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August 2013

PSYCHOMETRIC EXPLORATION OF A MEASURE OF MILITARY SEXUAL
TRAUMA (MST): THE MILITARY UNWANTED SEXUAL EXPERIENCES SCALE
(MUSES)

A Dissertation Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree

Doctor of Philosophy in Counseling Psychology

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This paper is dedicated to the Veterans who served our country, particularly those who have suffered openly or in silence after MST. May we honor your service by paying homage to your experience and righting this injustice in the future.

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Abstract

Military Sexual Trauma (MST) is a category of wartime trauma found to have particularly deleterious effects on mental and physical health. Yet, no instrument exists that phenomenologically assesses MST, and the psychological correlates of MST are largely unknown. To address this gap in the literature, the Military Unwanted Sexual Experiences Scale (MUSES) was created. Grounded theory provided a framework for generating the initial item pool from clinical observation and the literature. Review by a panel of experts resulted in the initial 68-item MUSES. This study examined the psychometric properties of the MUSES via principal component analyses in a sample of 53 Veterans. Concurrent and predictive validity of the MUSES was examined utilizing the Posttraumatic Cognitions Inventory (PTCI), the Sexual Experiences Survey (SES), and the Posttraumatic Checklist-Specific Stressor version (PCL-S). Unrestricted and restricted principle component analyses indicated a four-factor solution with 56 items. Consistent with hypotheses, the MUSES was positively associated with the PTCI and PCL-S, and MUSES scores positively predicted symptom severity scores on the PCL-S. Against expectations, the MUSES was not related to scores on the SES. Implications and limitations of the study are discussed, with a focus on the descriptive knowledge gained regarding MST and the small sample size of the current study.

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PSYCHOMETRIC EXPLORATION OF MUSES

Chapter I

Introduction

Women currently comprise a previously unprecedented proportion of our military, making their health, well-being, and adjustment particularly relevant areas of inquiry. In 2005, approximately 15% of active duty members were women (Department of Defense [DoD], 2006), and 195,400 female reserve personnel could have been called to emergency duty in war in 2006 (U.S. Census Bureau, 2008). By 2011, women comprised 14.5% of active duty military and almost 18% of the National Guard and Reserve (Department of Veterans Affairs, 2011). In the recent Iraq (Operation Iraqi Freedom; OIF) and Afghanistan (Operation Enduring Freedom; OEF) conflicts, a documented 160,500 women served through March of 2007, and women were estimated to comprise 11% of these forces (Blank, 2008; Fisher, 2008). These statistics represent a stark contrast to the only 55,000 active duty female personnel in the year 1973 (DoD, 2003). In terms of Veterans, women comprised 9.8% (more than 2.2 million) of this population in 2011 and are projected to make up more than 11% of Veterans by the year 2020 (Department of Veterans Affairs, 2010, 2013). Within the Veterans Health Administration (VHA) specifically, the number of women seeking services increased 83% between 2000 and 2009 (from 159,640 to 292, 921), representing a faster growth rate than men in the VHA system (Department of Veterans Affairs, 2011).

Military women face challenges unique from men that make investigating this population particularly important. For one, military women have gender-specific health issues (e.g., urinary tract infections, menstrual or pregnancy issues/complications, vaginitis, or breast cancer) that differ from men and may impact their service (Trego,

Wilson, & Steele, 2010), particularly during active duty or combat. Secondly, military women are far more likely than male peers to have been exposed to pre-military trauma(s) or to be victims of Military Sexual Trauma (MST), putting them at increased risk for developing Posttraumatic Stress Disorder (PTSD) (Himmelfarb, Yaeger, & Mintz, 2006; Tramontin, Altman, & Yehuda, 2009). Thirdly, attitudes toward women who choose the military continue to be overwhelmingly negative, particularly within the military itself. Matthews and colleagues (2009) noted that despite the increasing presence of women in military leadership, social attitudes toward women serving in such roles continue to reflect historical biases and stereotypes, potentially hindering their performance (Matthews, Ender, Laurence, & Rohall, 2009). When compared to civilian counterparts, military students have more traditional authoritarian beliefs and gender role attitudes and are significantly less approving and accepting of women in various military roles (Heilman & Haynes, 2005; Kurpius & Lucart, 2000; Matthews, 1992). This persisting and overarching patriarchy often creates another unique challenge for women—the need to “prove” oneself in relation to male peers. Silva (2008) found Reserve Officer Training Corps (ROTC) cadets reported being hypervigilant about their status as women when performing traditionally male tasks. These women also reported needing to continuously prove their capabilities and believed male superiors watched them more critically than male peers. One woman noted, “they talk down to me whereas the guys were collaborating and conversing...you feel like if you’re female you have to work harder to impress...I need to watch myself because I know all these males are being critical of me” (Silva, 2008, pp. 946). Lastly, for women who persevere to achieve a high rank, the stigma of mental health treatment and others’ subsequent perceptions of them

(e.g., as a weak woman) may be particularly unique treatment barriers (Tramontin et al., 2009). Further, military women face a double bind—they are held accountable as both women and as soldiers (Herbert, 1998). Women must prove they have culturally-defined masculine qualities (e.g., self-control, stoicism) while also negotiating cultural definitions of femininity that may have provided them with stable gender identities throughout life.

Despite their growth in numbers, women in the military and women Veterans represent a historically marginalized, oppressed, and underrepresented subgroup. While there are approximately 350,000 women in the Military Health Care System (MHS) today (DoD, 2008), there is a surprising paucity of research investigating this unique group. This scarcity of research is surprising as studies related to military women's health are important and highly funded research areas today (Trego et al., 2010). As expressed by one group of colleagues, "As the nature of women's involvement in the military evolves, psychologists across various Department of Defense, Veterans Administration, and civilian healthcare settings have an increasing responsibility to recognize, understand, and respond to the psychological issues these women encounter" (Ghahramanlou-Holloway, Cox, Fritz, & George, 2011, pp. 1). The combination of the young age of enlisting women and recent legislation allowing five years of free healthcare for enlisting during wartime means providers could be caring for women Veterans for 40 or more years. To treat these women effectively and efficiently, we need to increase our knowledge about this population.

The above introduction provided an overview of the prevalence of women in the military, discussed this group's uniqueness and marginalization, and reviewed the need for research targeting this population. The next chapter will provide a focused review of

the existing literature on MST and the known influence of this type of traumatic event on the mental and physical lives of military and Veteran women. Specific attention will be drawn to the dearth of research about this work-place phenomenon and the lack of adequate assessment for understanding an interpersonally traumatic event that occurs within a unique cultural setting. The next chapter will provide a grounded-theory (Charmaz, 2000) approach utilized to explore the psychometric properties of a standardized, self-report instrument for assessing MST among Veterans.

Chapter II

Military Sexual Trauma (MST)

Currently, the American Psychological Association (APA) official website defines trauma as an “emotional response to a terrible event like an accident, rape or natural disaster. Immediately after the event, shock and denial are typical. Longer term reactions include unpredictable emotions, flashbacks, strained relationships and even physical symptoms like headaches or nausea” (APA, 2011). In the aftermath of September 11th and our recent military involvement, the term trauma has become increasingly common in our daily vernacular. Traumas most frequently experienced by military personnel include combat trauma, extreme living conditions, and sexual trauma (The National Center for PTSD, 2007). While women can experience all three types during service, the trauma often viewed as more unique to women is MST. In the following sections, a review of current MST literature will be presented with focus on four separate domains—prevalence, outcomes/consequences, treatment, and assessment.

Definition and Prevalence

While MST is an umbrella term, it is commonly defined as “sexual assault or repeated, unsolicited, threatening acts of sexual harassment that occurs during military service” (Rowe, Gradus, Pineles, Batten, & Davison, 2009, pp. 388). It is important to note that MST refers to experiences of both sexual assault and harassment (Street, Gradus, Stafford, & Kelly, 2007). Though definitions vary, sexual harassment broadly includes unwanted verbal or physical conduct of a sexual nature in workplace, training, or academic settings. Codified in Chapter 21 of the Texas Labor Code, the Texas Commission on Human Rights Act (TCHRA) defines sexual harassment as unwelcome

sexual advances, requests for sexual favors, and verbal or physical conduct of a sexual nature that explicitly or implicitly affects one's employment, work performance, or creates a hostile, intimidating, or offensive work environment. Examples of sexual harassment include: undesired sexual attention (e.g., offensive comments regarding one's body or sexual activities), gender harassment (e.g., disparaging remarks about your gender), and sexual coercion (e.g., implying special treatment if sexually cooperative). Sexual assault is any sexual activity (e.g., unwanted grabbing or touching, sexual penetration with an object, or oral/anal intercourse) between at least two people in which one individual is involved against his or her will (Koss, Gidycz, & Wisniewski, 1987; Koss & Oros, 1982). According to Texas Penal Code § 22.011, sexual assault occurs when an individual intentionally or knowingly forces a sexual act (e.g., oral sex, vaginal or anal penetration) on another individual without the person's consent. Though common, physical force may or may not be applied during MST (Suris & Lind, 2008). Both sexual harassment and assault are crimes punishable via the legal system with varying degrees of consequences from fines to imprisonment.

Sexual assault in the military has recently been at the forefront of news and political media. In a survey released by the Pentagon, an estimated 26,000 active duty members were sexually assaulted (defined on the spectrum from rape to unwanted touching) in 2012, up from 19,000 in the year 2010 (DoD, 2013). While men can also be victims of MST, a far greater percentage of women report these experiences (Haskell et al., 2010; Kimerling, Gima, Smith, Street, & Frayne, 2007; Martin, Rosen, Durand, Knudson, & Stretch, 2000), and MST is viewed as more unique to women. In fact, in the Pentagon's recent report, 6.1% and 1.2% of active duty women and men, respectively,

disclosed unwanted sexual contact within the past 12 months alone (DoD, 2013).

Research findings mirror these results and indicate that approximately 80% of military women report exposure to one or more sexual stressors (e.g., sexual identity concerns, harassment, and assault) during service (Murdoch, Pryor, Polusny, & Gackstetter, 2007). Reports and estimates of sexual assault against military women range from 14 - 43%, with estimates of sexual harassment ranging anywhere from 55 - 63% (Rowe et al., 2009; Sadler, Booth, & Doebbeling, 2005; Skinner et al., 2000; Suris, Lind, Kashner, Borman, & Petty, 2007; Zinzow, Grubaugh, Monnier, Suffoletta-Maierle, & Frueh, 2008) up to a staggering 79% (Murdoch et al., 2007; Sadler et al., 2003). In comparison, rates of MST are much lower for men. Hoyt and colleagues reviewed 29 studies conducted over the last 30 years that reported MST rates for men. They found that approximately 0.09% of men reported MST annually, with a range from 0.02 - 6% (Hoyt, Klosterman, & Williams, 2011). In another study with Veterans seeking VA disability benefits for PTSD, 71% and 4% of women and men, respectively, disclosed sexual assault during service. For men, the assault was more likely to take place outside of service, while for women the opposite was true (Murdoch, Polusny, Hodges, & O'Brien, 2004). It is important to note that while MST rates are consistently lower for men, the actual number of reported MST experiences is similar across genders as there are significantly more men than women in the entire military population.

As the previous study suggests, documented MST rates are highest among VA healthcare consumers. One study found that 15.1% of returning OEF/OIF women ($N = 17,580$) screened positive for MST in VA primary or mental health care settings (Kimerling et al., 2010). Similarly, Street and associates found that 24.1% of women and

1.1% of men in the VA experienced MST at some point during service (Street, Vogt, & Dutra, 2009). Notably, for women who screen positive for MST in the VA, PTSD diagnosis rates are often 3 to 5 times higher than in comparable peers (Himmelfarb et al., 2006). The negative outcomes of MST (e.g., PTSD) will be discussed later.

Comparison to civilian populations. It is important to distinguish MST prevalence rates from similar crimes in civilian populations. While women are more likely than men to be victims of sexual assault in civilian samples (e.g., Kimerling et al., 2007), the rates of MST in women far exceed those of similar civilian crimes against women. Additionally, the rate discrepancy between military men and women who experience sexual trauma is consistently higher than this discrepancy in civilian populations. In 2000, the National Violence Against Women (NVAW) survey found that almost 18% of women and 3% of men experienced a completed or attempted rape in their lifetimes. These results paralleled those of past national surveys (Tjaden & Thoennes, 2000). Moreover, in the general population, approximately 0.2% of American women over the age of 12 were sexual assault victims in the year 2010 (Bureau of Justice Statistics, 2013). When comparing these rates to those of MST, it is critical to note that, in stark contrast to military settings, the majority of civilian rape victims (54 - 62%) are victimized before 18 years of age (Kilpatrick, Edwards, & Seymour, 1992; Tjaden & Thoennes, 2000). Also largely dissimilar from civilian crimes, military sexual assaults often involve multiple perpetrators and are typically not isolated incidents. In one women Veteran sample, about 37% reported being raped at least twice during service and 14% reported being gang raped (Sadler, Booth, Cook, & Doebbeling, 2003). Moreover, MST perpetrators are more likely to be someone the victim knows. In civilian

populations, there is approximately a 20% lifetime prevalence rate for facing an unwanted sexual experience from someone known to the victim (for a more thorough review, refer to Koss, 2006, 2011). While currently unknown, anecdotal evidence suggests that most MST experiences occur within the workplace setting, making MST particularly unique from similar civilian crimes. As will be discussed in the subsequent section, military culture may be a contributing factor to this phenomenon.

Military Culture

Military culture has been proposed by many to contribute, at least in part, to the prevalence of and underreporting of MST. As described by Hunter (2007) in *Honor Betrayed: Sexual Abuse in America's Military*, when one enters the military, training and boot camp are designed purposefully and deliberately to create a “unit” or a “brotherhood.” To create this unit, recruits must be stripped of their individuality and see one another as a family in which trust and honor are paramount. When a woman is sexually harassed or assaulted within the military, she often experiences a deep, excruciating sense of betrayal (Hunter, 2007). Thus, the dynamics of sexual harassment and assault within the military are often quite different than the context of similar civilian crimes. MST has the potential to trigger intense feelings of betrayal in victims largely because it upsets the deeply rooted military-created belief system that you are loyal to fellow service members and respect your chain of command. It has even been argued that MST parallels incest, as victim and perpetrator are essentially analogous to family members within military culture (Stalsburg, 2011).

Underreporting. Nationwide studies repeatedly reveal that civilian sexual assault victims report only a small fraction of the crimes to law enforcement (Kilpatrick, Edwards, & Seymour, 1992). In one sample, of the 1.1 million U.S. women estimated to be victims of nonconsensual sex (vaginal, oral, or anal), only about 16% reported the incident to police (Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007). This pattern of underreporting is reflected, and often exacerbated, within the military. Women MST victims are likely to experience intense shame and guilt that deter reporting (Tramontin et al., 2009). The DoD estimated that only 14% of the 19,000 service members believed to have experienced sexual *assault* reported the incident in Fiscal Year 2010 (FY10) (DoD, 2011). More recently, the DoD released that a total of 3,374 reports of sexual assault occurred in FY12, a far lower number than the 26,000 men and women who anonymously indicated experiencing MST during the military (DoD, 2013). In a study by Sadler et al (2003), an alarming 75% of women Veteran rape victims did not report the crime. More shockingly, of those who did not report the assault, one-third claimed they did not know how to create a report; another 20% disclosed believing rape was to be “expected” within the military. While Campbell and Raja (2005) found that about half of their sample of sexually assaulted women did report the crime, 70% stated they were not encouraged to do so. Further, though active duty and reserve women tend to report lower rates of sexual assault than Veterans, this could be due to underreporting in the former group (Himmelfarb et al., 2006).

Considering the military context, there are a plethora of explanations for why MST is so frequently unreported. In the 2010 Workplace and Gender Relations Survey of Active Duty Members (WGRA), men and women disclosed not reporting MST for the

following reasons: not wanting others to know, believing it would not be kept confidential, and thinking nothing would be done about their report (Defense Manpower Data Center, 2011). Rank (i.e., position in the military) is another factor that may lead to underreporting. Female officers experience more frequent sexist hostility than other enlisted women (Fitzgerald, Magley, Drasgow, & Waldo, 1999). Since women often have to overcome barriers to gain military leadership positions, they may fear reporting will jeopardize their position or result in perceptions of weakness. However, rank remains an issue for women not in leadership roles. Perpetrators of MST typically outrank their victims. In the military context, one obeys the chain of command without question, making refusal to submit and subsequent reporting often feel impossible. In fact, some MST victims feel they must choose between their military career and seeking justice. Victims risk perpetrator retaliation if they report, and some women note that commanders fail to protect victims who disclose the abuse (Stalsburg, 2011). In addition, women Veterans seeking mental health treatment have disclosed being told they could ruin a “good soldier’s reputation” or that the incident was not a “big enough deal” for a report. Lastly, MST victims cannot quit their jobs, sue employers, or take other protective measures that civilian assault victims often have the option of choosing (Stalsburg, 2011). Taking all this into consideration, the combination of direct and obscure messages from the media, peers, and military leadership likely reinforce the fear and skepticism common when considering reporting MST. The result is that MST frequently goes unreported, serving to further perpetuate a military culture in which these activities are overlooked and occasionally encouraged.

VHA Response. Since the 1991 “Tailhook Incident” involving the Navy’s underreporting of MST on board ship, the VA has more openly acknowledged that MST is a serious issue. In 1999, the VA implemented a mandatory MST screening procedure during assessments (Suris, Link-Malcolm, Chard, Ahn, & North, 2013); however, a subsequent crime report is not required. Since that time, VA systems across the nation have expanded their MST teams, and the provision of sexual trauma services became a permanent VA benefit under Public Law 108-422 in the year 2004. A nationwide survey of MST coordinators at 135 VA Medical Centers found that 40% reported a hospital-based MST component (e.g., task force, work group, or committee), 47% reported MST trainings in the past year, and 91% reported mandatory universal MST screening policies (Street, Kelly, & Kimerling, 2006). Unfortunately, however, official MST reports generated by the DoD often get gridlocked and remain either unsolved or uninvestigated within the military justice system. In FY11, Military Services received 3,192 documented reports of sexual assault involving service members, a 1% increase from FY10. Yet, by the end of FY11, almost half (1,509) of these investigations remained incomplete or pending disposition (DoD, 2011). More specifically, of the original 3,192 reports only 191 ended in convictions (DoD, 2011). Refer to Figure 1 for a more comprehensive breakdown of this data, modified from the DoD Annual Report on Sexual Assault in the Military (2011). Thus, while the DoD and VA are making progress addressing MST, those who report the crime often do not see justice served. The next section will discuss what is known regarding the negative physical and mental health outcomes of MST.

