 217–249.
- Elhai, J. D., Biehn, T. L., Armour, C., Klopper, J. J., Frueh, B. C., & Palmieri, P. A. (2011). Evidence for a unique PTSD construct represented by PTSD's D1–D3 symptoms. *Journal of Anxiety Disorders*, 25(3), 340–345.
- Elliott, D. M. (1997). Traumatic events: prevalence and delayed recall in the general population. *Journal of Consulting and Clinical Psychology*, 65(5), 811.
- Fichtner, C. G., Poddig, B. E., & de Vito, R. A. (1997). Post-Traumatic Stress Disorder. *CNS Drugs*, 8(4), 293–322.
- Fleming, J., Mullen, P. E., Sibthorpe, B., & Bammer, G. (1999). The long-term impact of childhood sexual abuse in Australian women. *Child Abuse & Neglect*, 23(2), 145–159.
- Foa, E. B., Riggs, D. S., & Gershuny, B. S. (1995). Arousal, numbing, and intrusion: Symptom structure of PTSD following assault. *The American Journal of Psychiatry*.
- Follette, V., & Polusny, M. (1996). Cumulative Trauma: The Impact of Child Sexual Abuse, Adult Sexual Assault, and Spouse Abuse. *Journal of Traumatic Stress*, 9, 1996.

- Fortier, M. a., DiLillo, D., Messman-Moore, T. L., Peugh, J., DeNardi, K. a., & Gaffey, K. J. (2009). Severity of Child Sexual Abuse and Revictimization: the Mediating Role of Coping and Trauma Symptoms. *Psychology of Women Quarterly*, 33(3), 308–320.
- Friedman, M. J., Resick, P. A., Bryant, R. A., & Brewin, C. R. (2011). Considering PTSD for DSM-5. *Depression and Anxiety*, 28(9), 750–769.
- Frisch, M. B. (1994). *QOLI: Quality of Life Inventory: Manual and Treatment Guide*. Pearson.
- Gersons, B. P., & Carlier, I. V. (1992). Post-traumatic stress disorder: the history of a recent concept. *The British Journal of Psychiatry*, 161(6), 742–748.
- Goff, B. S. N., Crow, J. R., Reisbig, A. M. J., & Hamilton, S. (2007). The impact of individual trauma symptoms of deployed soldiers on relationship satisfaction. *Journal of Family Psychology*, 21(3), 344.
- Golier, J., & Yehuda, R. (2002). Neuropsychological processes in post-traumatic stress disorder. *Psychiatric Clinics of North America*, 25(2), 295–315.
- Green, J. G., McLaughlin, K. A., Berglund, P. A., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2010). Childhood adversities and adult psychiatric disorders in the national comorbidity survey replication I: associations with first onset of DSM-IV disorders. *Archives of General Psychiatry*, 67(2), 113–123.
- Grover, K. E., Carpenter, L. L., Price, L. H., Gagne, G. G., Mello, A. F., Mello, M. F., & Tyrka, A. R. (2007). The relationship between childhood abuse and adult personality disorder symptoms. *Journal of Personality Disorders*, 21(4), 442–447.
- Hamilton, M. (1960). A rating scale for depression. *Journal of Neurology, Neurosurgery, and Psychiatry*, 23(1), 56.
- Hankin, C. S., Spiro, A., Miller, D. R., & Kazis, L. (1999). Mental disorders and mental health treatment among US Department of Veterans Affairs outpatients: the Veterans Health Study. *American Journal of Psychiatry*, 156(12), 1924–1930.

