EFFECTS OF MILITARY SEXUAL TRAUMA ON TREATMENT OUTCOMES AND

PATTERNS OF ATTRITION IN COGNITIVE PROCESSING THERAPY

BY

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Abstract

Military sexual trauma, or MST, is the term used by the Department of Veterans Affairs (VA) to refer to experiences of sexual assault or repeated, threatening sexual harassment that a veteran experienced during his or her military service. The estimated annual number of sexual assaults in the military continues to increase, despite Department of Defense (DoD) prevention measures and VA treatment efforts. The prevalence rates of sexual trauma along with the devastating psychological and medical sequelae for victimized military personnel are well documented. This at-risk population merits further research to explore the effects of MST in conditions representative of clinical practice to verify and inform effective prevention and treatment efforts. The present study examined how MST-related posttraumatic stress disorder (PTSD) impacts treatment outcomes and patterns of attrition and completion in outpatient individual cognitive processing therapy (CPT). A retrospective chart review of 350 patients was conducted. Eighty veterans from 19 states who received individual outpatient CPT from the VA were included in the study ($n = 38$ participants with a history of MST; $n = 42$ participants without a documented history of MST). Independent samples t-tests were performed to evaluate mean differences in PCL scores and number of CPT sessions between MST positive and MST negative conditions. A dependent samples t-test was conducted to evaluate whether combined cohorts realized a reduction in PCL scores from pre- to post- treatment. Results revealed non-significant findings in differential rate of response to CPT for individuals with a history of MST as compared to those without a documented history of MST. However, the results of the combined cohorts revealed that there was a significant change on test scores $t(47) = 5.96$, $p < .001$. This suggests that treatment completers show improvement from pre- to post- treatment PCL scores. No significant differences in attrition were found for these two groups (i.e., MST positive and MST negative conditions). Furthermore, the current study could not disaggregate sex differences to reach

significant power in the MST positive conditions due to limited male representation. The study

discusses the significance of these findings in light of prior research, future directions for

research, and implications for practice.

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Chapter I

Introduction

Traumatic events, once thought to be outside the range of normal human experience, have become increasingly more prevalent and warrant greater attention. A traumatic event can involve a single incident, or a recurring event or events that completely overwhelm an individual's ability to cope. Research has shown that as many as 75% of the population in the United States has been exposed to a traumatic event in their lifetime (Breslau, 2009; Green & Kaltman, 2003). These rates have increased since data were presented from the 1995 National Comorbidity Survey (NCS), where researchers concluded that 60% of men and 51% of women in the general population reported at least one traumatic event in their lifetime. Results of that study further demonstrated that Posttraumatic Stress Disorder (PTSD) is a highly prevalent disorder that often persists for years (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Other studies have found similar rates, ranging from 39% to 80%, depending on the sample studied (Breslau, 2009; Breslau N, Davis GC, Andreski P, & Peterson E, 1991). The reasons for the variation across studies is a result of different inclusion and exclusion criteria in qualifying traumatic events, the population studied, whether the questions are open- or closed-ended, and whether individuals are interviewed by telephone or in-person (Green & Kaltman, 2003).

The *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR;* American Psychiatric Association, 2000) describes the essential feature of PTSD as the development of characteristic symptoms following exposure to an extreme *traumatic stressor* which involve exposure to a traumatic event in which both of the following were present: (a) "the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others" and (b) "the person's response involved intense fear, helplessness, or horror." In 1994, the *DSM-*

IV changed its criteria for PTSD, modifying the definition of the stressor to include sexual abuse or assault to reflect an evolving understanding of the psychological impact of trauma of a sexual nature (4th ed.; *DSM-IV*; American Psychiatric Association, 1994).

When people hear the words *sexual assault*, they may think of stranger rape. Although rape by a stranger is a form of sexual assault, the perpetrator and victim usually know each other in 83% of rape cases for both female and male victims (Tjaden & Thoennes, 2000). The terms *sexual assault* and *sexual abuse*, as used in the psychological literature can cover a range of acts from unwanted petting to rape. The American Psychological Association (APA) defines sexual abuse as unwanted sexual activity, with perpetrators using force, making threats, or taking advantage of victims unable to give consent (Kazdin, 2000). Sexual assault and rape are often used interchangeably and refer to any type of non-consensual sexual contact between two or more people, regardless of one's sex or marital status. There is a range of nonconsensual sexual acts that creates a continuum in which each form of sexual assault is connected to the others by their root causes, as well as by the effects they have on individuals and communities ("Office of Crime Victim Advocacy," 2012). While sexual assault embodies a broad scope, it is important to understand the shared experience of loss of power and control that victims feel.