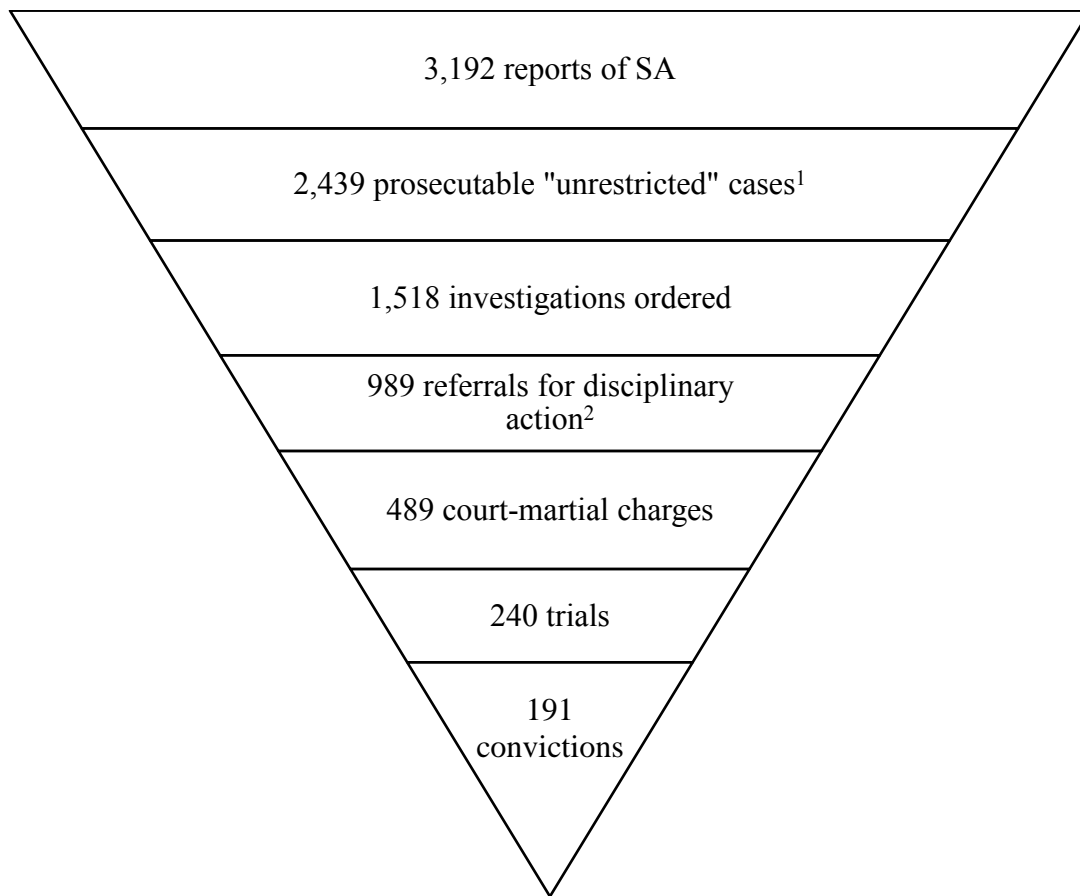


Figure 1. United States Military MST Convictions in 2011

Note. Figure adapted from DoD, 2011. ¹ Of these, 349 cases declared unfounded, 225 offenders were unknown, 122 foreign national offender, 129 prosecuting in civilian/foreign court, 10 suspects died, and 86 case reports pending. ² Of these, 187 received nonjudicial punishments, 48 received administrative discharges, 67 received other adverse administrative actions, and 198 declared probable cause only for non-sexual assault offense.

Negative Clinical Outcomes

Sexual assault, in general, is highly predictive of negative mental health outcomes, such as, depression, alcohol and illicit drug abuse, somatization and eating disorders, and anxiety disorders (Rothbaum, Astin, & Marsteller, 2005; Street, Bell, & Ready, 2011; Suris et al., 2007; Suris & Lind, 2008; Vickerman & Margolin, 2009). Studies also consistently reveal higher rates of PTSD in sexual assault victims than in victims of other traumas. Across research findings, rape is associated with the highest rate of lifetime PTSD (about 80%) when compared to other traumas (e.g., Breslau, Chilcoat, Kessler, & Davis, 1991; Kilpatrick, Saunders, Best, & Von, 1989). Yet, when compared to other assault settings, MST seems to have particularly deleterious effects on mental health, and numerous studies have linked MST with negative physical and psychiatric consequences.

The experience of military sexual *harassment* alone is associated with negative outcomes such as female turnover (i.e., leaving the military for reason unrelated to retirement, death, transfer, or term of duty conclusion) (Sims, Dragow, & Fitzgerald, 2005), PTSD symptom severity (Shipherd, Pineles, Gradus, & Resick, 2009; Suris & Lind, 2008), and extreme shame and guilt (Tramontin et al., 2009). These outcomes are not only distressing to the individual, but are often costly to the workplace—the government. Physically, women MST victims are more likely than their Veteran peers to report menstrual problems, pelvic pain, gastrointestinal distress, back pain, chronic fatigue, headaches, asthma/emphysema, and miscarriages (Frayne et al., 1999; Suris & Lind, 2008). Women MST victims are also more likely than comparable peers to have subsequent emotional health problems, obtain certain psychiatric diagnoses (e.g., PTSD,

MDD, eating disorder, or personality disorder), abuse substances, and experience post-deployment adjustment difficulties (Hankin, Spiro, Miller, & Kazis, 1999; Kimerling et al., 2007, 2010; Murdoch et al., 2007; Street et al., 2007; Zinzow et al., 2007). Suris and colleagues (2007) compared female Veteran and civilian sexual assault victims and found that women with military sexual assault had significantly higher levels of phobic anxiety, hostility, positive symptom distress, and overall global severity scores on the Brief Symptom Inventory (BSI). The severe consequences of MST are confounded by the interpersonal nature of the crime as well as the relationship of the victim to the perpetrator (e.g., a commander or fellow military personnel who has sworn to protect the person enacts a crime against him or her), all occurring in a workplace setting. MST may also occur in a war zone while the victim is experiencing combat trauma. The co-occurrence of these events may intensify the severity of stress-related symptoms, further impair overall functioning, and further decrease the likelihood of reporting the crime (National Center for PTSD, 2009).

Of particular concern is the strong, predictive correlation of MST and PTSD in Veterans (Himmelfarb et al., 2006; Kang, Dalager, Mahan, & Ishii, 2005; Suris et al., 2004). Himmelfarb and associates (2006) compared female Veterans with childhood sexual abuse (CSA), MST, pre-military assault, and post-military assault. Of all four Veteran groups, MST victims were four times more likely to have PTSD. Similarly, Suris and colleagues (2004) found that when comparing victims of military, civilian adult, and childhood sexual assault, women with a history of MST were nine times more likely to have a PTSD diagnosis. Yaeger, Himmelfarb, Cammack, and Mintz (2006) likewise reported that women who experienced MST had higher PTSD rates than women

with other military-related traumas; this was true even after controlling for demographic variables and a prior trauma history. For Veterans of both genders, the risk of developing PTSD from MST is actually comparable in magnitude to the risk of developing PTSD from extensive combat trauma (Kang, Dalager, Mahan, & Ishii, 2005). Overall, compared to civilian sexual assault, MST is related to significantly increased distress and mental illness, lowered self-esteem, depression, diminished physical health, and elevated trauma-related symptoms (Hankin et al., 1999; Kimerling et al., 2007, 2010; National Center for PTSD, 2009).

While not all MST victims develop PTSD, the elevated rates among female victims are problematic for multiple reasons. First is the economic burden placed on the VA and the public. PTSD is not only distressing to individuals and families, but is associated with huge economic costs ranging from \$45 - 50 billion annually in civilian samples alone (Kessler, 2000; O'Donnell, Creamer, Elliott, & Atkin, 2005; Schnurr & Green, 2004). Further, evidence suggests that over one-third of individuals diagnosed with PTSD do not remit years after their diagnoses even when treatment is received (Kessler, Sonnega, Bromet, & Hughes, 1995). In a recent review, Vickerman and Margolin (2009) found that more than one-third of women retained a PTSD diagnosis after treatment (regardless of treatment type) or dropped out of treatment before completion. Women Veterans with MST receive free treatment in the VHA system; this combined with the lack of efficacious treatments for MST and the treatment reticence of PTSD all lend credence to why effectively treating women veterans with MST (with or without PTSD) is an important current issue. The next section will provide a discussion regarding what little is currently known about treating MST effectively.

MST Treatment

Compared to nonvictimized peers, female MST victims self-identify more often as disabled, endorse greater trauma-related psychological distress, and are rated by VA benefits boards as having more severe symptoms and functional impairment (Rowe et al., 2009). In a study with Iraq Veterans, MST was significantly related to clinician-rated symptom severity and readjustment difficulties, but neither injury during service or witnessing injury/death were related to these outcomes (Katz, Bloor, Cojucar, & Draper, 2007). These studies suggest that many recognize the severe clinical presentation present in most MST victims; yet, no current efficacious treatment options exist specifically for MST victims. In fact, Suris and colleagues (2007) questioned whether currently accepted civilian treatment options for PTSD would be as effective for Veterans with MST-related PTSD due to the clinical uniqueness of MST. Only one known randomized controlled trial has compared the effectiveness of an evidence-based treatment (Cognitive Processing Therapy; CPT) to Present-Centered Therapy (PCT) for Veterans with MST-related PTSD (Suris et al., 2013). At post-treatment assessment, Veterans who received CPT demonstrated significantly greater self-reported, but not clinician-assessed, reduction in PTSD symptoms when compared to the PCT group. Moreover, pre- and post-treatment effect sizes were moderate for the PCT ($d = 0.30 - 0.80$) and mostly moderate ($d = 0.65 - 1.02$) for CPT groups. Speaking to the clinical severity of this population, a total of 6 adverse events (2 suicide attempts and 4 psychiatric hospitalizations) were reported during treatment. In comparison to other non-MST related PTSD randomized control trials, this rate of adverse events is high (Chard, 2005; Monson, Schnurr, Resick, Friedman, Young-Xu, & Stevens, 2006). While this study

provided preliminary evidence that CPT may effectively reduce self-reported PTSD symptoms for MST victims, the high drop out rates (35% for CPT, compared to 18% for PCT) and adverse events bring into question how well CPT addresses the specific clinical issues and severity of symptoms those with MST can present with during treatment. Moreover, this is the first known study of its kind and much more empirical research is needed to examine CPT and other treatment options for MST.

The lack of population-specific care for MST victims is likely the result of two primary factors. For one, the VA has historically provided care for a dominantly male population, and women have different healthcare needs. In fact, the influx of OEF/OIF women into the VA system has some individuals concerned about the provision of high-quality care for women Veterans at this time (Haskell et al., 2010). In addition, empirical investigation of MST is in the infancy stage. Consequently, it is possible that not enough is known about MST to create and validate an effective treatment at this time. In fact, so little is known about effectively treating MST that all the DoD stated in its FY11 annual sexual assault report regarding treatment was that the Center for Deployment Psychology (CDP) has included sexual assault information in the “training program for deploying mental health providers, nurses, and chaplains. For the past three years, the CDP has provided instruction on working...with the intent to improve access to quality mental healthcare for sexual assault victims in deployed environments” (DoD, 2011, pp. 14).

Since no evidence-based treatment or protocol is currently available, clinicians have primarily utilized other trauma-based treatment options to assist in reducing the psychological symptoms associated with MST. While it is possible to use PTSD treatment protocols (e.g., Cognitive Processing Therapy or Prolonged Exposure) for MST

victims with a PTSD diagnosis (and the efficacy of these has yet to be determined; refer to Suris et al., 2013), these treatments are not as appropriate for MST victims who do not develop PTSD. The literature on treatment of sexual assault in civilian populations has been used to inform treatment for women Veterans with MST. However, drawing from this literature is an additional challenge as very little empirically based treatment options exist for sexual harassment in general (Street & Stafford, 2004). Interventions for sexual assault typically include: addressing immediate safety concerns, normalizing post-trauma reactions via trauma psychoeducation, validating reactions and feelings, facilitating current or providing new coping strategies (e.g., breathing skills and relaxation techniques), exploring cognitive and affective trauma reactions (e.g., self-blame, anger, and fear), cognitive restructuring, and exposure-based therapies (Foa & Rothbaum, 1998; Resick & Schnicke, 2002; Street & Stafford, 2004). Currently, no known treatment protocols are available that are specifically designed to treat the unique needs, experiences, and symptoms of MST victims.

Although there is no current treatment protocol for victims of MST, the VA has made an effort to respond to the healthcare needs of these Veterans. In 1992, the Senate VA Committee initiated a series of hearings to bring MST to the attention of policy makers. Congress responded in November of 1992 by passing Public Law 102-585, authorizing health care and counseling to women MST victims for their psychological trauma. Over time, the law has been modified and a series of VA directives have mandated that each VA facility identify a MST Coordinator to oversee screening and treatment processes. Furthermore, these directives mandate universal MST screening for all Veterans (Street & Stafford, 2004). With this overview of MST in mind, Chapter 3

will provide a discussion on current trauma assessment options and the current state of affairs for assessing and screening MST specifically.

Chapter III

Measuring and Assessing Trauma

Various assessment instruments are available for assessing trauma in adult populations. The first part of this chapter overviews the utility and psychometric properties of a few of the most empirically researched and widely used trauma instruments to date. The scales reviewed in this section are focused primarily on PTSD rather than MST. After this review, the chapter will provide an overview of two commonly used measures for a range of unwanted sexual experiences as well as a discussion of the absence of available MST assessment options. Lastly, a case will be made for the necessity for an instrument that explicitly assesses MST.

General Trauma Assessment

Clinician Administered PTSD Scale (CAPS). The Clinician Administered PTSD Scale (CAPS; Blake et al., 1990) is a structured interview designed to assess for the presence of a PTSD diagnosis and to provide a measure of symptom severity if PTSD is present. The interview corresponds with PTSD diagnostic criteria in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV, APA, 2000). The CAPS can be administered in 30 - 60 minutes. The CAPS is a 22-item scale that assesses for PTSD symptom frequency and intensity on a 5-point scale; it also includes items for rating social and occupational functioning, global symptom severity, and validity. As cited by Arbisi and associates (2010), in a recent survey of the International Society of Traumatic Stress Studies (ISTSS) members, the CAPS was the most frequently used measure in clinical practice to assess PTSD symptoms (Arbisi, Erbes, Polusny, & Nelson, 2010). The CAPS is often referred to as the “gold standard” in PTSD assessment

(Griffin, Uhlmansiek, Resick, & Mechanica, 2004; Zayfert, Becker, Unger, & Shearer, 2002) and has demonstrated good psychometric properties across various research settings and clinical populations (Weathers, Keane, & Davidson, 2001). It has good test-retest reliability for the three PTSD symptom clusters ($r = 0.77 - 0.96$) and the 17-item core symptom scale ($r = 0.90 - 0.98$) in addition to high inter-rater reliability ($\kappa = 1.0$) for categorical PTSD diagnoses (Blake et al., 1995; Mueser et al., 2001). Internal consistency for the CAPS is also high, with alphas ranging from 0.85 - 0.87 for the three symptom clusters and up to 0.94 for total CAPS score (Blake et al., 1995). Moreover, the CAPS has demonstrated strong convergent validity with the SCID PTSD module ($r = 0.83$) (Foa & Tolin, 2000), and clinician-rated diagnoses and CAPS diagnoses are in agreement more than 79% of the time (Hovens et al., 1994).

Life Events Checklist (LEC). The Life Events Checklist (LEC; Blake et al., 1995) is a 17-item, brief self-report screening tool for lifetime traumatic events. It was developed concurrently with, and is completed prior to, administering the CAPS. The LEC assesses exposure to 16 events known to result in distress or PTSD, with one additional item assessing other stressful events not in the initial 16. For each item the respondent indicates if the event (a) happened to them, (b) they witnessed it, (c) they learned about it, (d) they are unsure if the item applies, or (e) the item does not apply to them. The LEC has demonstrated good test-retest reliability at one-week ($r = 0.82$) and is moderately correlated with other trauma-related measures ($r = 0.34 - 0.55$) (Gray, Litz, Hsu, & Lombardo, 2004).

Structured Clinical Interview for DSM-IV (SCID). The Structured Clinical Interview for DSM-IV (SCID; Spitzer, Williams, Gibbon, & First, 1990) is a clinical interview that assesses for all major psychiatric disorders. Spitzer and Williams (1985) recently developed a SCID-PTSD module. The 17-item SCID-PTSD corresponds with DSM criteria and includes two items related to feelings of guilt. The SCID-PTSD has demonstrated good inter-rater reliability ($\kappa = .68 - .93$) (Kean, Kolb, & Thomas, 1990; Kulka et al., 1990), and two studies found 100% rater agreement (McFall, Smith, Roszell, Tarver, & Malas, 1990; Schnurr, Friedman, & Rosenberg, 1993). Validity for the SCID-PTSD module is also adequate. It is positively associated with the IES, the Mississippi Scale for PTSD, and the Minnesota Multiphasic Personality Inventory (MMPI) PTSD Scale (Schlenger et al., 1992).

PTSD Checklist (PCL). The PTSD Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993) is a self-report measure that corresponds with DSM-IV PTSD criteria. Civilian, military, and specific event versions of the PCL exist (PCL-C, PCL-M, and PCL-S, respectively). A study utilizing the PCL-M with a sample of Vietnam veterans provided initial psychometric data for the instrument. The PCL-M demonstrated high internal consistency for total scale ($\alpha = .97$) and subscale ($\alpha = .92 - .93$) scores in addition to high test-retest reliability ($r = .96$) over a 2-3 day period. Moreover, the PCL-M was highly correlated with three related trauma instruments ($r = .77 - .93$) and predicted PTSD with high sensitivity (.82) and specificity (.83) with the SCID (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996). Similar evidence has emerged for the PCL-C and PCL-S. Both instruments have demonstrated high internal consistency ($\alpha = .86 - .94$), high predictive sensitivity (.94 - .97) and specificity

(.86 - .87), good test-retest reliability ($r = .80$), and high associations with the CAPS ($r = .93$), the Impact of Events Scale ($r = .77 - .90$), and the Mississippi PTSD Scale ($r = .85 - .93$) (Blanchard et al., 1996; Ventureya, Yao, Cottraux, Note, & De Mey-Guillard, 2002; Weathers et al., 1993). Overall, the PCL-M and PCL-S are viewed as valid and reliable measures that map onto DSM diagnostic criteria. However, they were normed on samples with a high prevalence of PTSD (Norris & Hamblen, 2004).