- Hansson, L. (2002). Quality of life in depression and anxiety. *International Review of Psychiatry*, *14*(3), 185–189.
- Heins, M., Simons, C., Lataster, T., Pfeifer, S., Versmissen, D., Lardinois, M., ... van Os, J. (2011). Childhood trauma and psychosis: a case-control and case-sibling comparison across different levels of genetic liability, psychopathology, and type of trauma. *American Journal of Psychiatry*, *168*(12), 1286–1294.
- Hofmann, S. G., Litz, B. T., & Weathers, F. W. (2003). Social anxiety, depression, and PTSD in Vietnam veterans. *Journal of Anxiety Disorders*, *17*(5), 573–582.
- Hoge, C., Terhakopian, A., Castro, C., Messer, S., & Engel, C. (2007). Association of posttraumatic stress disorder with somatic symptoms, health care visits, and absenteeism among Iraq war veterans. *American Journal of Psychiatry*, *164*(1), 150–153.
- Holbrook, T. L., Hoyt, D. B., Stein, M. B., & Sieber, W. J. (2001). Perceived threat to life predicts posttraumatic stress disorder after major trauma: risk factors and functional outcome. *Journal of Trauma-Injury, Infection, and Critical Care*, *51*(2), 287–293.
- Holmes, E. A., Brewin, C. R., & Hennessy, R. G. (2004). Trauma films, information processing, and intrusive memory development. *Journal of Experimental Psychology: General*, *133*(1), 3.
- Howard, D. E., & Wang, M. Q. (2005). Psychosocial correlates of US adolescents who report a history of forced sexual intercourse. *Journal of Adolescent Health*, *36*(5), 372–379.
- Hulme, P. A. (2000). Symptomatology and health care utilization of women primary care patients who experienced childhood sexual abuse. *Child Abuse & Neglect*, *24*(11), 1471–1484.
- Iverson, K. M., Mercado, R., Carpenter, S. L., & Street, A. E. (2013). Intimate partner violence among women veterans: Previous interpersonal violence as a risk factor. *Journal of Traumatic Stress*, *26*(6), 767–771.
- Jonas, S., Bebbington, P., McManus, S., Meltzer, H., Jenkins, R., Kuipers, E., ... Brugha, T. (2011). Sexual abuse and psychiatric disorder in England: results

- from the 2007 Adult Psychiatric Morbidity Survey. *Psychological Medicine*, 41(04), 709–719.
- Kang, H. K., Natelson, B. H., Mahan, C. M., Lee, K. Y., & Murphy, F. M. (2003). Post-traumatic stress disorder and chronic fatigue syndrome-like illness among Gulf War veterans: a population-based survey of 30,000 veterans. *American Journal of Epidemiology*, 157(2), 141–148.
- Kaplan, R. M. (2003). The significance of quality of life in health care. *Quality of Life Research*, 12(1), 3–16.
- Katschnig, H. (2006). Quality of life in mental disorders: challenges for research and clinical practice. *World Psychiatry*, 5(3), 139.
- Keane, T. M., Brief, D. J., Pratt, E. M., & Miller, M. W. (2007). Assessment of PTSD and its comorbidities in adults. *Handbook of PTSD: Science and Practice*, 279–305.
- Keane, T. M., Caddell, J. M., & Taylor, K. L. (1988). Mississippi Scale for Combat-Related Posttraumatic Stress Disorder: three studies in reliability and validity. *Journal of Consulting and Clinical Psychology*, 56(1), 85.
- Keane, T. M., & Wolfe, J. (1990). Comorbidity In Post-Traumatic Stress Disorder An Analysis of Community and Clinical Studies1. *Journal of Applied Social Psychology*, 20(21), 1776–1788.
- Kertzman, S., Avital, A., Weizman, A., & Segal, M. (2014). Intrusive Trauma Recollections is Associated with Impairment of Interference Inhibition and Psychomotor Speed in PTSD. *Comprehensive Psychiatry*.
- Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*, 52(12), 1048–1060.
- Kessler, R., Chiu, W., Demler, O., & Walters, E. (2005). Prevalence, Severity, and Comorbidity of 12-Month DSM-IV Disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(June 2005).