Sexual violence against women is widespread. A number of studies suggest that anywhere between 13% to 25% of women experience sexual assault at some time in their lives (Basile, Chen, Black, & Saltzman, 2007; Elliott, Mok, & Briere, 2004; Koss & Dinero, 1989; Tjaden & Thoennes, 1998). That said, in general sexual assaults are often underreported, particularly if the victim is assaulted by an acquaintance, friend, or family member (Bletzer & Koss, 2004). Therefore, these proportions are considered an underestimate of the actual prevalence rates of adult sexual assault in the general population. The widespread prevalence and

significant adverse effects of sexual assault on female victims have been well documented (see Koss [1993] and Resick [1993] for reviews). Although historically less attention has been given to understanding the male victims of sexual assault, a growing body of research has begun to provide evidence of the prevalence and negative effects of male sexual assault. These studies suggest that rates of adult sexual assault (ASA) for men are much lower than those for women—between 0.6% and 7.2% (Basile et al., 2007; Elliott et al., 2004; Tjaden & Thoennes, 1998). Differences in definitions of sexual assault, research methodology, the approach to screening for ASA, and methods of data collection, are all likely to influence reported prevalence rates (e.g., Koss, 1993).

Preliminary data suggests that there may be sex differences with respect to the characteristics of ASA, as well as the events culminating in and resulting from ASA. Extant literature indicates that when victimized, women are more likely than men to suffer injury, seek medical services, and report the assault to police (Elliott et al., 2004; Tjaden & Thoennes, 1998). Two studies conducted at rape crisis centers found that men were more likely than women to have multiple assailants during the attack (Elliott et al., 2004). Influential studies including both genders suggest that following the assault, men present with more denial and greater emotional control (Kaufman, Divasto, Jackson, Voorhees, & Christy, 1980), and higher levels of depression and hostility than women (Frazier, 1993). Further, male victims of sexual assault may be more likely to have a history of at least one psychiatric diagnosis and prior psychiatric hospitalization than women (Kimerling, Rellini, Kelly, Judson, & Learman, 2002). However, caution should be taken when generalizing because clinical samples are generally small and many male victims do not present to clinics unless there have been significant physical or psychological sequelae (Elliott et al., 2004).

Most research on sex differences in presenting symptoms suggests that women generally are more willing than men to acknowledge psychological distress and physical trauma. However, Elliott et al. (2004) found that men with a history of ASA reported significantly higher levels of distress than female victims, despite general equivalence between the sexes regarding the characteristics of the sexual assault. These findings are consistent with previous research on men who present at a rape crisis center (Frazier, 1993) and medical center (Kimerling et al., 2002). These studies suggest that sexual assault may be patently traumatic for men. Moreover, although ASA is less common for men, it appears to produce even higher levels of trauma-specific, self-related, and dysphoric symptoms than it does for women (Elliott et al., 2004).

U.S. epidemiological data indicate significant toxic stress and mental health correlates for sexual trauma. Among traumatic events, rape holds the highest conditional risk for PTSD; these data, and data specific to military samples, confirm that sexual trauma poses a risk for developing PTSD as high as or higher than combat exposure (Allard, Nunnink, Gregory, Klest, & Platt, 2011; Fontana & Rosenheck, 1998; Katz, Bloor, Cojucar, & Draper, 2007; Kimerling, Gima, Smith, Street, & Frayne, 2007). Military sexual trauma (MST) is correlated with high lifetime rates of PTSD for men (65%) and women (45.9%) in comparison to 38.8% for men with combat exposure (Street & Stafford, 2002; Suris & Lind, 2008). Furthermore, there is growing evidence that MST is even more deleterious than civilian sexual trauma as it has been correlated with increased risk for PTSD relative to civilian sexual trauma (Allard et al., 2011; Suris & Lind, 2008).