Posttraumatic Cognitions Inventory (PTCI). The Posttraumatic Cognitions Inventory (PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) is a self-report measure designed to assess trauma-related thoughts and beliefs. The PTCI has demonstrated excellent internal consistency ($\alpha = .81 - .97$), good sensitivity (.70 - .78) and specificity (.81 - .93), and moderate to high correlations ($r = .57 - .78$) with the Posttraumatic Stress Diagnostic Scale (PDS), CAPS, and IES (Beck et al., 2004; Foa et al., 1999; Müller et al., 2010). Test-retest reliability is high at 1-week ($r = .75 - .89$) and 3-week ($r = .80 - .86$) intervals (Foa et al., 1999). The three PTCI subscales correctly classified 86% of one sample into those with and without PTSD, suggesting the PTCI assesses three types of dysfunctional cognitions associated with the disorder (Foa et al., 1999).

Measuring and Assessing MST

There are currently no published instruments available for the explicit measurement of sexual trauma during military service (i.e., MST) (National Center for PTSD, 2009; Street & Stafford, 2009). However, two self-report measures exist that assess sexual harassment and sexual assault: The Sexual Experiences Questionnaire (SEQ) and The Sexual Experiences Survey (SES). In addition, the VA recently mandated a two-item MST screening tool. The next section will review these two

measures and the MST screening tool before discussing the need for a specific MST assessment instrument.

Sexual Experiences Questionnaire (SEQ). The Sexual Experiences Questionnaire (SEQ; Fitzgerald et al., 1988) is the most widely used measure of sexual harassment to date. The SEQ is a self-report inventory that has been modified extensively since its original development. Beginning with 50 items, the SEQ is now often based on a tripartite model with approximately 18 items. In research conducted primarily by the developers, the measure demonstrated excellent internal consistency ($\alpha = .75 - .92$) and test-retest reliability at 2-weeks ($r = 0.86$) (Fitzgerald et al., 1988; Fitzgerald, Gelfand, & Drasgow, 1995). However, the SEQ demonstrated relatively weak convergent validity with questions regarding whether or not the respondent had ever been sexually harassed ($r = .15 - .37$) (for gender harassment and sexual threats, respectively) (Fitzgerald et al., 1995).

While the SEQ has been described as “the most psychometrically sound measure of sexual harassment” (e.g., Fitzgerald et al., 1999), it has recently come under scrutiny for a host of reasons. For example, the developers are the primary investigators, multiple versions exist, the measure is not standardized, and it has only recently been published. Additionally, time frames and sentence stems change frequently across versions, items have been dropped in analyses to improve results, and results with the same sample have been published in multiple places. In fact, Gutek et al (2004) noted that a more critical examination of the reliability and validity of the SEQ suggest the psychometric properties of the SEQ are not strong. In their independent critique, Gutek and associates (2004) reviewed SEQ literature and concluded six key weaknesses of the measure. They

maintained that the SEQ: 1) has generally acceptable internal consistency (though individual subscales vary significantly), 2) sexual coercion subscale is inconsistent ($\alpha = .42$), 3) test-retest reliability is derived from only one undergraduate sample ($N = 46$), 4) only has evidence of validity (content, construct, and criterion) from developer-created mail surveys designed to generate item pools, 5) factor analyses do not support the measure's construct validity, and 6) cannot establish its criterion validity as there is no comparison criterion and no standard version (Gutek, Murphy, & Douma, 2004). More to this point, a revised version called the SEQ-DoD (Donovan & Drasgow, 1999; Hay & Elig, 1999) consisting of 23 to 26 items has been proposed for military populations, but another set of colleagues proposed a different 16-item version called the SEQ-DoD-s (Stark, Chernyshenko, Lancaster, Drasgow, & Fitzgerald, 2002) for the same purpose.

From their extensive review, Gutek et al (2004) determined that the unusual features of the SEQ severely limit its utility and that using the SEQ distorts research findings regarding sexual harassment. Stark et al (2002) agreed, claiming that the myriad of SEQ versions have led to "incorrect substantive conclusions about important aspects of sexual harassment" (pp. 473) in four areas: 1) elevated prevalence rates, 2) overestimation of the gap between the harassment experience and labeling the behavior harassment, 3) underestimated reporting rates, and 4) distortion of victims' responses to the harassment (Stark et al., 2002). Consequently, this measure will not be used in this proposed study.

Sexual Experiences Survey (SES). The Sexual Experiences Survey (SES; Koss & Oros, 1982) is one of the most widely used measures of sexual assault. The SES is a 10-item self-report measure that assesses degree of sexual victimization, including events associated with substance abuse. The original SES has been redesigned, and the more recent version (Koss et al., 1987) is more commonly used to date. Despite its widespread use, very little psychometric data is available for the SES beyond initial developer-conducted studies. The SES has demonstrated good internal consistency ($\alpha = .73 - .89$) (Koss & Gidycz, 1985; Osman, 2011; Testa, VanZile-Tamsen, & Livingston, 2004). Koss and Gidycz (1985) reported good test-retest reliability of the original SES at one week ($r = .93$) and adequate concurrent validity ($r = .73$) with interview data. Gylys and McNamara (1996) investigated the accuracy of the SES rape definition and found that attorneys rated two of the three rape items as accurate reflections of rape statutes. In another study, Krahé and colleagues (1999) investigated a German translation of the SES that included items from the 1982 and 1987 versions. The measure demonstrated excellent test-retest reliability ($r = .95$), but reliability decreased ($r = .69$) when the colleagues looked for exact matches in item responses over time (Krahé, Reimer, Scheinberger-Olwig, & Fritsche, 1999).

The publishers of the SES recently reported that the measure has been modified extensively and inconsistently over time (Koss et al., 2007). Critiques of the SES are plentiful and often reference inconsistent terminology, inaccurate prevalence rates, exclusion of sexually coercive acts, inappropriate statistical approaches to assess reliability, and the fact that validation studies are almost exclusively conducted in college samples (refer to Koss et al., 2007 for a comprehensive review). In particular, as found

by Testa and colleagues (2004), the SES is likely to underreport the severity of women's experiences due to the high rate of false negatives and lack of agreement between clinician rating of sexual assault and the SES. This instrument provides a range of unwanted sexual experiences that include sexual harassment, thereby, making it a more desirable instrument for inclusion in the present sample than the SEQ.

VA MST Screening Tool. At least partially in response to increased MST awareness, the VA recently (in 1999) mandated that all Veterans seen within the VHA be screened for MST. The VA screener is tracked by the VA Central Office and includes two items: 1) Did you ever receive uninvited or unwanted sexual attention (i.e., touching, cornering, pressure for sexual favors or inappropriate verbal remarks, etc.)?, and 2) Did anyone ever use force or threat to have sex against your will? An affirmative response to either item is considered a positive screen for MST. This screening is completed as an electronic clinical reminder within the Veteran's personal medical record. Unfortunately, the MST screening reminder is asked at the first visit, often with a primary care provider, and does not repopulate annually as do other reminders. This one-time screening method is problematic given that most women fail to report the first time they are asked, or may not want to disclose to a male physician. Further, the VA requires no follow-up questions or subsequent documentation, and this procedure is not a standardized method for evaluating the nature of the MST. The next session will briefly address the inadequacy of current trauma assessment methods in regard to MST, the need for an instrument explicitly assessing MST, and the hypotheses of the current study.

Gaps in MST Assessment and Hypotheses

The instruments discussed above have mostly demonstrated clinical utility in the field of trauma assessment. However, they fall short of measuring the complex phenomenological mechanisms and components of MST that are needed to effectively treat clinical outcomes of MST and to inform the prevention of MST during military duty. Except for the SEQ, the instruments above that do include sexual assault do not include the experience of sexual harassment; by definition, MST includes both these experiences. While the CAPS is considered the gold standard in PTSD assessment (e.g., Griffin et al., 2004), not all MST victims develop PTSD (DoD, 2004; Himmelfarb et al., 2006; Kang et al., 2004). The result of utilizing measures that exclude harassment or only map onto PTSD criteria (e.g., CAPS, PCL, SCID) is that non-assault victims or those with symptomatology dissimilar from those with PTSD are automatically screened out even if they experienced MST as it is legally defined. Moreover, the CAPS, SCID, and PCL only assess symptomatology and do not tap into behavioral or cognitive changes that MST victims experience post-trauma. For the SCID-PTSD module specifically, Blake et al (1995) noted that this module is problematic as it lacks rating descriptions, yields mostly dichotomous information, does not assess separate severity dimensions, and can lead to false positives for lifetime diagnostic status. Relatedly, the LEC and VA MST screeners are only screening tools and do not assess for severity of traumatic exposure, emotional consequences, or subsequent behavioral changes associated with trauma. Thus, overall, while the clinical interview tools discussed above are largely validated and useful trauma assessment instruments, they are insufficient for the assessment of MST.

Additionally, the self-report measures discussed above that address cognitive components are inadequate with regard to MST assessment. The PTCI, for example, asks respondents about present world beliefs from a traumatic event that may have generalized over time or be confounded with multiple traumatic events. The PTCI questions are not anchored specifically to post-MST beliefs, attitudes, or behavioral changes. In other words, a respondent's beliefs and worldviews may be the result of life experiences unrelated to the MST experience. Another pitfall of these instruments concerns time. For trauma experiences time of reporting matters, and studies suggest that self-report of frequency and severity of trauma experiences can change over time (Hepp et al., 2006; Roemer, Litz, Orsillo, Ehlich, & Friedman, 1998; Southwick, Morgan, Nicolaou, & Charney, 1997). None of the measures discussed inquire about thoughts or beliefs directly after the assault or harassment occurred, thus anchoring memories in the traumatic event. Moreover, the scales in production that assess how trauma relates to negative cognitions and poor mental health tend to focus on global self-blame and not on the specific mechanisms or components of MST (e.g., location of event, power differential, etc.) that are likely to differentially influence victims' mental health (Iraqi Clinician Guide, 2004). Relatedly, the uniqueness of military culture likely makes the experience of sexual harassment and assault within this setting phenomenologically different from other settings. As discussed previously, MST victims are often required to continue to interact with perpetrators and reporting the crime may be impossible without severe consequences (e.g., retaliation or transfer). Current measures do not explore or account for these unique cultural factors. Lastly, while the SES and SEQ have some evidence for their psychometric utility and capture a range of experiences, they do not

take into account military culture or assess specific behavioral and cognitive changes in MST victims that are critical for informing effective treatment.

MST has been highlighted as a systemic problem exacerbated by insufficient enforcement of military law and equal opportunity policy as well as an institutional failure to help victims seek justice (Stalsburg, 2011). To my knowledge, the proposed measure will be the first standardized, phenomenological assessment of MST. It captures the specific nature of MST, its impact on a victim's military career, behavioral responses to MST, and negative cognitions relative to the experience. Unlike the measures discussed above, the scale items anchor respondents' beliefs and thoughts specifically to the MST experience. It is my hope that the current scale, MUSES, will be both clinically useful as well as informative regarding the phenomenology and consequences of MST.

Hypotheses

Despite the growing awareness of the prevalence and consequences of MST, no standardized instrument exists that phenomenologically assesses MST. Given the prevalence of MST and the literature suggesting that the uniqueness of military culture may differentially impact assault and harassment victims in this setting, the Military Unwanted Sexual Experiences Survey (MUSES) was developed. The following hypotheses were proposed for the initial psychometric evaluation of the MUSES.

Hypothesis 1. The MUSES would be multi-dimensional, as evidenced by two to four interpretable factors emerging from a principle component analysis with a direct oblimin rotation.

Hypothesis 2. As evidence for convergent validity, the MUSES would be positively correlated with scores on the PTCI, PCL-S, and SES measures.

Hypothesis 3. The proposed scale, MUSES, would have positive predictive validity of stress-related symptom severity scores on the PCL-S.

PSYCHOMETRIC EXPLORATION OF MUSES

Chapter IV

Method

Currently, no scale exists that examines MST phenomenologically. This study entailed a psychometric examination of the attributes and correlates of Military Sexual Trauma (MST) in the MST scale entitled Military Unwanted Sexual Experiences Scale (MUSES). Following the steps outlined by Nunnally and Bernstein (1994), the following sections will describe the development of this scale and the methods used in the current study for examining its psychometric properties.

Scale Development

The first phase of scale development is the creation of an initial item pool. A thorough literature review revealed no available instrument for assessing MST; thus, the initial item pool was developed using an a priori, multi-step process. Grounded, or inductive, theory (Charmaz, 2000) formed the tenets for gathering the initial item pool from clinical observations made by clinicians (psychologist, social workers, and psychiatrists) who provide mental health services to Veterans with MST. The initial collection of items included varying levels of measurement, such as, nominal (e.g., perpetrator gender and location of MST), ordinal (e.g., perpetrator's rank), and interval (e.g., attitudinal and behavioral items). Item stems were constructed utilizing the guidelines for achieving word clarity, choosing a positive or negative direction for item stems, addressing word redundancy, and developing a choice of response formats (Netemeyer, Bearden, & Sharma, 2003). The MUSES was developed utilizing a six-point scaling format without a midpoint. This was done for numerous reasons. For one, midpoint response options can reflect an attitude of indifference rather than a truly

neutral stance (Weems & Onwuegbuzie, 2001). The lack of a midpoint also prevents a high frequency of neutral responses and makes attenuation corrections unnecessary. In addition, an even number of anchors was selected for the MUSES so the underlying dimensions are linear or can be made linear (Dawis, 1987). Response options for anchors ranged from 1 (*Strongly Disagree*) to 6 (*Strongly Agree*) and were chosen due to this method's ability to discriminate between high and low endorsing respondents in subject-centered testing (Dawis, 1987). As mentioned above, it was hypothesized that MUSES items would be associated with and predict PTSD symptom severity scores.

The second step in MUSES development was examining and clarifying the initial item pool to ensure items accurately represented potential correlates and outcomes of MST (Nunnally & Bernstein, 1994). This process was completed via peer review with clinical mental health providers at the Michael E. DeBakey VA Medical Center (MEDVAMC) in Houston, Texas. This expert panel consisted of two University of Houston doctoral students familiar with clinical MST presentation (Emily Voelkel, M.A. and Margaret Schwartz Moravec, B.S.), three post-doctoral students specializing in trauma (Dr. K. Grubbs, Dr. J. Mott, and Dr. M. Beason-Smith), five psychologists in the trauma field at the VA (Dr. D. Menefee, Dr. E. Teng, Dr. J. Lindsey, Dr. W. Williams, and Dr. E. Hiatt), and one psychiatrist whose expertise is in the area of PTSD and traumatic brain injury (Dr. D.P. Graham). Reviewers were asked to anonymously evaluate the scale for readability, face validity, ease of use, clarity of instructions, item redundancy, response formats, content validity items, and relevance to MST and clinical practice. The evaluators were provided written instructions for judging the face and content validity of MUSES items (Haynes, Richard, & Kubany, 1995). The feedback

provided resulted in the 68-item MUSES scale that can be found in Appendix B. The final phase of instrument development is to test a measure's psychometric properties (Nunnally & Bernstein, 1994). Following are the methods used in the initial exploration of the psychometric properties of the MUSES.

Procedure

Prior to participant recruitment, study approval was obtained from the Institutional Review Board (IRB) at Baylor College of Medicine (BCM). A total of 53 participants (Men = 7.5%, Women = 92.5%) were recruited from the MEDVAMC's Mental Health Care Line, Post-Deployment Clinic, and Women's Clinic. Recruitment was done via VA-approved postcard-sized flyers (see Appendix F), posters, and VA media (e.g., VA newspaper). As this was a scale development study, there was no group assignment or use of control subjects in this research. Inclusion criteria included being of Veteran status and being at least 18 years of age. Exclusion criteria included nonveterans, active psychosis, and those under age 18. The original intention of this study was to explore the psychometric properties of the MUSES in a sample of only women Veterans. However, due to low recruitment, male Veterans ($n = 4$) were not excluded from current data analyses. As will be discussed in future sections, the small sample size is a limitation of this research. Recruitment will continue and additional analyses will be conducted in the future when statistical power is more robust.

Paper-and-pencil survey packets were completed by participants in a quiet space in the presence of a researcher for approximately 30 to 45 minutes. After providing informed consent, participants completed self-report packets that included the following measures: the MUSES, the Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999),

the Sexual Experiences Survey-Short Form (SES; Koss, 1994), and the Posttraumatic Checklist-Specific Stressor version (PCL-S; Weathers et al., 1993). Measures were administered via a packet that included the demographic data sheet first (see Appendix A) and the MUSES second. The order of the remaining measures was randomized utilizing a random starting order with a rotation procedure (e.g., ABC, BAC). The PTCI was used to establish concurrent validity of the MUSES' cognitive facets, the SES was used to validate the harassment and rape facets of the MUSES, and the PCL-S was used to establish the MUSES' predictive validity. Each of these measures is described in detail in the next section. Upon completion of all measures in the packet, participants were thanked and debriefed.