- Kilpatrick, D. G., Edmunds, C. N., & Seymour, A. K. (1992). Rape in America: A report to the nation. Arlington, VA: National Victim Center & Medical University of South Carolina.
- Kilpatrick, D. G., Ruggiero, K. J., Acierno, R., Saunders, B. E., Resnick, H. S., & Best, C. L. (2003). Violence and risk of PTSD, major depression, substance abuse/dependence, and comorbidity: Results from the National Survey of Adolescents. *Journal of Consulting and Clinical Psychology, 71*(4), 692–700.
- Kimerling, R., Street, A. E., Pavao, J., Smith, M. W., Cronkite, R. C., Holmes, T. H., & Frayne, S. M. (2010). Military-related sexual trauma among Veterans Health Administration patients returning from Afghanistan and Iraq. *American Journal of Public Health, 100*(8), 1409–12.
- King, D. W., Leskin, G. A., King, L. A., & Weathers, F. W. (1998). Confirmatory factor analysis of the clinician-administered PTSD Scale: Evidence for the dimensionality of posttraumatic stress disorder. *Psychological Assessment, 10*(2), 90.
- Kulka, R. A., Schlenger, W. E., Fairbank, J. A., Hough, R. L., Jordan, B. K., Marmar, C. R., & Weiss, D. S. (1990). *Trauma and the Vietnam war generation: Report of findings from the National Vietnam Veterans Readjustment Study*. Brunner/Mazel.
- Laffaye, C., Cavella, S., Drescher, K., & Rosen, C. (2008). Relationships among PTSD symptoms, social support, and support source in veterans with chronic PTSD. *Journal of Traumatic Stress, 21*(4), 394–401.
- Laporte, L., Paris, J., Guttman, H., & Russell, J. (2011). Psychopathology, childhood trauma, and personality traits in patients with borderline personality disorder and their sisters. *Journal of Personality Disorders, 25*(4), 448–462.
- Magruder, K. M., Frueh, B. C., Knapp, R. G., Johnson, M. R., Vaughan, J. a, Carson, T. C., ... Hebert, R. (2004). PTSD symptoms, demographic characteristics, and functional status among veterans treated in VA primary care clinics. *Journal of Traumatic Stress, 17*(4), 293–301.

- Magruder, K. M., & Yeager, D. E. (2009). The prevalence of PTSD across war eras and the effect of deployment on PTSD: A systematic review and meta-analysis. *Psychiatric Annals*, *39*(8), 778.
- Mellman, T. A., Randolph, C. A., Brawman-Mintzer, O., Flores, L. P., & Milanes, F. J. (1992). Phenomenology and course of psychiatric disorders associated with combat-related posttraumatic stress disorder. *The American Journal of Psychiatry*, *149*(11), 1568-1574.
- Mendlowicz, M. V., & Stein, M. B. (2014). Quality of life in individuals with anxiety disorders. *The American Journal of Psychiatry*, *171*(5), 669-682.
- Miles, J. & Shevlin, M. (2001). *Applying regression and correlation: A guide for students and researchers*. New York, NY: Sage.
- Myers, H. F., Wyatt, G. E., Loeb, T. B., Carmona, J. V., Warda, U., Longshore, D., ... Liu, H. (2006). Severity of child sexual abuse, post-traumatic stress and risky sexual behaviors among HIV-positive women. *AIDS and Behavior*, *10*(2), 191-9.
- Najman, J. M., Nguyen, M. L. T., & Boyle, F. M. (2007). Sexual abuse in childhood and physical and mental health in adulthood: An Australian population study. *Archives of Sexual Behavior*, *36*(5), 666-675.
- Newman, M. G., Clayton, L., Zuellig, A., Cashman, L., Arnow, B., Dea, R., & Taylor, C. B. (2000). The relationship of childhood sexual abuse and depression with somatic symptoms and medical utilization. *Psychological Medicine*, *30*(05), 1063-1077.
- Nixon, R. D. V, Resick, P. A., & Nishith, P. (2004). An exploration of comorbid depression among female victims of intimate partner violence with posttraumatic stress disorder. *Journal of Affective Disorders*, *82*(2), 315-320.
- Norman, S. B., Stein, M. B., & Davidson, J. R. T. (2007). Profiling posttraumatic functional impairment. *The Journal of Nervous and Mental Disease*, *195*(1), 48-53.
- North, C., Surís, A., Davis, M., & Smith, R. (2009). Toward validation of the diagnosis of posttraumatic stress disorder. *American Journal of Psychiatry*, *166*(1), 34-41.