Researchers have identified individual, trauma-related, and contextual factors as contributing to MST's relatively more insidious nature compared to other forms of sexual trauma. One individual factor found to predict greater posttraumatic distress is having

experienced multiple traumatic events, which can have a cumulative toll on an individual's physical and mental health. This risk appears to be particularly prevalent in military personnel who report high rates of trauma before, during, and after their military involvement (Allard et al., 2011; Burgess, Slattery, & Herlihy, 2013). Because they are among the most at-risk populations for exposure to traumatic events, military personnel are among the most at-risk for developing PTSD and a host of other adverse psychological and physical conditions.

Sexual assault in the military is not a new phenomenon, being concomitant with war itself. Historically ignored and shrouded in stigma, military sexual assault has finally received greater public attention. MST has been codified and exposed as an enduring problem. The assessment and treatment of MST has become a critical issue across the Veterans Health Administration (VHA) and has received increased attention in research over the past decade. Nationwide, VHA policy requires documentation of MST screening and calls for the provision of treatment services for conditions associated with MST (Street & Stafford, 2002). Because MST is a stressor, and not a diagnosis, treatment efforts in the VHA focus on MST detection and access to care. Treatment for veterans who report a history of MST is provided based on each individual's symptoms or diagnosis(es). Like other traumatic stressors, MST may be the principal determinant of PTSD or other psychological or medical conditions, which are the focus of treatment.

Consistent with the literature examining exposure to civilian adult sexual assault, past studies have found that a history of MST has been highly correlated with increased rates of PTSD, depression, substance abuse (Kimerling et al., 2007; Suris & Lind, 2008), difficulties with interpersonal relationships, emotion regulation, dissociation, somatization, and self-perception (Luterek, Bittinger, & Simpson, 2011), among many other negative effects. Furthermore,

research with active duty personnel in Iraq and Afghanistan suggests that new generations of veterans have increasingly high levels of PTSD and related mental health symptoms (Kimerling et al., 2010; Monson et al., 2006). Although most studies show similar treatment outcomes regarding PTSD symptomatology, some mixed trauma type studies indicate that women may realize greater treatment gains (Galovski, Blain, Chappuis, & Fletcher, 2013). Much less is understood regarding potential sex differences in the recovery process once PTSD has developed. Additionally, when attrition was compared in these studies, drop-out rates were generally comparable across men and women, with a few exceptions, suggesting that males may be at higher risk to drop out of treatment prematurely (Galovski et al., 2013).

There is a paucity of empirical research assessing the generalizability of interventions for PTSD developed with female samples to their male counterparts. In fact, the existing treatment outcomes literature has been largely dichotomized by sex, with the majority of all trauma studies focusing on either combat-related trauma (including primarily male samples or lacking statistical control for degree of combat exposure), or interpersonal physical assault and rape consisting primarily of female samples (Galovski et al., 2013). Relatively few randomized clinical trials have included survivors of both sexes and even fewer have chosen to examine sex differences in either primary or secondary outcomes; and, to date, no study has been designed to specifically examine sex differences in recovery from PTSD (Blain, Galovski, & Robinson, 2010; Galovski et al., 2013).

While there are several studies examining treatment outcomes for civilian sexual assault survivors (Galovski et al., 2013; Martin, Young, Billings, & Bross, 2007; Resick & Schnicke, 1992; Resick, Williams, Suvak, Monson, & Gradus, 2012; Tambling, 2012), an extensive literature review yielded only two studies that specifically investigated treatment outcomes in a

veteran sample with a history of military sexual trauma (Monson et al., 2006; Surís, Link-Malcolm, Chard, Ahn, & North, 2013). Because MST poses a risk for developing PTSD as high as or higher than combat exposure, the focus of the present study was to test individual and group differences in treatment outcomes for veterans with and without a documented history of MST who enrolled in outpatient cognitive processing therapy (CPT) in the VHA. Important components of this investigation included analysis of scores on the PTSD Checklist, a 17-item self-report measure reflecting DSM-IV symptoms of PTSD (PCL; Weathers, Litz, Herman, Huska & Keane, 1993), as well as examination of patterns of attrition and completion in outpatient individual cognitive processing therapy (CPT) for male and female participants in these two groups. Despite similarities to civilian sexual assault, MST is qualitatively distinct from other forms of sexual maltreatment in terms of its relational and vocational context, as well as the severity of associated psychological distress (Allard et al., 2011). It is a crime that is often under-reported because of biases inherent to the military command structure, as well as associated with treatment difficulties due to ineffective or inaccessible services (Groves, 2013). For these reasons and because there is still so much that is not understand about how to effectively prevent MST, as well as successfully treat symptoms resulting from it, continued research in this area is crucial to inform prevention and treatment efforts.