An initial concern regarding MUSES administration was the emotional experience of reporting MST. It is common for Veterans to fail to disclose MST, even with current VA screening procedures. Thus, completion of the MUSES could have been a participant's first MST disclosure. Two precautions were taken to reduce potential participant distress. Participants completed packets in the presence of a mental health professional in case a participant was visibly or reportedly distressed. In addition, each participant received a brief handout on MST and the availability of VA resources if they desired to seek support or treatment. While these precautions were necessary, recent research indicates that reporting sexual history and sexual abuse is often not as distressing as intuition may suggest. In the past decade, research has demonstrated that trauma assessment is well tolerated even by populations typically viewed as vulnerable (Mueser, Rosenberg, & Rosenberg, 2009). Recently, Yeater and colleagues (2012) investigated the assumption that questionnaires on sensitive topics (e.g., sex and trauma)

pose more risk or distress than other types of assessment measures (e.g., cognitive tests). The colleagues split a sample of undergraduate students ($N = 504$) into two groups: one completed measures assessing trauma and sex and the other completed cognitive assessments. The colleagues found that, compared to peers in the cognitive assessment group, trauma/sex survey participants endorsed: higher positive affect, greater perceived study benefits, and fewer mental costs (e.g., headaches, mental exhaustion). Trauma/sex survey participants did endorse higher negative emotion (e.g., feeling like crying), but the difference between groups was not statistically significant. Moreover, participants in both groups rated all normal life stressors (e.g., having blood drawn, a paper cut, viewing a horror movie, a \$100 ticket, a bad grade, a cavity filling, etc.) as more distressing than study participation. Overall, the researchers concluded that surveys asking questions related to trauma and/or sex pose minimal risk, even in comparison to every day stressful events (Yeater, Miller, Rinehart, & Nason, 2012). While this study involved undergraduate students and not Veterans, these results make a compelling case for continuing to utilize scales that thoughtfully assess sensitive topics (e.g., sex and trauma) to add to our current knowledge. Anecdotally, both investigators in this study (Emily Voelkel and Dr. Deleene Menefee) noted that participants appeared to tolerate the survey well, with only a few participants becoming tearful during administration. No adverse events occurred and no participants sought additional follow-up consolation or requested immediate treatment related to completing the survey after participation.

Participants

The average age of participants was 47 years old ($SD = 11.97$), with a range from 22 to 70 years of age. The majority of participants were African American (47%) or Caucasian (40%), and the remainder were Latino/Hispanic (8%), Asian (2%), or Biracial (2%). Participants were from various branches and eras of service, with 34% of respondents indicating exposure to combat. Participants ranged in time of active duty from less than 1 year to 27 years ($M = 6.38$, $SD = 6.09$) and ranged in time since discharge from current active duty to 44 years since discharge ($M = 15.78$, $SD = 12.90$) from the military. In the current sample, 36% of participants were divorced, 28% were single, 20% were married, and 16% were of other relationship status. Almost half (47%) of participants had obtained a college degree, while 36% attended some college, 13% had a high school diploma or GED, and 4% obtained a graduate degree. In terms of employment, the majority of participants were disabled (45%) or unemployed (32%), while the remainder was either employed part-time or full-time (17%), currently in school (4%), or retired (2%). Approximately 19% of participants reported being homeless. Tables 1 and 2 provide additional demographic information.

Table 1
Descriptive Statistics for Selected Nominal and Ordinal Level Measures

Variable	Frequency	Percentage
Gender		
Female	49	92.5
Male	4	7.5
Ethnicity		
African American	25	47.2
Caucasian	21	39.6
Latino/Hispanic	4	7.5
Asian	1	1.9
Biracial	1	1.9
Other	1	1.9
Branch of Service		
Army	35	66.0
Navy	7	13.2
Air Force	6	11.3
Marines	4	7.5
Coast Guard	1	1.9
Era of Service		
OEF/OIF	19	35.8
Post Vietnam	12	22.6
Gulf War 1991	11	20.8
Vietnam	10	18.9
Rank		
E4	16	30.2
E3	12	22.6
E5	12	22.6
E7	5	9.4
E6	3	5.7
E2	3	5.7
Officer	2	3.8
Marital Status		
Divorced (not remarried)	19	35.8
Single, never married	15	28.3
Married/remarried	11	20.8
Separated	4	7.5
Not married, long-term relationship	3	5.7
Widowed	1	1.9
Education		
College degree	25	47.2
Some college	19	35.8
High school or GED	7	13.2
Graduate degree	2	3.8
Employment Status		
Disabled	24	45.3
Unemployed	17	32.1
Working full-time	7	13.2
Currently in school	2	3.8
Working part-time	2	3.8
Retired	1	1.9

Table 2

Descriptive Statistics for Selected Continuous Study Measures

Variable	<i>M</i>	<i>SD</i>	Range
Age	47.38	11.97	22-70
Total time active duty	6.38	6.09	<1-27
Time since discharge	15.78	12.90	0-44
MUSES	304.18	51.05	115-383
PCL-S	66.02	12.52	29-85
PTCI	14.85	3.56	7-20

Measures

Posttraumatic Cognitions Inventory (PTCI). The Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999) is a 36-item self-report measure designed to assess trauma-related thoughts and beliefs. Respondents are asked to rate each of the 36 statements (e.g., “The event happened because of the way I acted,” “I can’t trust that I will do the right thing”) on a likert-type scale from 1 (*Totally Disagree*) to 7 (*Totally Agree*). Factor analysis studies with the PTCI have yielded three subscales: Negative Cognitions About Self (21 items), Negative Cognitions About World (7 items), and Self Blame (5 items) (Beck et al., 2004; Foa et al., 1999). As previously discussed, the PTCI has demonstrated good psychometric properties (e.g., Müller et al., 2010). Subscale scores are obtained by summing item responses and dividing by the total number of items in the subscale; a total scale score can then be calculated by summing the resulting subscale scores. Scores on the PTCI range from 3 to 21, with higher scores indicating more negative trauma-related cognitions. For this study, total scale scores on the PTCI were utilized to establish concurrent validity of the MUSES’ cognitive facets. Chronbach’s alpha for the PTCI in the current study was .97. The PTCI can be found in Appendix C.

Posttraumatic Checklist (PCL-S). The Posttraumatic Checklist-Specific Stressor version (PCL-S; Weathers et al., 1993) is a 17-item self-report measure on which respondents are asked how often they have experienced each of the DSM-IV PTSD criteria (e.g., “Repeated, disturbing dreams of a stressful experience,” “Feeling very upset when something reminded you of a stressful experience”) in the past month on a 5-point likert-type severity scale from 1 (*Not At All*) to 5 (*Extremely*). As discussed previously,

the PCL has demonstrated good psychometric properties (e.g., Blanchard et al., 1996; Ventureya et al., 2002; Weathers et al., 1993). To gain a total score the PCL-S, the 17 items are summed to yield a total symptom severity score ranging from 17 to 85, with higher scores indicating higher symptom severity. The PCL-S (total score) was used in this study to establish the MUSES' predictive validity. Secondary analyses of the PTSD symptom clusters were also conducted to determine if particular factors are correlated with specific clusters. Reliability for the PCL-S scale in the current study was high ($\alpha = .93$), with good reliability for the Reexperiencing ($\alpha = .89$), Avoidance ($\alpha = .78$), and Hyperarousal ($\alpha = .87$) subscales. The PCL-S can be found in Appendix D.

Sexual Experiences Survey-Short Form (SES). The Sexual Experiences Survey-Short Form (SES; Koss & Oros, 1982) is a 10-item self-report measure that assesses degree of sexual victimization, including those associated with substance abuse. Respondents indicate (Yes or No) if they have experienced any of the 10 examples of female victimization that range from mild (e.g., "Have you given in to sex play when you didn't want to because you were overwhelmed by someone's continual arguments and pressure?") to extreme (e.g., "Have you had a sex act when you didn't want to because someone threatened or used some degree of physical force to make you?"). There are five levels of potential victimization (nonvictimized, sexual contact, sexual coercion, attempted rape, and rape) and the most severe form is assigned when a respondent indicates experiences at multiple levels (Koss et al., 1987). Endorsing items 8, 9, or 10 in addition to any lower item indicates rape; endorsing item 6 or 7 indicates sexual coercion; endorsing item 4 or 5 and any lower item indicates attempted rape; endorsing items 1, 2, or 3 indicates unwanted sexual contact. As previously mentioned, the SES has

demonstrated adequate internal consistency and test-retest reliability (e.g., Osman, 2011; Testa et al., 2004). The SES was used in this study to validate the harassment and rape facets of the MUSES. Reliability for the SES in the current study was high (Kuder Richardson-20 = .84). The SES can be found in Appendix E.

Data Analysis

The Statistical Package for the Social Sciences, Version 19.0 (SPSS) was used to store and analyze data. In preliminary analyses, data were inspected for normality, outliers, and excessive missing cases. After preliminary analyses, the MUSES scale was subjected to principal component analysis (PCA) to determine the factor structure of the scale. PCA is a member of a larger class of methods known as factor analysis. PCA is largely an exploratory procedure and a method of data reduction. As this was an exploratory, not confirmatory, examination of the psychometric properties of the MUSES, PCA was warranted. In PCA, factors of a scale are estimated such that they represent variances among scale items as economically as possible. PCA accomplishes this by analyzing the correlation matrix among the scale items with items on the primary diagonal to maximize all the variance in the items. Items that explain little variance are candidates for deletion on the scale (Netemeyer et al., 2003).

Unrestricted and restricted (i.e., forced solution) PCA was conducted using the following criteria to determine factor extraction: Kaiser's rule of eigenvalues greater than one, Cattell's scree test (i.e., scree plot) (Cattell, 1966), percentage of variance explained between the items after rotation, and the trade off between parsimony and adequacy. In factor analysis, a scree plot graphically represents the relationship between how much variation in the items is explained by a factor (eigenvalues) along the x-axis

and the total number of factors along the y-axis. Resulting eigenvalues are shown as a line segment and plotted in descending order. The point where the line levels off on this graph signifies the amount of factors that should be retained from factors that account for too insignificant variance to preserve. Kaiser's rule, or the "eigenvalue-greater-than-one" rule (Netemeyer et al., 2003), was also implemented in this study. This rule requires that a factor must explain at least as much variance as can be accounted for by a single item. Thus, any factor with an eigenvalue less than one was omitted from consideration.

As PCA does not take into account communal and unique variances, a rotation procedure was implemented to simplify and clarify the data structure. The purpose of rotating factors after they are extracted is to make factors more interpretable and create the most simple structure possible. Simple structure exists when each scale item loads highly on as few factors as possible; ideally, each item has a substantial loading on only one factor. When examining the rotated model, items with loadings between .40 and .90 were retained (as recommended by Netemeyer et al., 2003). This process ensures simple structure while also avoiding high loadings that may be indicative of wording redundancy. A direct oblimin rotation procedure was selected as this procedure allows for rotation if factors are orthogonal (i.e., uncorrelated) or oblique (i.e., correlated) in nature. While MUSES factors should theoretically be related, selecting the oblimin rotation ensured that rotation would occur in the unlikely event of orthogonal factors. Empirical and conceptual considerations were considered for final factor interpretation and naming. Lastly, Hypotheses 2 and 3 were tested utilizing zero-order correlations between the MUSES and other study measures (SES, PCL-S, and PTCI) and a one-step regression with PCL-S and MUSES scores.

Chapter V

Results

Data screening was conducted first to check for outliers, entry errors, and the suitability of data for factor analysis. Preliminary analyses revealed no evidence of violations of the independence and normality assumptions associated with factor analysis. Missing data in the MUSES, PCL-S, and PTCI was addressed utilizing the mean substitution method. Debate exists regarding the suitability of various methods (e.g., listwise, pairwise, mean substitution) for dealing with missing data (see Acock, 2005 for a review). However, given the small sample size of the current study and the determination that the minimal amount of missing data was random in nature, the mean substitution method was implemented. Examination of the correlation matrix of MUSES items revealed the presence of many coefficients of .30 and above. This indicated that MUSES items were moderately correlated, but not so highly associated that factor analysis is not warranted (Tabachnik & Fidell, 2005).

Statistical analyses in PCA typically yield the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (e.g., power) and Bartlett's test for sphericity. A KMO value greater than 0.5 indicates the sample is adequate for analysis. Bartlett's measure tests whether there is sufficient relationship between the variables included in the analysis; if this test is significant ($p < .05$), relationships exist between the variables. In the current study, it was not possible to calculate KMO and Bartlett's test (a common issue with small sample size in factor analyses). In the current study, it is likely this occurred due to the existence of a nonpositive definite (NPD) correlation matrix. A correlation matrix is NPD if there are linear dependencies among the variables, reflected

by one or more eigenvalues equal to zero. As is true of the current study, the occurrence of more variables in the analysis than there are cases results in a correlation matrix with linear dependencies. Although all other previous preliminary analyses indicated factor analysis could be conducted, traditionally, factor analysis would be suspended at this juncture until a larger sample was obtained and measures of sampling adequacy could be computed and analyzed. As this is a preliminary analysis of the MUSES, factor analysis was carried out for this research. The issue of small sample size is further addressed in the limitation section.

Factor Analysis

To test Hypothesis 1, MUSES items were submitted to principal components factor analysis. As described in the data analysis section, an initial PCA was conducted to explore the maximized shared variance across the MUSES items. The initial unrestricted factor analysis produced an 18-factor solution that accounted for the predetermined acceptable level of variance in the scale (i.e., eigenvalues greater than one) and explained 84.5% of the variable variance. Figures 2 and 3 show the total variance explained in this model and the accompanying scree plot. Based on Kaiser's rule, the scree plot of eigenvalues, and the trade-off between model parsimony and adequacy, the data appeared to suggest a four-factor solution. However, to confirm this model as the best fit, the models above (five-factor solution) and below (three-factor solution) were also selected for further data analyses. Table 3 provides correlations among the 68 MUSES items.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	18.530	27.250	27.250	18.530	27.250	27.250
2	5.277	7.761	35.011	5.277	7.761	35.011
3	4.410	6.485	41.497	4.410	6.485	41.497
4	3.597	5.290	46.787	3.597	5.290	46.787
5	3.361	4.942	51.729	3.361	4.942	51.729
6	2.682	3.945	55.674	2.682	3.945	55.674
7	2.537	3.731	59.404	2.537	3.731	59.404
8	2.353	3.460	62.864	2.353	3.460	62.864
9	2.169	3.189	66.053	2.169	3.189	66.053
10	1.876	2.759	68.812	1.876	2.759	68.812
11	1.673	2.460	71.272	1.673	2.460	71.272
12	1.576	2.317	73.589	1.576	2.317	73.589
13	1.424	2.095	75.684	1.424	2.095	75.684
14	1.334	1.962	77.646	1.334	1.962	77.646
15	1.297	1.907	79.553	1.297	1.907	79.553
16	1.212	1.783	81.336	1.212	1.783	81.336
17	1.129	1.661	82.997	1.129	1.661	82.997
18	1.022	1.504	84.501	1.022	1.504	84.501
19	.986	1.450	85.951			
20	.900	1.323	87.274			

Extraction Method: Principal
Component Analysis.

Figure 2. Initial unrestricted factor analysis of the MUSES.

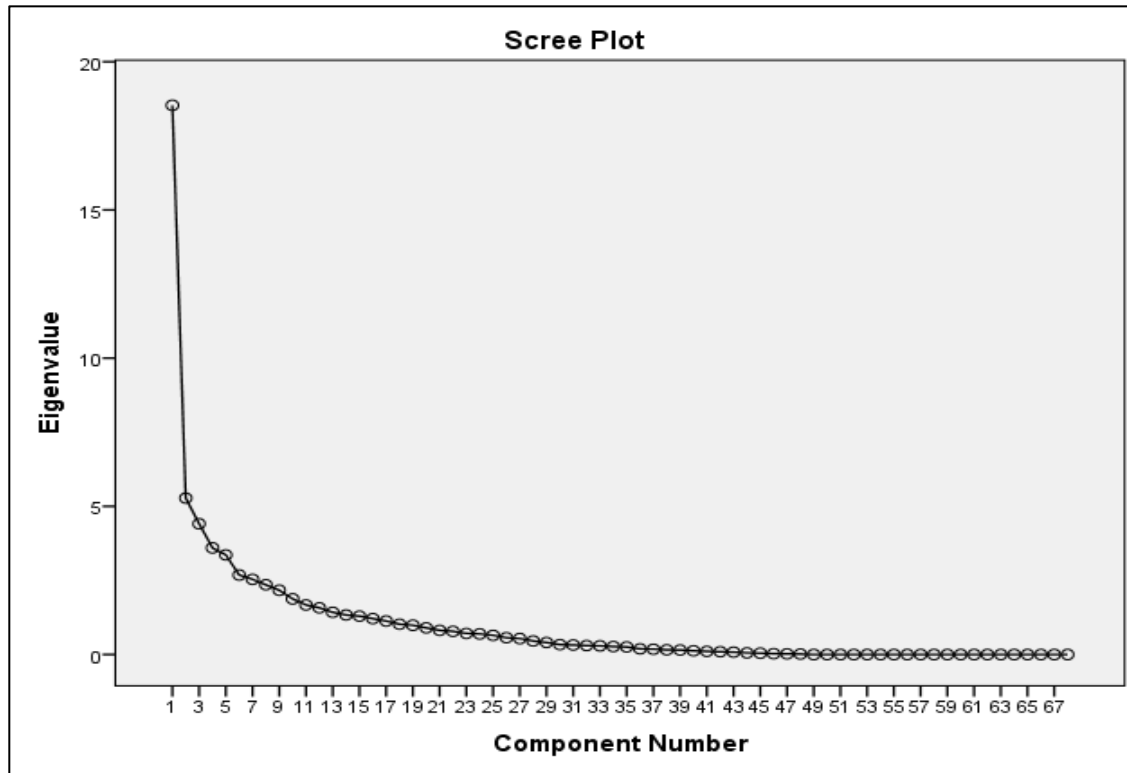


Figure 3. Scree plot for initial unrestricted factor analysis of the MUSES.