- O'Connell, M., Kaspro, W., & Rosenheck, R. (2008). Rates and risk factors for homelessness after successful housing in a sample of formerly homeless veterans. *Psychiatric Services, 59*(3), 268–275.
- O'Donnell, M. L., Creamer, M., & Pattison, P. (2004). Posttraumatic stress disorder and depression following trauma: understanding comorbidity. *American Journal of Psychiatry, 161*(8), 1390–1396.
- Olatunji, B. O., Cisler, J. M., & Tolin, D. F. (2007). Quality of life in the anxiety disorders: a meta-analytic review. *Clinical Psychology Review, 27*(5), 572–581.
- Orsillo, S. M., Heimberg, R. G., Juster, H. R., & Garrett, J. (1996). Social phobia and PTSD in Vietnam veterans. *Journal of Traumatic Stress, 9*(2), 235–252.
- Paul, J. P., Catania, J., Pollack, L., & Stall, R. (2001). Understanding childhood sexual abuse as a predictor of sexual risk-taking among men who have sex with men: The Urban Men's Health Study☆. *Child Abuse & Neglect, 25*(4), 557–584.
- Perkonig, a, Kessler, R. C., Storz, S., & Wittchen, H. U. (2000). Traumatic events and post-traumatic stress disorder in the community: prevalence, risk factors and comorbidity. *Acta Psychiatrica Scandinavica, 101*(1), 46–59.
- Pietrzak, R. H., El-Gabalawy, R., Tsai, J., Sareen, J., Neumeister, A., & Southwick, S. M. (2014). Typologies of posttraumatic stress disorder in the U.S. adult population. *Journal of Affective Disorders, 162*, 102–6.
- Pietrzak, R. H., Tsai, J., Harpaz-Rotem, I., Whealin, J. M., & Southwick, S. M. (2012). Support for a novel five-factor model of posttraumatic stress symptoms in three independent samples of Iraq/Afghanistan veterans: a confirmatory factor analytic study. *Journal of Psychiatric Research, 46*(3), 317–22.
- Rapaport, M. H., Clary, C., Fayyad, R., & Endicott, J. (2005). Quality-of-life impairment in depressive and anxiety disorders. *American Journal of Psychiatry, 162*(6), 1171–1178.
- Rapaport, M. H., Endicott, J., & Clary, C. M. (2002). Posttraumatic stress disorder and quality of life: results across 64 weeks of sertraline treatment. *Journal of Clinical Psychiatry, 63*(1), 59-65.

- Resick, P. A. (1993). The psychological impact of rape. *Journal of Interpersonal Violence, 8*, 223–225.
- Resnick, H. S., Kilpatrick, D. G., Dansky, B. S., Saunders, B. E., & Best, C. L. (1993). Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women. *Journal of Consulting and Clinical Psychology, 61*(6), 984.
- Rivest, L. P. (1994). Statistical properties of Winsorized means for skewed distributions. *Biometrika, 81*(2), 373–383.
- Roberts, a L., Gilman, S. E., Breslau, J., Breslau, N., & Koenen, K. C. (2011). Race/ethnic differences in exposure to traumatic events, development of post-traumatic stress disorder, and treatment-seeking for post-traumatic stress disorder in the United States. *Psychological Medicine, 41*(1), 71–83.
- Rodriguez, N., Ryan, S. W., Rowan, A. B., & Foy, D. W. (1996). Posttraumatic stress disorder in a clinical sample of adult survivors of childhood sexual abuse. *Child Abuse & Neglect, 20*(10), 943–952.
- Rowan, a B., Foy, D. W., Rodriguez, N., & Ryan, S. (1994). Posttraumatic stress disorder in a clinical sample of adults sexually abused as children. *Child Abuse & Neglect, 18*(1), 51–61.
- Ruscio, A. M., Weathers, F. W., King, L. A., & King, D. W. (2002). Male war-zone veterans' perceived relationships with their children: The importance of emotional numbing. *Journal of Traumatic Stress, 15*(5), 351–357.
- Rush, A. J., Gullion, C. M., Basco, M. R., Jarrett, R. B., & Trivedi, M. H. (1996). The inventory of depressive symptomatology (IDS): psychometric properties. *Psychological Medicine, 26*(03), 477–486.
- Rush, A. J., Trivedi, M. H., Ibrahim, H. M., Carmody, T. J., Arnow, B., Klein, D. N., ... Keller, M. B. (2003). The 16-Item Quick Inventory of Depressive Symptomatology (QIDS), Clinician Rating (QIDS-C), and Self-Report (QIDS-SR): A Psychometric Evaluation in Patients with Chronic Major Depression. *Society of Biological Psychiatry, 54*, 573–583.
- Sadler, A. G., Booth, B. M., Mengeling, M. A., & Doebbeling, B. N. (2004). Life span and repeated violence against women during military service: Effects