In civilian samples, there is a solid evidence base supporting the efficacy of cognitive-behavioral treatments (CBT) for PTSD (Monson et al., 2006). A meta-analysis of psychotherapies for PTSD comparing active treatments with wait-list controls at the end of treatment revealed intention-to-treat effect size improvements in PTSD symptoms ranging from Cohen's $d = 1.26$ for exposure interventions to 1.53 for the combination of exposure and cognitive interventions (Bradley, Greene, Russ, Dutra, & Westen, 2005). The most recent effect

size for CPT reported by the U.S. Department of Veterans Affairs National Center for PTSD

showed a very large effect size: $r = 1.81$ (National Center for PTSD, 2011). However,

surprisingly few controlled studies have been conducted with veterans suffering from military-

related PTSD (Monson et al., 2006; Ochsner Margolies, 2012), and even fewer focusing

specifically on MST-related PTSD (Surís et al., 2013). Additionally, there is limited research on

patterns of attrition and completion for individuals with a PTSD diagnosis (Matthieu & Ivanoff,

2006; Schottenbauer, Glass, Arnkoff, Tendick, & Gray, 2008; Zayfert et al., 2005). Importantly,

the current study investigated treatment outcomes and patterns of attrition and completion for

individuals with a history of MST compared to those without a documented history of MST who

are enrolled in individual outpatient CPT.

In brief, CPT is an evidence-based, short-term cognitive-behavioral treatment originally

developed to treat the symptoms of PTSD in female rape victims that has since been adapted for

effective use with men and veteran populations. CPT is based on an information processing

theory of PTSD and includes education, exposure, and cognitive components (Resick &

Schnicke, 1992). In general, past studies on CPT have had relatively small sample sizes (e.g., below

150 participants) and were conducted in a relatively few number of treatment locations, primarily

utilizing a pre-post design. One limitation of pre-post designs is that there is no way to measure

outcomes for patients who drop out from therapy. The current study addressed some of these

limitations by including a national sample of patients from multiple treatment sites, by examining

rates of change, levels of change, and patterns of attrition and completion in CPT for individuals

with and without a documented history of MST, and by comparing outcomes by gender.

The present study was designed to understand how MST-related PTSD impacts

individual differences in treatment outcomes in outpatient individual CPT. The study used

independent samples *t*-tests to test whether PTSD symptoms in outpatient individual CPT were

reduced and whether there was a differential rate of response to CPT for individuals with a history of MST as compared to those without a documented history of MST. A secondary objective of the study was to investigate rates of change, levels of change, and patterns of attrition and completion in CPT for these two groups. Finally, this study was designed to illuminate any sex differences in patterns of attrition for veterans engaged in outpatient individual CPT with and without a history of MST.

Research Questions and Hypotheses

In light of the aforementioned research findings about PTSD and other psychological sequelae correlated with sexual trauma, MST prevalence rates and sex differences, as well as treatment efforts by the VHA, the following research questions and hypotheses were explored.

Question I. Are there overall differences in PTSD symptomology at the beginning and end of treatment for veterans with PTSD and a history of MST compared to those without a documented history of MST who complete the CPT 12-session treatment protocol?

Hypothesis I. For CPT treatment completers, individuals with a history of MST will endorse greater pre- and post-treatment PTSD symptomology.

Question II. Do CPT treatment completers (irrespective of gender or MST history) show improvement in PTSD symptomology following treatment?

Hypothesis II. Regardless of gender or MST history, participants will show improvements in self-reported PTSD symptomology from pre- to post- outpatient individual CPT treatment as evidenced by lower total PCL scores.