Table 3

Intercorrelations Among MUSES Items

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	1.00																				
2	0.76	1.00																			
3	0.49	0.43	1.00																		
4	0.25	0.21	0.19	1.00																	
5	0.26	0.23	0.52	0.02	1.00																
6	0.12	0.11	0.36	0.64	0.25	1.00															
7	0.19	0.07	0.18	0.63	0.11	0.39	1.00														
8	0.05	0.03	0.14	0.06	0.14	0.11	0.06	1.00													
9	0.34	0.34	0.24	0.11	0.09	0.20	0.05	0.18	1.00												
10	0.19	0.30	0.40	0.04	0.19	0.28	0.09	0.33	0.37	1.00											
11	0.50	0.61	0.52	0.41	0.20	0.28	0.50	0.02	0.18	0.30	1.00										
12	0.34	0.42	0.53	0.26	0.44	0.53	0.14	0.18	0.21	0.53	0.47	1.00									
13	0.02	0.14	0.14	0.12	0.09	0.15	0.13	0.38	0.24	0.40	0.04	0.18	1.00								
14	0.11	0.16	0.00	0.47	0.04	0.42	0.25	0.34	0.25	0.20	0.25	0.41	0.27	1.00							
15	0.11	0.17	0.25	0.08	0.22	0.20	0.04	0.33	0.33	0.46	0.03	0.46	0.40	0.26	1.00						
16	0.08	0.13	0.13	0.65	0.01	0.54	0.67	0.21	0.03	0.17	0.40	0.31	0.06	0.55	0.21	1.00					
17	0.31	0.42	0.39	0.32	0.06	0.56	0.23	0.09	0.40	0.64	0.34	0.48	0.24	0.38	0.38	0.30	1.00				
18	0.08	0.20	0.16	0.17	0.08	0.34	0.06	0.18	0.28	0.66	0.02	0.42	0.25	0.20	0.54	0.18	0.65	1.00			
19	0.17	0.21	0.38	0.05	0.12	0.13	0.16	0.31	0.20	0.49	0.27	0.39	0.21	0.31	0.47	0.26	0.30	0.35	1.00		
20	0.14	0.34	0.45	0.06	0.21	0.38	0.16	0.27	0.20	0.38	0.30	0.51	0.20	0.06	0.31	0.14	0.44	0.26	0.45	1.00	
21	0.22	0.38	0.55	0.32	0.38	0.56	0.33	0.14	0.21	0.37	0.47	0.61	0.16	0.03	0.22	0.35	0.40	0.27	0.23	0.62	1.00
22	0.20	0.36	0.08	0.34	0.02	0.30	0.33	0.02	0.04	0.33	0.49	0.38	0.00	0.28	0.09	0.27	0.44	0.28	0.17	0.17	0.41

Note. Items in bold are negative correlations.

Table 3 Continued

Intercorrelations Among MUSES Items

Item	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
23	1.00																				
24	0.06	1.00																			
25	0.17	0.25	1.00																		
26	0.08	0.10	0.32	1.00																	
27	0.11	0.33	0.35	0.16	1.00																
28	0.16	0.38	0.53	0.27	0.29	1.00															
29	0.41	0.20	0.26	0.42	0.33	0.19	1.00														
30	0.07	0.11	0.19	0.31	0.00	0.18	0.18	1.00													
31	0.12	0.20	0.06	0.23	0.11	0.42	0.15	0.13	1.00												
32	0.22	0.11	0.24	0.17	0.19	0.49	0.28	0.18	0.50	1.00											
33	0.67	0.08	0.34	0.20	0.34	0.32	0.43	0.04	0.23	0.50	1.00										
34	0.34	0.31	0.31	0.38	0.14	0.63	0.15	0.18	0.55	0.44	0.49	1.00									
35	0.10	0.31	0.08	0.02	0.17	0.30	0.09	0.05	0.08	0.00	0.16	0.15	1.00								
36	0.55	0.25	0.11	0.15	0.28	0.09	0.55	0.20	0.11	0.20	0.55	0.17	0.21	1.00							
37	0.36	0.25	0.22	0.26	0.55	0.19	0.36	0.03	0.03	0.14	0.48	0.12	0.06	0.34	1.00						
38	0.41	0.02	0.18	0.35	0.10	0.15	0.29	0.10	0.02	0.11	0.25	0.23	0.00	0.38	0.21	1.00					
39	0.28	0.20	0.08	0.40	0.38	0.08	0.48	0.12	0.40	0.32	0.41	0.24	0.07	0.39	0.59	0.14	1.00				
40	0.32	0.06	0.17	0.35	0.25	0.25	0.28	0.08	0.40	0.28	0.48	0.49	0.04	0.24	0.18	0.01	0.29	1.00			
41	0.06	0.18	0.32	0.17	0.10	0.30	0.10	0.19	0.58	0.49	0.13	0.37	0.02	0.03	0.11	0.04	0.30	0.22	1.00		
42	0.34	0.12	0.22	0.34	0.20	0.14	0.38	0.40	0.02	0.22	0.32	0.18	0.19	0.45	0.32	0.26	0.24	0.25	0.20	1.00	
43	0.32	0.20	0.39	0.25	0.34	0.05	0.39	0.22	0.09	0.30	0.40	0.25	0.10	0.44	0.30	0.16	0.37	0.23	0.23	0.61	1.00
44	0.30	0.28	0.23	0.41	0.41	0.09	0.53	0.18	0.01	0.20	0.40	0.09	0.03	0.53	0.44	0.14	0.39	0.40	0.22	0.53	0.44

Note. Items in bold are negative correlations.

Table 3 Continued
Intercorrelations Among MUSES Items

Item	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67
45	1.00																						
46	0.65	1.00																					
47	0.56	0.72	1.00																				
48	0.30	0.45	0.31	1.00																			
49	0.04	0.02	0.14	0.47	1.00																		
50	0.09	0.29	0.21	0.35	0.24	1.00																	
51	0.22	0.18	0.15	0.30	0.36	0.16	1.00																
52	0.44	0.29	0.28	0.34	0.20	0.16	0.26	1.00															
53	0.42	0.32	0.36	0.45	0.51	0.20	0.38	0.50	1.00														
54	0.35	0.40	0.37	0.55	0.41	0.35	0.30	0.67	0.75	1.00													
55	0.45	0.62	0.58	0.60	0.22	0.19	0.35	0.52	0.51	0.62	1.00												
56	0.06	0.02	0.04	0.35	0.68	0.24	0.16	0.15	0.49	0.38	0.14	1.00											
57	0.47	0.56	0.36	0.43	0.00	0.22	0.24	0.42	0.40	0.47	0.52	0.13	1.00										
58	0.36	0.47	0.44	0.64	0.32	0.23	0.26	0.44	0.47	0.67	0.57	0.10	0.55	1.00									
59	0.21	0.39	0.16	0.34	0.23	0.33	0.42	0.36	0.31	0.39	0.36	0.08	0.49	0.39	1.00								
60	0.34	0.33	0.27	0.01	0.03	0.15	0.07	0.35	0.24	0.26	0.26	0.04	0.37	0.25	0.17	1.00							
61	0.06	0.15	0.06	0.16	0.10	0.00	0.04	0.24	0.15	0.25	0.21	0.12	0.17	0.11	0.20	0.14	1.00						
62	0.55	0.41	0.41	0.17	0.08	0.17	0.16	0.25	0.21	0.31	0.19	0.01	0.25	0.28	0.15	0.30	0.20	1.00					
63	0.26	0.24	0.19	0.13	0.04	0.20	0.19	0.54	0.24	0.50	0.22	0.21	0.51	0.25	0.41	0.10	0.21	0.29	1.00				
64	0.34	0.28	0.31	0.43	0.47	0.11	0.38	0.27	0.53	0.48	0.32	0.38	0.30	0.43	0.04	0.24	0.25	0.29	0.18	1.00			
65	0.23	0.20	0.04	0.07	0.01	0.05	0.06	0.11	0.10	0.17	0.16	0.06	0.16	0.25	0.20	0.12	0.23	0.20	0.11	0.10	1.00		
66	0.34	0.28	0.29	0.09	0.21	0.24	0.13	0.24	0.17	0.26	0.18	0.03	0.15	0.27	0.09	0.31	0.02	0.01	0.09	0.14	0.06	1.00	
67	0.05	0.38	0.28	0.43	0.12	0.51	0.07	0.28	0.16	0.41	0.41	0.26	0.27	0.34	0.43	0.12	0.04	0.20	0.40	0.05	0.22	0.02	1.00
68	0.16	0.13	0.37	0.10	0.30	0.04	0.01	0.38	0.37	0.32	0.30	0.19	0.06	0.28	0.05	0.10	0.15	0.20	0.10	0.08	0.12	0.02	0.25

Note. Items in bold are negative correlations.

MUSES items were next submitted to PCA with a direct oblimin rotation procedure for all three fixed models (i.e., the three-, four-, and five-factor solutions), and items were retained with loadings within the predetermined range ($.40 > .90$). Ultimately, the four-factor solution was selected as the most parsimonious of the three models that also met previously outlined inclusion criteria. Table 4 provides a comparison of these models. The four-factor model explained 46.8% of the variable variance, with communalities for the variables ranging from .31 to .83. The resulting pattern coefficient matrix exhibited simple structure, with only item 37 loading onto more than a single factor. Each factor associated with a clearly delineated subset of variables with moderate to high pattern coefficients. Table 5 provides the factor loadings and corresponding communalities of the four-factor solution. A total of 12 items did not load within the solution according to the predetermined criteria for sufficient loading (i.e., loadings $< .40$) and are candidates for deletion from the MUSES.

The four factors of the resulting 56-item MUSES were next theoretically conceptualized and named. Factor 1 accounted for 27.3% of the variance explained and was labeled “Perceived Permanent Damage/Change.” Factor 2 accounted for 7.8% of the variance explained and was labeled “Relationship Costs and Control.” Factor 3, labeled “Unsafe World and Appearance,” accounted for 6.5%. Factor 4 accounted for 5.3% of the variance explained and was labeled “Blame from Self and Others.” Fifteen items loaded onto Factor 1 (values ranged from .41 to .88) and reflected general beliefs that the individual was permanently damaged, scarred, or changed in some way as a result of the event (e.g., “I believe that my soul is permanently damaged,” “I have lost my sense of purpose,” “I lost my religious faith”). Fifteen items loaded onto Factor 2 (values ranged

Table 4

Model Fit for Selected Rotated Factor Solutions to MUSES

Factor	Eigenvalue	% of variance	Cumulative %
3	4.41	6.49	41.50
4	3.60	5.29	46.79
5	3.36	4.94	51.73

Note. These rotated factor solutions span the four-factor solution of the MUSES to aid in demonstrating the decision making process of the current study.

Table 5
Summary of Items and Factor Loadings for Rotated Four-Factor Solution for the MUSES Scale

Item	Factor Loading				Communality
	1	2	3	4	
45. I don't value my life anymore.	.88	.01	-.29	.19	.83
46. I believe that my soul is permanently damaged.	.83	-.14	.19	-.13	.72
42. Sometimes I wish I could just die because of the emotional pain from this experience.	.73	.07	-.27	.13	.58
47. I wish that I would have died during the event.	.67	-.01	.09	.11	.54
44. I have lost my sense of purpose.	.63	.25	-.17	.25	.63
57. I lost my religious faith.	.62	-.11	.26	.04	.51
55. I became so disappointed in myself that I gave up on my goals	.59	.06	.29	.00	.56
62. I could no longer tolerate any food that reminded me of the assault.	.53	-.14	.09	.17	.37
43. It feels dangerous to remember the event.	.53	.36	-.12	.12	.52
20. I believe that others know or can tell by looking at me what has happened to me.	.47	-.03	.23	.37	.58
26. My anger and rage keeps people away from me.	.47	.11	.16	.00	.33
41. I don't allow myself to experience any sexual pleasure.	.45	.11	.28	-.36	.41
58. I stopped believing in the goodness of people.	.44	.11	.35	.04	.47
48. I get too anxious to be around other people.	.41	.26	.39	-.26	.55
54. I judged myself as a weak person.	.41	.22	.34	.13	.55
49. I have become very cautious.	-.18	.89	.08	.07	.78
4. I withdrew from my family and friends, becoming more and more isolated.	.25	.70	.10	-.32	.71
14. I blamed myself for being too trusting.	-.24	.70	.05	.22	.53
16. I became suspicious of anyone who wanted to be close to me.	.20	.69	.06	-.15	.61
27. I will never allow anyone to have the "upper hand" or control over me again.	-.08	.64	-.02	.24	.47
56. I started making every effort to make sure that never happened to me again.	.03	.63	-.03	-.09	.40
7. I no longer wanted emotional closeness with anyone.	.26	.61	.15	-.40	.65
64. I could no longer relax around others.	.33	.61	.08	-.16	.60
24. I have tried to block out memories of this event.	.01	.57	.03	-.07	.33
6. I viewed my body as tainted, stained, or like "damaged goods."	.27	.56	.06	.17	.58
37. I cannot control my emotional reactions when I am reminded about the sexual assault.	.03	.55	-.12	.48	.58
51. I have passed up or left good relationships because I don't want to be too vulnerable.	.12	.54	-.02	.20	.41
39. I feel guilty for not letting people who care about me be close to me	.36	.52	-.13	.10	.49
22. I now avoid anyone who is like the perpetrator.	-.11	.52	.14	.19	.35
53. I judged myself as weak for not fighting back or not fighting back harder.	.38	.50	.07	.06	.55

Note. Boldface indicates highest factor loadings.

Table 5 Continued
Summary of Items and Factor Loadings for Rotated Four-Factor Solution for the MUSES Scale

Item	Factor Loading				Communality
	1	2	3	4	
28. I go to great effort to keep myself safe these days.	-.21	.35	.76	-.09	.74
1. I changed how I dress to keep the event from happening again	-.09	-.04	.73	.01	.49
3. I am afraid to think about the assault because the feelings are too overwhelming.	.10	-.08	.70	.16	.57
2. I changed my appearance in some way to keep this from happening again	.06	-.05	.64	.14	.47
5. I questioned my role in the assault and believed I was somehow to blame.	-.18	-.07	.64	.21	.42
61. I dressed in ways that hid my sexuality.	-.09	.00	.61	-.03	.35
34. I don't go places where I might be unsafe or lose control.	.25	.22	.61	-.28	.64
11. I stopped looking at myself in the mirror.	.01	.28	.58	-.08	.49
12. I believed there is something about me that allowed this to happen.	-.10	.22	.58	.43	.67
32. I find all sexual acts disgusting.	.30	.13	.57	-.20	.55
67. I felt betrayed.	.11	-.10	.53	.18	.37
59. I need a lot of reassurance that people really like me.	.11	.02	.46	.31	.42
31. I don't want to have sexual intimacy, even with people I know care about me.	.21	.25	.44	-.36	.45
33. I feel dirty or filthy.	.21	.19	.43	.40	.65
21. I believe that anyone like the perpetrator wants to harm me.	.36	.16	.40	.15	.53
10. I believed that I was a "whore" or "slut" because of what happened to me.	.12	.02	.20	.69	.63
18. I thought that I got what I deserved because of something I did or must have done.	.12	.18	-.10	.63	.50
17. I now see my body as disgusting.	.12	.38	.03	.62	.68
15. I believed there was a sign on my forehead that said "rape me" or "abuse me."	.01	-.05	.21	.58	.41
13. I blamed myself for being too intoxicated or drunk.	-.03	-.08	.03	.57	.31
23. I don't trust myself.	.23	.03	.20	.53	.50
36. I fear having to tell anyone about what I have experienced because they might blame me.	.35	.17	.02	.49	.54
52. I no longer speak up for myself.	.28	.07	.23	.45	.49
63. I thought that I was morally changed because of the assault.	.19	-.15	.33	.44	.44
19. I thought something about me attracts negative attention from the wrong people.	-.08	.16	.27	.43	.32
29. If people knew about the sexual assault, they would reject me.	.36	.25	-.05	.41	.49

Note. Boldface indicates highest factor loadings.

from .50 to .89) and reflected efforts to exhibit control over self, others, or environment (e.g., “I have tried to block out memories of this event,” “I now avoid anyone who is like the perpetrator”) or costs to personal relationships (e.g., “I have passed up or left good relationships because I don't want to be too vulnerable,” “I withdrew from my family and friends, becoming more and more isolated”). Fifteen items loaded onto Factor 3 (values ranged from .40 to .76) and reflected beliefs that the world is inherently unsafe (e.g., “I believe that anyone like the perpetrator wants to harm me,” “I go to great effort to keep myself safe these days”) or modifications in appearance after the event (e.g., “I changed how I dress to keep the event from happening again,” “I dressed in ways that hid my sexuality”). Eleven items loaded onto Factor 4 (values ranged from .41 to .69) and reflected self-blame and perceived blame from others (e.g., “I thought that I got what I deserved because of something I did or must have done,” “If people knew about the sexual assault, they would reject me”). Correlations between the factors were moderate, ranging from .45 to .59. Chronbach's alpha for the four MUSES factors and total score were as follows: total score, $\alpha = .95$; F1, $\alpha = .91$; F2, $\alpha = .91$; F3, $\alpha = .90$; F4, $\alpha = .88$.

Convergent Validity & Correlations Among Study Variables

To examine the convergent validity of the MUSES (i.e., Hypothesis 2), zero-order correlations were calculated between the MUSES scores and scores on the PCL-S, PTCL, and SES (refer to Table 6). As hypothesized, the MUSES was significantly positively associated with scores on the PCL-S ($r = .49, p < .001$) such that participants who scored high on the MUSES were more likely than participants who scored low on the MUSES to score high on posttraumatic stress. In addition, as hypothesized, the MUSES was

Table 6

Zero-order Correlations Among MUSES, PCL-S, PTCI, and SES Measures

Variable	MUSES	PCL-S	PTCI
MUSES	1.00		
PCL-S	.49***	1.00	
PTCI	.57***	.68***	1.00
SES	.25	.02	.29*

Note. MUSES = Military Unwanted Sexual Experiences Survey; PCL-S = Posttraumatic Checklist-Specific Stressor version; PTCI = Posttraumatic Cognitions Inventory; SES = Sexual Experiences Survey.

* $p < .05$. ** $p < .01$. *** $p < .001$.

significantly positively related with scores on the PTCI ($r = .57, p < .001$) such that participants who scored high on the MUSES were more likely than participants who scored low on the MUSES to score high on trauma-related cognitions. Also consistent with hypotheses, the MUSES rape item was positively associated with the SES rape scale ($r = .42, p < .01$). Contrary to expectations, MUSES total scores were not related to SES total scores ($r = .25, p > .05$). The SES does not have a specific harassment scale, so the MUSES harassment item was correlated with the three related SES scales: unwanted physical contact, sexual coercion, and unwanted sexual contact. Against expectations, the MUSES harassment item was only positively associated with unwanted physical contact on the SES ($r = .40, p < .01$). Secondary analyses correlating the PCL-S subscales with each of the four-factors revealed moderate correlations between Factors 1 and 2 and all three symptom clusters. Table 7 provides the details of this analysis as well as correlations among the four MUSES factors.

Predictive Validity

Hypothesis 3 was tested using a one-step regression with PCL-S scores as the criterion variable and MUSES scores as the predictor variable. As hypothesized, results revealed that MUSES scores significantly predicted PCL-S scores, $F(1, 52) = 15.65, p < .001$. This result will be used as initial evidence for the MUSES' predictive validity.