- on health status and outpatient utilization. *Journal of Women's Health*, 13(7), 799–811.
- Sadler, A. G., Booth, B. M., Nielson, D., & Doebbeling, B. N. (2000). Health-related consequences of physical and sexual violence: women in the military. *Obstetrics and Gynecology*, 96(3), 473–80.
- Schnurr, P. P., Hayes, A. F., Lunney, C. A., McFall, M., & Uddo, M. (2006). Longitudinal analysis of the relationship between symptoms and quality of life in veterans treated for posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 74(4), 707.
- Schonfeld, W. H., Verboncoeur, C. J., Fifer, S. K., Lipschutz, R. C., Lubeck, D. P., & Buesching, D. P. (1997). The functioning and well-being of patients with unrecognized anxiety disorders and major depressive disorder. *Journal of Affective Disorders*, 43(2), 105–119.
- Seal, K. H., Metzler, T. J., Gima, K. S., Bertenthal, D., Maguen, S., & Marmar, C. (2009). Trends and risk factors for mental health diagnoses among Iraq and Afghanistan Veterans using Department of Veterans Affairs health care, 2002–2008. *American Journal of Public Health*, 99, 1651–1658.
- Seal, K. H., Metzler, T. J., Gima, K. S., Bertenthal, D., Maguen, S., & Marmar, C. R. (2009). Trends and risk factors for mental health diagnoses among Iraq and Afghanistan veterans using Department of Veterans Affairs health care, 2002–2008. *American Journal of Public Health*, 99(9), 1651.
- Seedat, S., & Stein, D. J. (2000). Trauma and post-traumatic stress disorder in women: a review. *International Clinical Psychopharmacology*, 15, S25–33.
- Shipherd, J. C., Pineles, S. L., Gradus, J. L., & Resick, P. a. (2009). Sexual harassment in the Marines, posttraumatic stress symptoms, and perceived health: evidence for sex differences. *Journal of Traumatic Stress*, 22(1), 3–10.
- Sickel, A. E., Noll, J. G., Moore, P. J., Putnam, F. W., & Trickett, P. K. (2002). The long-term physical health and healthcare utilization of women who were sexually abused as children. *Journal of Health Psychology*, 7(5), 583–597.

- Simms, L. J., Watson, D., & Doebbellling, B. N. (2002). Confirmatory factor analyses of posttraumatic stress symptoms in deployed and nondeployed veterans of the Gulf War. *Journal of Abnormal Psychology, 111*(4), 637.
- Skinner, K. M., Kressin, N., Frayne, S., Tripp, T. J., Hankin, C. S., Miller, D. R., & Sullivan, L. M. (2000). The prevalence of military sexual assault among female veterans' administration outpatients. *Journal of Interpersonal Violence, 15*(3), 291–310.
- Smith, M. W., Schnurr, P. P., & Rosenheck, R. A. (2005). Employment outcomes and PTSD symptom severity. *Mental Health Services Research, 7*(2), 89–101.
- Steel, C., Marzillier, S., Fearon, P., & Ruddle, A. (2009). Childhood abuse and schizotypal personality. *Social Psychiatry and Psychiatric Epidemiology, 44*(11), 917–923.
- Stermac, L., Reist, D., Addison, M., & Millar, G. M. (2002). Childhood risk factors for women's sexual victimization. *Journal of Interpersonal Violence, 17*(6), 647–670.
- Surís, A., & Lind, L. (2008). Military sexual trauma: a review of prevalence and associated health consequences in veterans. *Trauma, Violence & Abuse, 9*(4), 250–69.
- Surís, A., Lind, L., Kashner, T. M., & Borman, P. D. (2007). Mental health, quality of life, and health functioning in women veterans differential outcomes associated with military and civilian sexual assault. *Journal of Interpersonal Violence, 22*(2), 179–197.
- Surís, A., Lind, L., Kashner, T. M., Borman, P. D., & Petty, F. (2004). Sexual assault in women veterans: an examination of PTSD risk, health care utilization, and cost of care. *Psychosomatic Medicine, 66*(5), 749–756.
- Surís, A., Link-Malcolm, J., Chard, K., Ahn, C., & North, C. (2013). A randomized clinical trial of cognitive processing therapy for veterans with PTSD related to military sexual trauma. *Journal of traumatic stress, 26*(1), 28–37.
- Tjaden, P., & Thoennes, N. (2000). Prevalence and consequences of male-to-female and female-to-male intimate partner violence as measured by the