Question III. Do CPT treatment completers with a history of MST and those without a history of MST show different patterns of change on the PCL?

Hypothesis III. Treatment completers with a history of MST will show different patterns of change on the PCL from treatment completers without a history of MST.

Hypothesis IV. Individuals in both groups, with and without MST, will show an elevation of PCL scores in sessions 4-5 (the trauma narratives).

Question IV. Do veterans without a history of MST complete more CPT sessions than those with a documented history of MST?

Hypothesis V. Veterans without a history of MST will complete more CPT sessions than those with a documented history of MST.

Question V. Do the number of CPT sessions completed differ by gender?

Hypothesis VI. Women will complete more CPT sessions than men in the group of veterans who have a documented history of MST.

Summary

Military personnel are among the most at-risk populations for exposure to traumatic events, and thus for developing PTSD and a host of other adverse mental and physical health conditions. The prevalence of sexual assault in the military has come under increased scrutiny. MST appears deeply entrenched in military culture and continues despite DoD prevention measures and VA treatment efforts. The prevalence rates of sexual trauma along with the devastating psychological and medical sequelae for victimized military personnel are well documented and deem this group an at-risk population worthy of research consideration. Veterans who have been sexually traumatized face many unique challenges both in the military and in their subsequent transition to civilian life. The current study examined how MST-related PTSD impacts treatment outcomes and patterns of attrition and completion in outpatient

individual CPT. As psychologists, it is imperative to better understand how MST impacts clients to better inform effective prevention and treatment efforts. Results of this study have the potential to provide psychometric, assessment, and treatment information to researchers and clinicians to better inform treatment for VA patients with MST-related PTSD.

Chapter II

Review of the Literature

The current chapter begins with an overview of research findings of prevalence rates and sex differences in adult sexual assault. A significant portion of the chapter focuses on the history of military sexual trauma, with special attention given to MST prevalence rates, issues of underreporting, and universal screening. Secondary victimization and childhood sexual trauma among military men and women are then described. The chapter subsequently covers the psychological, social and medical sequelae of sexual trauma, a description of the history of PTSD, diagnostic criteria, and outcomes. Following this section, empirically supported treatments used in MST populations are reviewed, with the emphasis on the main findings in outcome research of CPT. The chapter then gives a brief overview of attrition effects as a relatively unaccounted for variable in outcome research. Limitations of the literature are discussed throughout this chapter.

Prevalence Rates and Sex Differences in Adult Sexual Assault

Researchers are faced with many challenges when conducting research on prevalence rates and sex differences in sexual assault. Differences in definitions of sexual assault, research methodology, reliance on self-report measures, recall bias, the approach to screening for ASA, and the method of data collection are all likely to influence research findings. In a seminal study using data from the National Violence Against Women Survey (NVAWS), Tjaden and Theonnes (1998) compared the prevalence and consequences of violence perpetrated against men and women by marital and opposite-sex cohabiting partners using data from 8,000 U.S. men and 8,000 U.S. women who participated in a telephone survey. The authors found that married/cohabiting women reported significantly more intimate perpetrated rape, physical

assault, and stalking than did married/cohabiting men, whether the time period considered was the respondent's lifetime or the 12 months preceding the survey. Women also reported more frequent and longer lasting victimization, fear of bodily harm, time lost from work, injuries, and use of medical, mental health, and justice system services.

Basile et al. (2007) conducted a similar study with more recent national prevalence estimates of forced sex and unwanted sexual activity, providing an update to the NVAWS. Their estimates were based on data from the Second Injury Control and Risk Survey (ICARIS-2), a nationally representative, cross-sectional list-assisted random-digit-dial (RDD) telephone survey of English- or Spanish-speaking adults (ages 18 years and older) conducted by the Centers for Disease Control and Prevention (CDC), which collected information on sexual violence victimization and descriptive information about the relationship between the victim and perpetrator from 9,684 respondents (Basile et al., 2007). Findings suggested that victimization rates have remained consistent since the 1990s. Sexual violence continues to be a significant and pervasive public health problem, with lifetime forced sex prevalence rates of 10.6% and 2.1% in women and men, respectively. Potential limitations of the study merit attention. Because the sexual violence victimization questions were one small component of ICARIS-2, it was not possible to include detailed questions on the wide range of sexual violence behaviors described in the CDC's Uniform Definitions (Basile et al., 2007). Ideally, multiple behaviorally-specific measures should be used for clarity to facilitate respondents' recall as well as to help minimize underreporting (Koss, 1993). Additionally, the sample is overrepresented with respect to married people as compared to a 2002 Current Population Survey. The analysis revealed that individuals who have never been married or are separated or divorced are more likely to have experienced unwanted sexual activity in the past 12 months. Therefore, prevalence estimates realistically