Table 7

Zero-order Correlations Between MUSES Factors and PCL-S Symptom Clusters

Variable	F1	F2	F3	F4	ReEx	Avoid
F1	1.00					
F2	.55**	1.00				
F3	.57**	.51**	1.00			
F4	.59**	.45**	.51**	1.00		
ReEx	.42**	.36**	.17	.18	1.00	
Avoid	.41**	.38**	.24	.23	.69**	1.00
Hyper	.55**	.53**	.31*	.24	.78**	.79**

Note. PCL-S = Posttraumatic Checklist-Specific Stressor version; ReEx = ReExperiencing Subscale; Avoid = Avoidance Subscale; Hyper = Hyperarousal Subscale; F1 = Factor 1; F2 = Factor 2; F3 = Factor 3; F4 = Factor 4.

* $p < .05$. ** $p < .01$. *** $p < .001$.

MST Descriptive Statistics

This section provides results regarding the descriptive information captured on the MUSES related to participants' MST experiences. Since respondents were often permitted to select multiple options in descriptive sections of the MUSES, the frequencies of some items will exceed the total sample size of this study. Table 8 provides some additional information related to participants' MST experiences.

The majority of the sample reported exposure to a range of MST experiences, including verbal harassment about their gender (70%), unwanted sexual attention (87%), sexual coercion (43%), unwanted physical contact (77%), and sexual assault (87%). Approximately 36% of Veterans in the current sample experienced one military sexual assault, while 32% experienced three or more sexual assaults, and 17% experienced two sexual assaults. Participants experienced forced vaginal (66%) and anal (23%) intercourse, being forced to give (15%) or receive (11%) oral sex, and/or being raped with a foreign object (8%) during the MST. During the MST, Veterans reported cruel/humiliating verbal abuse (51%), threats on their life (30%) or career (38%), vaginal (43%) or anal (17%) tearing or bleeding, being strangled (11%) or beaten (15%), and/or being held at knife or gun point (11%). The majority of MST experiences occurred over 20 years ago (38%), followed by 10 to 20 years ago (28%), 5 to 10 years ago (11%), 1 to 5 years ago (8%), and less than one year ago (4%). Most perpetrators were male (89%) and acted alone (62%), with some instances of two (2%) or three or more (23%) simultaneous perpetrators. The majority of MST experiences were perpetrated by a military co-worker (28%), an individual ranked as a Non-Commissioned Officer (NCO) (38%), as well as by someone of a higher rank than the victim (57%). Approximately

Table 8

Descriptive Statistics for Selected Nominal and Ordinal Level MST Measures

Variable	Frequency	Percentage
Relation to perpetrator		
Military co-worker	20	37.7
Supervisor	10	18.9
Friend	6	11.3
Stranger	5	9.4
Superior officer	4	7.5
Non-military	3	5.7
Rank of perpetrator		
Non-Commissioned Officer (NCO)	20	37.7
Enlisted	16	30.2
Unknown	7	13.2
Non-military	2	3.8
Officer	3	5.7
Rank compared to victim		
Higher than mine	30	56.6
Not sure	9	17.0
Equal to mine	4	7.5
Lower than mine	3	5.7
Not applicable	2	3.8
When MST occurred in career		
Assigned duty station	29	54.7
Advanced training	12	22.6
Basic training or boot camp	7	13.2
Physical & emotional experiences during MST		
Bruises	29	54.7
Cruel/humiliating verbal abuse	27	50.9
Vaginal tearing/bleeding	23	43.4
Threats on career	20	37.7
Threats on life	16	30.2
Anal tearing/bleeding	9	17.0
Cuts	8	15.1
Physically beaten	8	15.1
Held at knife or gun point	6	11.3
Strangled	6	11.3
Head injury	4	7.5
Loss of virginity	4	7.5

Table 8 Continued

Descriptive Statistics for Selected Nominal and Ordinal Level MST Measures

Variable	Frequency	Percentage
Behavioral responses to MST in 24 hours		
Isolated from others	41	77.4
Excessive showering/bathing	34	64.2
Alcohol or substance abuse	21	39.6
Called in sick to work	17	32.1
Told someone (friend, chaplain, etc.)	17	32.1
Vomiting	16	30.2
Engaged in risky/reckless behavior	15	28.3
Sought medical attention	12	22.6
Binge eating	10	18.9
Sought mental health care	6	11.3
Suicide attempt	5	9.4
Self injury	3	5.7
Consequences of reporting MST		
Punished	13	24.5
Transferred	9	17.0
Worse assignment	7	13.2
More hazardous assignment	5	9.4
Demoted	2	3.8
Reason/s believed MST occurred		
My gender	31	58.5
Being too timid	17	32.1
Being too feminine	16	30.2
My race	10	18.9
The way I dressed	10	18.9
Being too assertive	10	18.9
Being too successful	9	17.0
Being too flirtatious	6	11.3
My sexual history	5	9.4
My sexual orientation	5	9.4
Being too masculine	3	5.7
My peer group	3	5.7

72% of MST experiences in the current sample were reported to occur on military property. The barracks (30%), base (30%), war zone (15%), workstation (13%), deployment (9%), and in transit (2%) were selected as the most common MST locations.

Participants endorsed a variety of physical and emotional consequences from the MST. Approximately 13% used emergency contraceptives after the MST and 11% contracted a sexually transmitted disease (STD). Pregnancy occurred in five MST cases (one abortion, four child births). Participants also indicated behaviors completed within 24 hours of the MST that they believed were specifically related to the event. The most common of these were isolating from others (77%), showering/bathing excessively (64%), and abusing alcohol or substances (40%). Approximately 28% sought medical care related to the MST. Within one week, a rape kit was performed for 13% of participants, 8% were visited by either military police or a mental provider, 6% stayed overnight in a hospital, and 9% were visited by a military advocate. Many participants were required to interact with their perpetrators after the MST (62%), and some depended on the perpetrator for their safety/wellbeing (34%) and/or performance evaluations (30%). Moreover, 59% of participants had to be in the same physical space as their perpetrators on a weekly basis, and 21% of participants requested a transfer as a result.

Almost 38% of the current sample endorsed reporting the MST. Consequences of reporting ranged from being punished (25%) or transferred (17%) to receiving a worse (13%) or more hazardous (9%) duty assignment to being demoted (4%). The majority of participants believed the MST occurred because of their gender (56%), followed by being too timid (32%) and too feminine (30%). Respondents were also asked to rate on a scale from 1 (*Not At All True*) to 3 (*Very True*) how true a set of 12 statements (e.g., I thought I

would be blamed, I didn't think I would be believed, I worried about my safety or physical well-being, I didn't want others to see me as weak) were for them as they were *considering* reporting the MST. The majority of items had a mean above two, indicating that participants believed the item was at least partially true when they considered reporting the event. Table 9 provides details for each item. Relatedly, approximately 25% of the sample (13 cases) reported that the civilian/military police, Judge Advocate General (JAG), or Office of Inspector General (OIG) were involved following the MST. Of these, 10 cases had a full investigation, three perpetrators were charged with a crime, two perpetrators were tried in court, and two perpetrators were found guilty of the crime.

Table 9

Descriptive Information for Continuous MUSES Item, "When Considering Reporting the MST, How True Was...?"

Variable	<i>M</i>	<i>SD</i>	Range
Shocked someone in military would do this to me	2.78	.55	1-3
Thought I would be blamed	2.71	.61	1-3
Didn't think I would be believed	2.69	.62	1-3
Worried I would be isolated/ostracized by peers	2.63	.64	1-3
Did not want others to see me as weak	2.56	.77	1-3
Worried I would be "put out" of the military	2.45	.84	1-3
Worried maybe I deserved it	2.43	.79	1-3
I knew reporting would be worse than the assault	2.45	.74	1-3
Worried about my safety or wellbeing	2.39	.84	1-3
I believed nothing would happen	2.27	.86	1-3
Knew others who reported and nothing happened	1.98	.92	1-3
Concerned about being judged as gay/lesbian	1.57	.87	1-3

PSYCHOMETRIC EXPLORATION OF MUSES

Chapter VI

Discussion

The current study was designed as an initial psychometric exploration of the Military Unwanted Sexual Experiences Survey (MUSES). There are a variety of well-validated assessment instruments in the field of trauma (e.g., CAPS, PCL, PTCI). However, these instruments fail to capture the unique experience and consequences of Military Sexual Trauma (MST). This study made the argument that sexual harassment and assault within the military setting is phenomenologically different from other settings. No known assessment instrument could be found that taps into and assesses MST, and the MUSES represents the first known assessment tool that examines MST phenomenologically. The remainder of this chapter will discuss the results of the current study, study implications and future research directions, and limitations.

Primary Analyses

Consistent with study hypotheses, factor analysis of MUSES items indicated the scale is multidimensional in nature. Principal component analyses (PCA) initially appeared to indicate a four-factor solution, and visual inspection ultimately confirmed that this solution was the most parsimonious and adequate solution within the predetermined criteria. The resulting four factors (Perceived Permanent Damage/Change, Relationship Costs and Control, Unsafe World and Appearance, and Blame from Self and Others) demonstrated simple structure, but were challenging to conceptually label. The four factors were multifaceted, with some items that loaded highly within the solution but did not fit conceptually with other items. This is likely due to the small sample size and potential instability of the factor structure. As a larger

sample is obtained, it is expected that future analyses with the MUSES will produce more stable factor structure and, as a result, item clusters with more clear conceptual fit.

Importantly, 12 MUSES items did not meet predetermined loading criteria and are candidates for deletion from the scale. Data reduction is a major component of factor analysis, and reducing the number of items will aid in creating a parsimonious measure.

The current results also offer promising preliminary evidence for the reliability and validity of the MUSES. Internal consistency for the total scale was excellent, and reliability of the individual factors ranged from high to very high. Consistent with hypotheses, the MUSES was associated with the PCL-S, PTCI, and SES rape scale. Given the similar nature of items across these scales and the underlying constructs these measures assess this result was not surprising. Though against initial expectations, the fact that SES total scores did not correlate with MUSES total scores is, in hindsight, not shocking. As discussed previously, the SES has several psychometric limitations and concerns regarding the utility of the tool have surfaced (e.g., Koss et al., 2007). Factor analysis of the MUSES indicated the scale is multidimensional. The multiple factors present in the MUSES could have voided the correlation between the two scales. In addition, the limitations of the SES measure may have contributed to this result. Thus, correlating the total MUSES and SES scores was, to some degree, a flawed and inaccurate analysis. Also against expectations, the MUSES harassment item was not associated with similar harassment items on the SES. This could be due to the fact that no specific harassment item or scale on the SES directly compares with the MUSES harassment item. When one considers the strong, predictive relationship between MST and PTSD (e.g., Himmelfarb et al., 2006; Kang et al., 2004; Suris et al., 2004), it is also

not surprising that MUSES scores predicted PCL-S scores in the current study. The PCL has been well established as a reliable and valid assessment tool (e.g., Blanchard et al., 1996; Ventureya et al., 2002), thus signifying some initial evidence for the MUSES' predictive validity.

Particularly due to the small sample size, these analyses should be interpreted with caution. However, as an initial exploration of the MUSES, the scale held up fairly well to data analysis and demonstrated some evidence of concurrent and predictive validity with well-known trauma measures. These preliminary results make a compelling case for continuing with future psychometric exploration of the MUSES when a more robust and variable sample has been obtained. If the MUSES' psychometric properties continue to be analyzed and validated, this MST scale could be useful in both clinical and research settings in the future.

MST Descriptive Results

Arguably, the most compelling results from the MUSES entail the descriptive information regarding participants' MST experiences. No other known study has inquired about the specific MST demographics (e.g., location of crime, rank of perpetrator, relation to perpetrator, subsequent behaviors, reporting considerations) included in the first sections of the MUSES. Consistent with other research (e.g., Murdoch et al., 2007; Sadler et al., 2003), approximately 70% of the current sample indicated exposure to some form of sexual harassment during military service. While rates of military sexual assault have varied across studies, the rate of rape reported in the current sample (87%) is staggering and well above rates reported in other research. One possible explanation for this is the recruitment sample. While study participation was

open to all Veterans, those with MST were likely more interested in participation. Moreover, as discussed in the limitation section, the majority of participants were from an inpatient unit focused on trauma treatment. Thus, the elevated rate of assault could be at least partially due to these factors.

Beyond prevalence information obtained from the MUSES, the current results provide an initial foundation for distinguishing MST from similar civilian crimes and establishing MST as a unique trauma experience. While the majority of civilian women who are sexual assault victims are victimized before turning 18 (Bureau of Justice Statistics, 2013; Kilpatrick et al., 1992; Tjaden & Thoennes, 2000), all participants in the current sample experienced MST as adults. Moreover, similar civilian crimes tend to occur in isolation with a single perpetrator. The current study revealed that 32% of participants experienced three or more assaults during their service and 23% of these assaults involved three or more simultaneous perpetrators. Only one other known study (Sadler et al., 2003) has reported on this phenomenon, and these results aid in distinguishing MST from other civilian crimes. Another unique MST experience reported in this sample was rape with a foreign object. No known research has indicated this as a common experience in civilian sexual assault cases. As will be discussed in the implications section, it is possible that this act is more a demonstration of power than of sexual pleasure and a mechanism used to maintain the power structure that remains inherent in military culture. Another distinguishing element of MST in the current sample was that the majority of victims knew their perpetrators. Results of the current study revealed that victims often were so acquainted with the perpetrator that they could identify the individual's position and rank in the military. In fact, only seven (13.2%)

participants indicated the rank of the perpetrator was unknown and only five (9.4%) reported the perpetrator was a stranger. As discussed previously, this is relatively uncommon in civilian sexual assault cases (Koss 2006, 2011). Moreover, the majority of participants had to interact with their perpetrator/s after the crime and/or had to depend on the perpetrator/s for performance evaluations or safety. The potential for revictimization, secondary traumatization, and coercion in these situations is arguably high and relatively unheard of in comparable civilian crimes. Prior to this study, no known evidence existed confirming or denying the prevalence of MST in workplace settings. Anecdotally, this study assumed that MST was largely a workplace crime and, therefore, unique from similar civilian crimes. About 13% of the current sample indicated the MST occurred at their workstation. The two most common MST locations were the barracks and on base, though these locations could also arguably be considered part of the workplace, as any military setting is to some degree part of “work.”

A variety of interesting and informative behavioral indicators and cognitive correlates of MST were also revealed in this research. Within 24 hours of the MST, participants were most likely to engage in isolation, excessive showering/bathing, alcohol or substance abuse, call in sick to work, and/or vomit. As discussed later, this type of data may be helpful for training purposes. Reporting is another behavioral indicator important in MST. Consistent with past research, the majority of participants (55%) did not officially report the MST. However, at least two recent studies found that over 70% of victims left MST unreported (Campbell & Raja, 2005; Sadler et al., 2003), indicating that the stigma regarding official reports might be declining. Even if the stigma again reporting is truly diminishing, Veterans in the current study who chose to report

continued to face negative consequences (e.g., punishment, transfer, worse duty assignments, etc.), providing yet another opportunity for revictimization and secondary traumatization while also discouraging reporting behavior of others. When considering reporting the crime, participants cited reasons similar to those in the 2010 WGRA survey (e.g., not wanting others to know, believing nothing would be done about the report). However, the current study covered a wider breadth of cognitions related to the reporting decision making process. Among other reasons, participants indicated they were shocked someone in the military would harass/assault them, worried they would be blamed or not believed, worried peers would ostracize them, feared being seen as weak, and worried they would be terminated or hurt as a result. In the end, for the 13 reported cases in the current sample, only two ended in a guilty verdict. While this percentage of convictions is higher than national reports (refer to Figure 1), reporting MST for the current sample appears to have remained risky as well as largely futile. Given the culture of the military, it was not surprising that participants most believed they were victims due to their gender, but also cited characteristics such as femininity and being timid as contributing factors. Clearly, for many victims, reporting was not worth the risk.

Approval and Recruitment

Anecdotal evidence gathered throughout the course of this research study is also noteworthy and related to the topic. A variety of hurdles and obstacles were encountered in seeking approval for and obtaining study participants. For one, approval for the study in the BCM IRB system took over six months. Before the study was finally approved, multiple amendments and letters of correspondence were exchanged between Dr. Deleene Menefee and the IRB board. Persistent concerns were raised regarding the

emotional response of participants to the survey, and the regional office had to be consulted. Only after multiple dialogues and providing research relevant to these concerns (e.g., Yeater et al., 2012) was the protocol approved. Barriers continued after this hurdle. For instance, on the first day study fliers were posted on the lab door they were torn down by a Veteran or hospital employee. Throughout recruitment, various posters went missing from the halls. At the MEDVAMC's annual hospital-wide research recruitment event, at least two instances occurred in which this writer had to pull Veterans aside to discuss the inappropriate or insensitive nature of their comments (e.g., "What kind of sexual event is unwanted?") and laughter in response to reading recruitment materials. There was also surprisingly little interest from providers regarding identifying potential participants. Though some providers would indicate interest in referring patients to the research, the actual occurrence of this is unknown. In fact, only one Veteran was referred by a VA provider outside the current research team. Further compounding the issue of recruitment was the high rate of attrition after initial contact. Exact data was not collected related to the cancellation rate for survey appointments, but it is reasonable to assume that almost half of appointments were not attended by the scheduled Veteran. The nature of the survey contents and the likelihood that many participants either met full or subthreshold criteria for PTSD are potential causes for this phenomenon. While not all MST victims develop PTSD, MST is highly associated with and often predicts a PTSD diagnosis (Himmelfarb et al., 2006; Kang et al., 2005; Yaeger et al., 2006). Since avoidance is a key symptom of PTSD, the dropout rate for those who initially agreed to an appointment is not shocking.