- National Violence Against Women Survey. *Violence against Women*, 6(2), 142–161.
- Tucker, P., Zaninelli, R., Yehuda, R., Ruggiero, L., Dillingham, K., & Pitts, C. D. (2001). Paroxetine in the treatment of chronic posttraumatic stress disorder: results of a placebo-controlled, flexible-dosage trial. *Journal of Clinical Psychiatry*, 62(11), 860–868.
- Turchik, J. a, McLean, C., Rafie, S., Hoyt, T., Rosen, C. S., & Kimerling, R. (2013). Perceived barriers to care and provider gender preferences among veteran men who have experienced military sexual trauma: a qualitative analysis. *Psychological Services*, 10(2), 213–222.
- Turchik, J. a., & Edwards, K. M. (2012). Myths about male rape: A literature review. *Psychology of Men & Masculinity*, 13(2), 211–226.
- Uddo, M., Vasterling, J. J., Brailey, K., & Sutker, P. B. (1993). Memory and attention in combat-related post-traumatic stress disorder (PTSD). *Journal of Psychopathology and Behavioral Assessment*, 15(1), 43–52.
- Van der Kolk, B. A., Pelcovitz, D., Roth, S., & Mandel, F. S. (1996). Dissociation, somatization, and affect dysregulation: The complexity of adaption to trauma. *The American Journal of Psychiatry*, 153(7), 83–93.
- Vasterling, J. J., & Brailey, K. (2005). Neuropsychological Findings in Adults with PTSD. In J.J. Vasterling & C.R. Brewer (Eds.), *Neuropsychology of PTSD: Biological, cognitive, and clinical perspectives* (pp. 178–207). New York, NY: Guilford.
- Vasterling, J. J., Brailey, K., Constans, J. I., & Sutker, P. B. (1998). Attention and memory dysfunction in posttraumatic stress disorder. *Neuropsychology*, 12(1), 125.
- Vasterling, J. J., Duke, L. M., Brailey, K., Constans, J. I., Allain, A. N., & Sutker, P. B. (2002). Attention, learning, and memory performances and intellectual resources in Vietnam veterans: PTSD and no disorder comparisons. *Neuropsychology*, 16(1), 5.
- Walker, E. A., Keegan, D., Gardner, G., Sullivan, M., Bernstein, D., & Katon, W. J. (1997). Psychosocial factors in fibromyalgia compared with rheumatoid

- arthritis: II. Sexual, physical, and emotional abuse and neglect. *Psychosomatic Medicine*, 59(6), 572–577.
- Walter, K. H., Buckley, A., Simpson, J. M., & Chard, K. M. (2014). Residential PTSD treatment for female veterans with military sexual trauma: does a history of childhood sexual abuse influence outcome? *Journal of Interpersonal Violence*, 29(6), 971–86.
- Wingenfeld, K., Schaffrath, C., Rullkoetter, N., Mensebach, C., Schlosser, N., Beblo, T., ... Meyer, B. (2011). Associations of childhood trauma, trauma in adulthood and previous-year stress with psychopathology in patients with major depression and borderline personality disorder. *Child Abuse & Neglect*, 35(8), 647–654.
- Wolfe, J., & Schlesinger, L. K. (1997). Performance of PTSD patients on standard tests of memory. *Annals of the New York Academy of Sciences*, 821(1), 208–218.
- Yaeger, D., Himmelfarb, N., Cammack, A., & Mintz, J. (2006). DSM-IV diagnosed posttraumatic stress disorder in women veterans with and without military sexual trauma. *Journal of General Internal Medicine*, 21 Suppl 3, S65–69.
- Yufik, T., & Simms, L. J. (2010). A meta-analytic investigation of the structure of posttraumatic stress disorder symptoms. *Journal of Abnormal Psychology*, 119(4), 764.
- Zatzick, D. F., Jurkovich, G. J., Gentilello, L., Wisner, D., & Rivara, F. P. (2002). Posttraumatic stress, problem drinking, and functional outcomes after injury. *Archives of Surgery*, 137(2), 200–205.
- Zatzick, D. F., Marmar, C. R., Weiss, D. S., Browner, W. S., Metzler, T. J., Golding, J. M., ... Wells, K. B. (1997). Posttraumatic stress disorder and functioning and quality of life outcomes in a nationally representative sample of male Vietnam veterans. *The American Journal of Psychiatry*, 154(12), 1690–1695.
- Zinzow, H. M., Grubaugh, A. L., Monnier, J., Suffoletta-Maierle, S., & Frueh, B. C. (2007). Trauma Among Female Veterans A Critical Review. *Trauma, Violence, & Abuse*, 8(4), 384–400.