A Perpetuation of Military Culture

In particular, this study highlights that the historically patriarchal, hierarchal culture of the military persists, often at the expense of its women. The military has been referred to as the most male dominated of all social institutions (Tarrasch, Lurie, Yanovich, & Moran, 2011), and women in the military live in an environment where the historical oppression of women is exacerbated. In an organization where women have been historically marginalized and oppressed, it is unfortunately not surprising that MST continues to be an issue. Rape has long been a mechanism of control and punishment, particularly during war (refer to Gottschall, 2004 for a review), and it could be argued that MST poses a method of either keeping women low in the hierarchy or punishing women that either make strides in leadership or speak out against the status quo. Despite the small sample size of this research, the results demonstrate the perpetuating cycle of MST imbedded within military culture. As women enter the military, they participate alongside men in rigorous training designed to strip individuality, build a “brotherhood,” and create a unit where trust and honor are paramount (Hunter, 2007). This training serves a purpose and is likely advantageous in many military tasks. For women who experience MST, however, this indoctrination of trust and brotherhood might work against them. In the current study, most women reported being shocked that someone in the military would do this to them and felt deeply betrayed. They may have been blindsided by the act and reported feeling profound shame and embarrassment. The “family” mentality often generated between military members has led others to equate MST with incest (Stalsburg, 2011). Fear of retaliation, fear of judgment from others, and a system that is not set up to effectively deal with this issue all feed into the

underreporting of MST. As Himmelfarb and colleagues (2006) suggest, the high frequency of underreporting is likely at least in part due to military culture. By not reporting MST or punishing/ignoring those who do report the crime, the status quo is maintained and the message is sent to other victims that MST is acceptable or to be ignored. These messages perpetuate the cycle of MST and subsequently reinforce traditional military culture. Of note, men also experience MST. While it is likely that power and control also factor into these experiences, these speculations are largely outside the scope of this discussion.

Importantly, this study demonstrates that military culture has permeated larger systems outside traditional military settings. The hurdles to obtaining IRB approval and other anecdotal experiences within the VA (e.g., posters being torn down, off handed comments) demonstrate that MST is not a welcome topic and something largely to be ignored across settings. Thus, even for those working within the system to aid victims or promote change, it is an uphill battle. Particularly for women in the VA system, obtaining effective treatment for MST and other associated conditions (e.g., PTSD) is compounded by the limited gender-specific treatment facilities and options for women. For example, research has shown that VA providers are significantly more likely to give a PTSD diagnosis to a man than to a woman despite comparable symptomatology (Benda & House, 2003; Pereira, 2002). Thus, women Veterans not only have less access to care overall, but are often not provided needed diagnoses for care. The issue of MST cannot truly be addressed until it is provided the honest and open attention it deserves. It is important to note at this juncture that many men and women report enjoying their military experience and the culture of the military, noting pleasurable and beneficial time

in service. This section spoke largely to the detrimental aspects of military culture for one particular group—MST victims.

Study Implications

The results of this study have important implications for training, prevention, and research. In regard to training, the descriptive data obtained about MST experiences could be informative for both new and seasoned clinicians. Training clinicians about the uniqueness of MST in relation to other assault settings and the types of questions to ask (e.g., rank differential/s, behavioral consequences, cognitive appraisals) will be important for establishing rapport with MST victims and understanding their experiences. In addition, the descriptive data provided here may offer a more general education to clinicians regarding what MST victims have endured across various domains (e.g., during the trauma, reporting experiences, career consequences, relationship costs). Beyond clinicians, the information gathered from this study could be beneficial in training military officers or personnel about common locations, perpetrator characteristics, and behavioral indicators often present in victims after MST. This type of knowledge could be important for future prevention. For the prevention of MST to be effective, potential victims must be educated, and information regarding the most likely perpetrators must be considered. The current data suggests that NCOs, co-workers, and friends are the most likely perpetrators, and prevention efforts might focus on targeting these groups. Moreover, duty stations, advanced training, and basic/boot camp seem to be areas in need of specific prevention efforts. The information gathered in this study regarding behavioral indicators of MST (particularly those within a 24 hour period) could be beneficial for the training of military personnel. If women or men are seen exhibiting

these behaviors, it could serve as a flag to others and an opportunity to approach the individual and intervene. As additional data is gathered and a larger more representative sample is obtained, studies should be able to confirm if these initial indicators are accurate.

The current study has many implications for future research. Preliminary analyses of the MUSES indicate the scale is multidimensional, and the scale stood up fairly well to statistical analyses despite the small sample. Continued research with this scale could assist with diagnosing MST in the future and help with differentiating any potential subsets of MST victims. Once the scale's psychometric properties are confirmed and additional descriptive information is gathered, data from the MUSES might be beneficial in informing MST treatment. As discussed previously, no specific treatment options exist for MST, and effective, evidence-based treatments are needed to address the unique needs of this population. Importantly, this study also serves as evidence for the strength of many MST victims. Initial concerns regarding the emotional stability of participants appeared to be largely unfounded during this research. Similarly to Yeater and colleagues (2012), participants in the current study often anecdotally reported being thankful for the opportunity to participate in research about their trauma. While some participants were tearful during their participation, no known adverse events, hospitalizations, or additional treatments were sought as a result of participation. This, in conjunction with previous research, makes an even more compelling case for continuing to conduct thorough and detailed research with trauma victims.

Clearly, there is a great need for future research regarding the experience and correlates of military sexual harassment and assault. In comparison to other fields of

study within the military literature (e.g., trauma, readjustment), this study is part of a small body of research literature dedicated specifically to MST. Moreover, the existing literature focuses primarily on the physical outcomes of and prevalence rates of MST. Additional research is needed that examines the cognitive, attitudinal, and behavioral changes that often arise as a result of MST. Researchers should also consider adding to our knowledge regarding the demographic features of MST (e.g., location, rank/gender of perpetrator, reporting behavior, etc.) as this study was the first known study to thoroughly examine these features. These factors could help distinguish when/where MST is most likely to occur and work toward prevention of these crimes. Specifically related to the MUSES, future research is needed with a larger sample to validate the current findings and work toward confirmatory factor analysis. An empirically validated scale that assesses MST and can differentiate individuals is needed to improve our current assessment and treatment efforts with this population of Veterans.

Limitations

The most notable limitation of the current study is the small sample size. Historically, statisticians have recommended large sample sizes for accurate factor analysis (e.g., Cattell, 1978; Comrey & Lee, 1992; Tabachnick & Fidell, 2005). Comrey and Lee (1992) are often cited for their advice, maintaining that a sample size of 50 is very poor, 100 is poor, 200 is fair, 300 is good, 500 is very good, and 1,000 or more is excellent. However, a small body of recent literature has begun to question the status quo. This literature has found that EFA can produce reliable results for sample sizes below 50 (de Winter, Dodou, & Wieringa, 2009), and sample sizes in the hundreds have been referred to as “sample size overkill” (Sapnas & Zeller, 2002, pp. 138). One very

recent study by Jung and Lee (2011) argues for employing a new type of factor analysis for small sample sizes ($N < 50$) called regularized exploratory factor analysis (REFA). Although the debate regarding adequate sample size for factor analysis is outside the scope of this paper, it is important to note that small sample size does not necessarily discredit the results of the current research. Clearly, more investigation is needed regarding sample size and factor analytic research. While this study is intended to be a preliminary analysis of the MUSES scale, this limitation is noteworthy and results should be interpreted with caution.

Additionally, the vast majority of the current sample (87%) reported experiencing sexual assault in the military. In comparison to other studies with VA consumer populations with positive MST screen rates ranging from 15% to 24% (e.g., Kimerling et al., 2010; Street et al., 2009), this number is quite high. The high rate of sexual assault reported in this sample could be due to the demographics of the referrals. The majority (81%) of participants who volunteered to participate were either currently enrolled (47%) or alumni from (34%) a women's inpatient trauma unit at the VA. Many women in this treatment environment have experienced MST and their index trauma is often related to an MST event. Moreover, those who have experienced MST would be more likely to volunteer to participate than those who did not. This sample also had a large proportion of disabled and unemployed participants that might have clinical presentations more severe than those without these current life circumstances. While the current study did not inquire about diagnoses, given the high rate of PTSD among those with MST, it is reasonable to assume that many participants had a PTSD diagnosis (particularly considering the large proportion of those designated as inpatient status). Thus, the

current study sample may be an overestimation of the rate and severity of MST. A more diverse sample (e.g., participants from outpatient treatment or the community) would add to the variability of the current study results and give a clearer picture of the range of MST experiences. In addition, the results of this research are mostly limited to women Veterans with MST. Though four men participated, this small subsample is unlikely to capture the experiences of men who have MST. Lastly, the majority of participants indicated experiencing sexual assault in the military, and a much lower sample reported harassment only. The technical definition of MST includes both harassment and rape, and this study is generalizable mostly to instances of rape, not to harassment. Obtaining a larger sample size with more varied MST experiences could aid in distinguishing these groups if true differences in experience and behavioral/cognitive consequences do exist.

PSYCHOMETRIC EXPLORATION OF MUSES

Appendix A

Demographic Sheet

Please take a few moments to complete the demographic information on this page and then proceed in completing the remainder of the assessment packet in the order in which the questionnaires are presented.

1. Age: _____
2. Race:
 - a. Asian/Pacific Islander
 - b. African American
 - c. Caucasian/White
 - d. Native American
 - e. Latino/Hispanic
 - f. Other (specify): _____
3. Biological Sex:
 - a. Male
 - b. Female
4. Branch of Service
 - a. Army
 - b. Air Force
 - c. Coast Guard
 - d. Marines
 - e. Navy
5. Era of Service
 - a. OEF/OIF/OND (2001 - present)
 - b. Gulf War (1991 – 2001)
 - c. Post Vietnam (1976-1990)
 - d. Vietnam (prior to 1976)
6. Highest Rank
 - a. E1
 - b. E2
 - c. E3
 - d. E4
 - e. E5
 - f. E6
 - g. E7
 - h. Officer

7. Total Time Served in Active Duty: _____ (years)

8. Total Time Since Discharge: _____ (years)

9. Marital Status

- i. Single, never married
- j. Not married, long-term relationship/domestic partner
- k. Married/remarried
- l. Divorced (not remarried)
- m. Separated
- n. Widowed

10. Education

- a. Completed high school/GED
- b. Some college
- c. College degree
- d. Graduate degree

11. Homeless?

- a. Yes
- b. No

12. Employment Status

- c. Unemployed
- d. Part-time
- e. Full-time
- f. In school (currently)
- g. Disabled

PSYCHOMETRIC EXPLORATION OF MUSES

Appendix B

MUSES

We are interested in learning about unwanted sexual experiences in the military. Please limit your answers in this survey to what happened **while you were in the military**.

Section 1.

At any time during your military training or while you were at your military workplace did you experience...	Yes	No
1. Verbal harassment about your gender?	<input type="radio"/>	<input type="radio"/>
2. Unwanted sexual attention, such as comments about your appearance, body, or sexual activities?	<input type="radio"/>	<input type="radio"/>
3. Sexual coercion, such as promises of special treatment if you were sexually cooperative?	<input type="radio"/>	<input type="radio"/>
4. Unwanted physical contact that had a sexual nature, such as massages or touching?	<input type="radio"/>	<input type="radio"/>

Section 2.

Sexual assault is any sort of sexual activity where one of the people is involved **against his or her will**. Physical force may or may not be used. The sexual activity involved can include unwanted touching, grabbing, oral sex, anal sex, sexual penetration with an object, and/or sexual intercourse.

5. At any time during your military training or while you were at your military workplace did you experience sexual assault ?	Yes <input type="radio"/>	No <input type="radio"/>
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If you answered “**no**” to question 5, **please stop here.** 

If you answered “**yes**” to question 5, please **continue to Section 3.**

Section 3.

How many sexual assaults did you experience during your military service?

Check only one blank: ____1, ____2, or ____ more than 3?

If you answered more than 1 military sexual assaults in the question above, focus on the **MOST SEVERE sexual assault** before completing the following questions.

1. How long ago did the most severe sexual assault occur?
 - ☐ Less than one month ago
 - ☐ 1-6 months ago
 - ☐ 6 months to 1 year ago
 - ☐ 1-5 years ago
 - ☐ 5-10 years ago
 - ☐ 10-20 years ago
 - ☐ More than 20 years ago
2. The number of individuals who assaulted me during the most severe event was
 - ☐ 1
 - ☐ 2
 - ☐ 3 or more
 - ☐ Unknown
3. The perpetrator(s) of the most severe assault was/were (check all that apply)
 - ☐ Male
 - ☐ Female
4. How did you know the main perpetrator of the most severe assault? (select one that best applies)
 - ☐ Non-military
 - ☐ Superior officer
 - ☐ Supervisor
 - ☐ Military Co-worker
 - ☐ Recruiter
 - ☐ Friend
 - ☐ Stranger
5. If the main perpetrator was military, what rank was he or she?
 - ☐ Unknown
 - ☐ Enlisted
 - ☐ NCO
 - ☐ Officer
 - ☐ Non-military/Doesn't apply

6. How did the main perpetrator's rank compare to yours?
- ☐ Higher than mine
 - ☐ Lower than mine
 - ☐ Equal to mine
 - ☐ Not sure
 - ☐ Not applicable as this person wasn't in the military
7. When during your military career did the most severe assault happen? (select only one)
- ☐ Basic training or boot camp
 - ☐ Advanced training
 - ☐ Assigned duty station
8. Did the most severe assault happen on military property?
- ☐ No
 - ☐ Yes. If yes, where did the assault occur? (select all that apply)

	Yes	No
Barracks	<input type="radio"/>	<input type="radio"/>
Base	<input type="radio"/>	<input type="radio"/>
Ship	<input type="radio"/>	<input type="radio"/>
Airfield	<input type="radio"/>	<input type="radio"/>
War Zone	<input type="radio"/>	<input type="radio"/>
Workstation	<input type="radio"/>	<input type="radio"/>
In transit	<input type="radio"/>	<input type="radio"/>
On deployment	<input type="radio"/>	<input type="radio"/>
Other _____		

9. During the most severe assault, which of the following happened to you? (select all that apply)

	Yes	No
Forced vaginal penetration/intercourse?	<input type="radio"/>	<input type="radio"/>
Forced anal intercourse?	<input type="radio"/>	<input type="radio"/>
Forced to give oral sex?	<input type="radio"/>	<input type="radio"/>
Forced to receive oral sex?	<input type="radio"/>	<input type="radio"/>
Forced intercourse with a foreign object? (for example, gun, stick)	<input type="radio"/>	<input type="radio"/>
Being held at gun or knifepoint?	<input type="radio"/>	<input type="radio"/>
Strangled?	<input type="radio"/>	<input type="radio"/>
Beaten physically?	<input type="radio"/>	<input type="radio"/>
Cruel or humiliating verbal abuse?	<input type="radio"/>	<input type="radio"/>
Extreme threats on your life?	<input type="radio"/>	<input type="radio"/>
Threats to ruin your career/reputation if you told anyone?	<input type="radio"/>	<input type="radio"/>
Loss of virginity?	<input type="radio"/>	<input type="radio"/>

10. Did you sustain any of the following injuries during the most severe sexual assault?

	Yes	No
Broken bones	<input type="radio"/>	<input type="radio"/>
Vaginal tearing/bleeding	<input type="radio"/>	<input type="radio"/>
Anal tearing/bleeding	<input type="radio"/>	<input type="radio"/>
Head injury	<input type="radio"/>	<input type="radio"/>
Cuts	<input type="radio"/>	<input type="radio"/>
Bruising	<input type="radio"/>	<input type="radio"/>
Other (Please be specific) _____ _____		

Section 4.

1. After the most severe assault, did you do any of the following? **Only select items that you feel you were doing as a result of the assault.** For example, you were thinking about the assault at the time or feeling emotions about the assault at the time (select all that apply).

	Within 24 hours		Within 1 week	
	Yes	No	Yes	No
Excessive showering or bathing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vomiting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Binge Eating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol or substance abuse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-injury (for example, cutting)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attempting suicide	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using emergency contraceptives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Call in sick	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Risky or reckless behavior	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Isolate from others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seek medical attention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seek mental health care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tell anyone (friend, family, chaplain)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Did you officially report the most severe assault?
- ☐ No, skip to #3
 - ☐ Yes. If Yes, did any of the following occur due to your report (select all that apply)?

	Yes	No
I was punished	<input type="radio"/>	<input type="radio"/>
I was transferred	<input type="radio"/>	<input type="radio"/>
I was demoted	<input type="radio"/>	<input type="radio"/>
I received worse duty assignments	<input type="radio"/>	<input type="radio"/>
I received more hazardous assignments	<input type="radio"/>	<input type="radio"/>
Other (please specify): _____	<input type="radio"/>	<input type="radio"/>

3. When you were considering reporting the most severe assault, were any of the following true?

	Not at all true	Partially true	Very true
I thought I would be blamed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was worried about being “put out” of the military	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I didn’t think I would be believed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I worried about being isolated or ostracized by my peers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I worried about my safety or physical well-being (retaliation)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believed nothing would happen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I knew others who reported assaults and nothing happened	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I worried that I did something to deserve it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I didn’t want others to see me as weak	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was concerned about being judged as a gay/lesbian	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was very shocked that someone from the military would do this to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I knew reporting it would be worse than the assault.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. At any time following the most severe assault, were the civilian or military police, JAG, or OIG involved?

- ☐ No, skip to #5
- ☐ Yes. If yes, did any of the following occur (select all that apply)?

	Yes	No
Full investigation	<input type="radio"/>	<input type="radio"/>
Perpetrator was charged with assault	<input type="radio"/>	<input type="radio"/>
Perpetrator was tried in court	<input type="radio"/>	<input type="radio"/>
Perpetrator found guilty and convicted	<input type="radio"/>	<input type="radio"/>

5. I believe I was assaulted because of...(check all that apply)

- ☐ My race
 - ☐ My gender
 - ☐ My sexual orientation
 - ☐ Being too assertive
 - ☐ Being too successful
 - ☐ Being too timid
 - ☐ Being too flirtatious
 - ☐ Being too masculine
 - ☐ Being too feminine
 - ☐ The way I dressed
 - ☐ My peer group
 - ☐ My sexual history
 - ☐ Other (please be specific)
-

6. Following the most severe assault, did you seek medical care related to that assault?

- ☐ No, skip to #7
- ☐ Yes. If yes, did any of the following occur (select all that apply)?

	Within 1 week of the assault		More than 1 week after the assault	
	Yes	No	Yes	No
A rape kit was performed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Military police came to the hospital	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visited by mental health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overnight hospitalization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visited by military advocate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. At any time following the most severe assault, were you required to be around or interact with the perpetrator?

- ☐ No, skip to #8
- ☐ Yes. If yes, did any of the following occur? (select all that apply)

	Yes	No
I requested a transfer	<input type="radio"/>	<input type="radio"/>
I had to depend on the perpetrator for my safety and well-being	<input type="radio"/>	<input type="radio"/>
I had to depend on the perpetrator for performance evaluations and promotion	<input type="radio"/>	<input type="radio"/>
I had to be in the same physical space at least weekly	<input type="radio"/>	<input type="radio"/>

8. Did the most severe assault result in a pregnancy?
- ☐ No, skip to #9
 - ☐ Yes. If yes, what was the outcome (select all that apply)?
 - ☐ Miscarriage
 - ☐ Abortion
 - ☐ Birth of a child
9. Did you use emergency contraceptives after the most severe assault?
- ☐ No
 - ☐ Yes
10. Did you contract an STD from the most severe sexual assault?
- ☐ No
 - ☐ Yes
 - ☐ Not sure

Section 5.

In the next section, we describe some ways that people change after they have been sexually assaulted. Please look at each item and choose how much you agree with each statement.

1 = Strongly Disagree

2 = Moderately Disagree

3 = Slightly Disagree

4 = Slightly Agree

5 = Moderately Agree

6 = Strongly Agree

	Since the most severe military sexual assault...						
1.	I changed how I dress to keep the event from happening again	1 O	2 O	3 O	4 O	5 O	6 O
2.	I changed my appearance in some way to keep this from happening again (for example, changing my hair style or changing my make-up habits).	1 O	2 O	3 O	4 O	5 O	6 O
3.	I am afraid to think about the assault because the feelings are too overwhelming.	1 O	2 O	3 O	4 O	5 O	6 O
4.	I withdrew from my family and friends, becoming more and more isolated.	1 O	2 O	3 O	4 O	5 O	6 O
5.	I questioned my role in the assault and believed I was somehow to blame.	1 O	2 O	3 O	4 O	5 O	6 O
6.	I viewed my body as tainted, stained, or like "damaged goods."	1 O	2 O	3 O	4 O	5 O	6 O
7.	I no longer wanted emotional closeness with anyone.	1 O	2 O	3 O	4 O	5 O	6 O
8.	I became sexually aggressive to ensure I have control in sexual situations.	1 O	2 O	3 O	4 O	5 O	6 O
9.	I gained weight so I wouldn't attract sexual attention.	1 O	2 O	3 O	4 O	5 O	6 O

10.	I believed that I was a “whore” or “slut” because of what happened to me.	1 O	2 O	3 O	4 O	5 O	6 O
11.	I stopped looking at myself in the mirror.	1 O	2 O	3 O	4 O	5 O	6 O
12.	I believed there is something about me that allowed this to happen.	1 O	2 O	3 O	4 O	5 O	6 O
13.	I blamed myself for being too intoxicated or drunk.	1 O	2 O	3 O	4 O	5 O	6 O
14.	I blamed myself for being too trusting.	1 O	2 O	3 O	4 O	5 O	6 O
15.	I believed there was a sign on my forehead that said “rape me” or “abuse me.”	1 O	2 O	3 O	4 O	5 O	6 O
16.	I became suspicious of anyone who wanted to be close to me.	1 O	2 O	3 O	4 O	5 O	6 O
17.	I now see my body as disgusting.	1 O	2 O	3 O	4 O	5 O	6 O
18.	I thought that I got what I deserved because of something I did or must have done.	1 O	2 O	3 O	4 O	5 O	6 O
19.	I thought something about me attracts negative attention from the wrong people.	1 O	2 O	3 O	4 O	5 O	6 O
20.	I believe that others know or can tell by looking at me what has happened to me.	1 O	2 O	3 O	4 O	5 O	6 O
21.	I believe that anyone like the perpetrator wants to harm me.	1 O	2 O	3 O	4 O	5 O	6 O
22.	I now avoid anyone who is like the perpetrator.	1 O	2 O	3 O	4 O	5 O	6 O
23.	I don’t trust myself.	1 O	2 O	3 O	4 O	5 O	6 O
24.	I have tried to block out memories of this event.	1 O	2 O	3 O	4 O	5 O	6 O
25.	My dreams are filled with danger and fear.	1 O	2 O	3 O	4 O	5 O	6 O
26.	My anger and rage keeps people away from me.	1 O	2 O	3 O	4 O	5 O	6 O
27.	I will never allow anyone to have the “upper hand” or control over me again.	1 O	2 O	3 O	4 O	5 O	6 O
28.	I go to great effort to keep myself safe these days.	1 O	2 O	3 O	4 O	5 O	6 O
29.	If people knew about the sexual assault, they would reject me.	1 O	2 O	3 O	4 O	5 O	6 O
30.	I only have sex with individuals who are of the opposite gender of the perpetrator to keep myself safe.	1 O	2 O	3 O	4 O	5 O	6 O

31.	I don't want to have sexual intimacy, even with people I know care about me.	1 0	2 0	3 0	4 0	5 0	6 0
32.	I find all sexual acts disgusting.	1 0	2 0	3 0	4 0	5 0	6 0
33.	I feel dirty or filthy.	1 0	2 0	3 0	4 0	5 0	6 0
34.	I don't go places where I might be unsafe or lose control.	1 0	2 0	3 0	4 0	5 0	6 0
35.	Before the sexual assault, I was fairly trusting.	1 0	2 0	3 0	4 0	5 0	6 0
36.	I fear having to tell anyone about what I have experienced because they might blame me.	1 0	2 0	3 0	4 0	5 0	6 0
37.	I cannot control my emotional reactions when I am reminded about the sexual assault.	1 0	2 0	3 0	4 0	5 0	6 0
38.	I believe it is only a matter of time before it happens again.	1 0	2 0	3 0	4 0	5 0	6 0
39.	I feel guilty for not letting people who care about me be close to me (like my family or friends).	1 0	2 0	3 0	4 0	5 0	6 0
40.	I don't need close relationships.	1 0	2 0	3 0	4 0	5 0	6 0
41.	I don't allow myself to experience any sexual pleasure.	1 0	2 0	3 0	4 0	5 0	6 0
42.	Sometimes I wish I could just die because of the emotional pain from this experience.	1 0	2 0	3 0	4 0	5 0	6 0
43.	It feels dangerous to remember the event.	1 0	2 0	3 0	4 0	5 0	6 0
44.	I have lost my sense of purpose.	1 0	2 0	3 0	4 0	5 0	6 0
45.	I don't value my life anymore.	1 0	2 0	3 0	4 0	5 0	6 0
46.	I believe that my soul is permanently damaged.	1 0	2 0	3 0	4 0	5 0	6 0
47.	I wish that I would have died during the event.	1 0	2 0	3 0	4 0	5 0	6 0
48.	I get too anxious to be around other people.	1 0	2 0	3 0	4 0	5 0	6 0
49.	I have become very cautious.	1 0	2 0	3 0	4 0	5 0	6 0
50.	I have to have things my way.	1 0	2 0	3 0	4 0	5 0	6 0

51.	I have passed up or left good relationships because I don't want to be too vulnerable.	1 O	2 O	3 O	4 O	5 O	6 O
52.	I no longer speak up for myself.	1 O	2 O	3 O	4 O	5 O	6 O
53.	I judged myself as weak for not fighting back or not fighting back harder.	1 O	2 O	3 O	4 O	5 O	6 O
54.	I judged myself as a weak person.	1 O	2 O	3 O	4 O	5 O	6 O
55.	I became so disappointed in myself that I gave up on my goals	1 O	2 O	3 O	4 O	5 O	6 O
56.	I started making every effort to make sure that never happened to me again.	1 O	2 O	3 O	4 O	5 O	6 O
57.	I lost my religious faith.	1 O	2 O	3 O	4 O	5 O	6 O
58.	I stopped believing in the goodness of people.	1 O	2 O	3 O	4 O	5 O	6 O
59.	I need a lot of reassurance that people really like me.	1 O	2 O	3 O	4 O	5 O	6 O
60.	I realized that I am a strong person who can endure anything	1 O	2 O	3 O	4 O	5 O	6 O
61.	I dressed in ways that hid my sexuality.	1 O	2 O	3 O	4 O	5 O	6 O
62.	I could no longer tolerate any food that reminded me of the assault.	1 O	2 O	3 O	4 O	5 O	6 O
63.	I thought that I was morally changed because of the assault.	1 O	2 O	3 O	4 O	5 O	6 O
64.	I could no longer relax around others.	1 O	2 O	3 O	4 O	5 O	6 O
65.	I realized that the only person I can rely on is myself.	1 O	2 O	3 O	4 O	5 O	6 O
66.	I developed a new appreciation for life.	1 O	2 O	3 O	4 O	5 O	6 O
67.	I felt betrayed.	1 O	2 O	3 O	4 O	5 O	6 O
68.	I was devastated because I thought the military was like a family.	1 O	2 O	3 O	4 O	5 O	6 O

Appendix C

PTCI

We are interested in the kind of thoughts you may have had after a stressful and traumatic experience. Consider the important life events you checked above. Below are a number of statements that may or may not be true of your thinking about one or more of those events. Please read each statement carefully and tell us how much you **AGREE or DISAGREE** with each statement. People react to traumatic events in many different ways. There are no right or wrong answers to these statements.

	<i>How much do I agree?</i>	Totally Disagree	Disagree Very Much	Disagree Slightly	Neutral	Agree Slightly	Agree Very Much	Totally Agree
1. SB	The event happened because of the way I acted	1	2	3	4	5	6	7
2. NS	I can't trust that I will do the right thing.	1	2	3	4	5	6	7
3. NS	I am a weak person.	1	2	3	4	5	6	7
4. NS	I will not be able to control my anger and will do something terrible.	1	2	3	4	5	6	7
5. NS	I can't deal with even the slightest upset.	1	2	3	4	5	6	7
6. NS	I used to be a happy person but now I am always miserable.	1	2	3	4	5	6	7
7. NW	People can't be trusted.	1	2	3	4	5	6	7
8. NW	I have to be on guard all the time.	1	2	3	4	5	6	7
9. NS	I feel dead inside.	1	2	3	4	5	6	7
10. NW	You never know who will harm you.	1	2	3	4	5	6	7
11. NW	I have to be especially careful because you never know what can happen next.	1	2	3	4	5	6	7
12. NS	I am inadequate.	1	2	3	4	5	6	7
13.	I will not be able to control my emotions, and something terrible will happen.	1	2	3	4	5	6	7

14.NS	If I think about the event, I will not be able to handle it.	1	2	3	4	5	6	7
15.SB	The event happened to me because of the sort of person I am.	1	2	3	4	5	6	7
16.NS	My reactions since the event mean that I am going crazy.	1	2	3	4	5	6	7
17.NS	I will never be able to feel normal emotions again.	1	2	3	4	5	6	7
18.NW	The world is a dangerous place	1	2	3	4	5	6	7
19.SB	Somebody else would have stopped the event from happening.	1	2	3	4	5	6	7
20.NS	I have permanently changed for the worse.	1	2	3	4	5	6	7
21.NS	I feel like an object, not like a person.	1	2	3	4	5	6	7
22.SB	Somebody else would not have gotten into this situation.	1	2	3	4	5	6	7
23.NW	I can't rely on other people.	1	2	3	4	5	6	7
24.NS	I feel isolated and set apart from others.	1	2	3	4	5	6	7
25.NS	I have no future.	1	2	3	4	5	6	7
26.NS	I can't stop bad things from happening to me.	1	2	3	4	5	6	7
27.NW	People are not what they seem.	1	2	3	4	5	6	7
28.NS	My life has been destroyed by the trauma.	1	2	3	4	5	6	7
29.NS	There is something wrong with me as a person.	1	2	3	4	5	6	7

30.NS	My reactions since the event show that me I am lousy at coping.	1	2	3	4	5	6	7
31.SB	There is something about me that made the event happen.	1	2	3	4	5	6	7
32.	I will not be able to tolerate my thoughts about the event, and I will fall apart.	1	2	3	4	5	6	7
33.NS	I feel like I don't know myself anymore.	1	2	3	4	5	6	7
34.	You never know when something terrible will happen.	1	2	3	4	5	6	7
35.NS	I can't rely on myself.	1	2	3	4	5	6	7
36.NS	Nothing good can happen to me anymore.	1	2	3	4	5	6	7

Note. NS = Negative Cognitions About Self, NW = Negative Cognitions About World, SB = Self Blame. Items 13, 32, & 34 are experimental items not included in subscales.

Appendix D

PCL-S

Consider the military sexual assault you experienced. Below is a list of problems and complaints that veterans sometimes have in response to similar stressful experiences. Please read each one carefully, and then circle one of the numbers to indicate how much you have been bothered by that problem in the **past month**.

	<i>How bothered by each stated problem...</i>	Not at all	A little bit	Moderately	Quite a bit	Extremely
1.	Repeated, disturbing <i>memories, thoughts, or images</i> , of a stressful experience.	1	2	3	4	5
2.	Repeated, disturbing dreams of a stressful experience.	1	2	3	4	5
3.	Suddenly <i>acting or feeling</i> as if a stressful experience were happening again (not just a memory, reliving it).	1	2	3	4	5
4.	Feeling very upset when something reminded you of a stressful experience.	1	2	3	4	5
5.	Having physical reactions (heart pounding, trouble breathing, sweating) when something reminded you of a stressful experience.	1	2	3	4	5
6.	Avoiding thinking about or talking about a stressful experience or avoiding having feelings related to it.	1	2	3	4	5
7.	Avoiding activities or situations because they reminded you of a stressful experience.	1	2	3	4	5
8.	Trouble <i>remembering important parts</i> of a stressful experience?	1	2	3	4	5
9.	<i>Loss of interest</i> in activities that you used to enjoy?	1	2	3	4	5
10.	Feeling <i>distant</i> or <i>cut off</i> from other people?	1	2	3	4	5
11.	Feeling <i>emotionally numb</i> or being unable to have loving feelings for those close to you?	1	2	3	4	5
12.	Feeling as if your <i>future</i> will somehow be <i>cut short</i> ?	1	2	3	4	5
13.	Trouble <i>falling</i> or <i>staying asleep</i> ?	1	2	3	4	5
14.	Feeling <i>irritable</i> or having <i>angry outbursts</i> ?	1	2	3	4	5
15.	Having <i>difficulty concentrating</i> ?	1	2	3	4	5
16.	Being " <i>super-alert</i> " or watchful or on guard?	1	2	3	4	5
17.	Feeling <i>jumpy</i> or easily startled?	1	2	3	4	5

Appendix E

SES

This survey will ask you to answer questions about your sexual experiences.

A. Questionnaire Definitions. For the purpose of this study:

SEX PLAY means: kissing, fondling, or petting

SEX ACTS means: oral sex, anal sex, vaginal intercourse, or penetration by objects other than the penis

B. Questionnaire Item Parts. There are two parts to each questionnaire item:

Please answer each question by circling *yes* if you have had the experience or *no* if you have not had the experience. If yes, then answer both a and b for each item.

Part A. Please answer Part A of each item by *circling the number of times* each event has happened in your life. The same forms of sexual abuse are repeated for each person.

Part B. Answer Part B of each item by circling if the person who abused you was/were male(s), female(s), or male(s) and female(s).

C. Questionnaire Items*

1. Have you ever had someone misinterpret the level of sexual intimacy you desired?
[misinterpret level of sexual intimacy]
2. Have you ever been in a situation where someone became so sexually aroused that you felt it was useless to stop that person, even though you did not want to engage in sexual activity? [useless to try to stop sex]
3. Have you ever engaged in sexual activity with someone even though you didn't want to because the person wanted to end your relationship? [threaten to end relationship if no sex]
4. Have you ever found out that someone had gotten you to engage in sexual activity with him or her by saying things he or she didn't really mean? [said things didn't mean to have sex]
5. Have you given in to SEX PLAY when you didn't want to because you were overwhelmed by someone's continual arguments and pressure? [kiss, pet, fondle via verbal pressure]
6. Have you had SEX PLAY when you didn't want to because someone used his/her position of authority (boss, teacher, camp counselor, supervisor) to make you? [use position of authority to kiss/fondle]

7. Have you had SEX PLAY when you didn't want to because someone threatened or used some degree of physical force (twisting your arm, holding you down, etc.) to make you? [threat/use physical force to kiss/fondle]
8. Have you had someone ATTEMPT A SEX ACT when you didn't want to because someone threatened or used some degree of physical force (twisting your arm, holding you down, etc.) but intercourse *did not* occur? [threat/use of physical force to attempt penetration.]
9. Have you had someone ATTEMPT A SEX ACT when you didn't want to by giving you alcohol or drugs, but intercourse *did not* occur? [used alcohol drugs to attempt penetration]
10. Have you given in to a SEX ACT when you didn't want to because you were overwhelmed by someone's continual arguments and pressure? [penetration via verbal pressure]
11. Have you had a SEX ACT when you didn't want to because someone used his/her position of authority (boss, teacher, camp counselor, supervisor) to make you? [use position of authority to penetrate]
12. Have you had a SEX ACT when you didn't want to because someone gave you alcohol or drugs? [use alcohol drugs to penetrate]
13. Have you had a SEX ACT when you didn't want to because someone threatened or used some degree of physical force (twisting your arm, holding you down, etc.) to make you? [threat/use physical force to penetrate]
14. Have you ever been raped? [rape]
15. Have you ever been gang raped? [gang rape]

Note. Under each item, Parts A and B read, as follows:

a. If yes, how many times have you had this experience? Please circle the number of times this experience has happened.

0 1 2 3 4 5 6+

b. If yes, please circle one of the following:

Abuser(s): Male(s) Female(s) Male(s) & Female(s)

Appendix F

Recruitment Postcard

Front

Veterans are invited to participate in a research study.
MUSES: Military Unwanted Sexual Experiences Survey

Research Study

You are being invited to participate in a voluntary research study to help the VA's understanding of sexual experiences during service with the Military Unwanted Sexual Experiences Survey (MUSES). There is no direct benefit or cost for participation in this confidential study. If you choose to participate, you would complete a set of paper and pencil surveys in a private area. It will take about 45 minutes to 1 hour to complete. No follow up to this study will be done. For more information, telephone or email Dr. Menefee, contact information below.

CONTACT:
Deleene S. Menefee, PhD
Mental Health Care Line 116
2002 Holcombe Blvd
Houston, Texas 77080

Phone: 713-791-1414 ext 6754



This study has been approved by VA and BCM Human Subjects Review

Back

VA Research Study Reminder Card

My appointment is scheduled for

Date:

Time:

My contact person is:

To confirm or cancel appointment:

Phone: 713-791-1414 ext 6754

PSYCHOMETRIC EXPLORATION OF MUSES

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