underestimate the true population prevalence of sexual violence victimization (Basile et al., 2007).

In another study, Elliot and colleagues (2004) investigated the prevalence and impact of ASA in a stratified random sample in the general population. Among 941 participants, ASA was reported by 22% of women ($n = 472$) and 3.8% of men ($n = 469$). Measures in this study included the Traumatic Events Survey (TES; Elliott, 1992), which evaluates a wide range of childhood and adult traumas. The TES appears to be a valid measure of exposure to potentially traumatic events and has been used in several published studies of trauma impacts. The Trauma Symptoms Inventory (TSI; Briere, 1995), a global measure of trauma sequelae, was also administered. The TSI has 10 clinical scales that assess a variety of symptom domains related to trauma. Aspects of this study that discriminate it from other studies in this area are use of a nationally representative sample, inclusion of both men and women, and use of a standardized, trauma-specific measure of psychological distress.

Most research on sex differences in symptom expression suggests that women are generally more willing to acknowledge psychological distress than men. Yet, in this study, men with a history of ASA reported significantly higher levels of distress than female victims of ASA on eight of the 10 TSI scales and equivalent levels on the remaining two scales (Depression and Intrusive Experiences). This occurred despite general equivalence between the sexes regarding the characteristics of ASA. These data are consistent with previous data on men who present at a rape crisis center (Frazier, 1993) and medical center (Kimerling et al., 2002). Results suggest that sexual assault may be particularly trauma inducing for men. This hypothesis is supported by the findings on TSI scores; while assaulted men reported equivalent levels of depressed mood and posttraumatic intrusion as assaulted women, they reported greater difficulty in self and sexual

domains. Further, sexually traumatized men appear to respond to assault-related distress by engaging in externalizing activities ("tension reduction behavior" in TSI terminology) and dysfunctional sexual behavior that direct attention away from painful internal states (Elliott et al., 2004).

The results of this study are consistent with other research regarding the prevalence of sexual assault among women in the general population (Koss, 1993; L. Martin, Rosen, Durand, Stretch, & Knudson, 1998). However, the rate of sexual assault among men in this study (3.8%) is higher than the rate reported in the NVAWS (Tjaden & Thoennes, 1998; 0.8%) and the ICARIS-2 (Basile et al., 2007) studies, which contained much larger samples. Limitations of this study include the use of volunteer participants and the reliance on self-report retrospective data. Although the overall response rate was adequate for questionnaires completed by mail (65%), it is possible that those who volunteered for this study differed in significant ways from those who did not elect to return a questionnaire. And, as with all studies that rely on retrospective data, potential recall bias associated with the passage of time cannot be ruled out.

Male Sexual Assault

Preliminary research on male sexual assault (MSA) began in the 1970's and focused only on institutional settings such as prisons, military, or college campuses (Lin, 2006). Research within the institutionalized setting has allowed researchers to make parallel relationships to victims in the community, but generalizations should be made with caution. As is true for women, sexual assault on males can be by single perpetrators or by multiple assailants. Leskela and colleagues (2002) designed and conducted an ongoing process-oriented psychotherapy group for seven male veterans who were raped while serving in the military. The soldiers reported various incidents, from being psychologically coerced into sexual relations by superior

personnel, being physically overpowered and violently gang-raped by men serving in their own

company, to prostituting themselves (although why, or to whom, was unclear). Most of the men

disclosed that they were threatened with death if they reported the rape. The authors reported that

group members who were violently gang-raped responded with "hyper-heterosexuality,

homophobia, and had a tendency to externalize their anger" (Leskela, Dieperink, & Kok, 2001,

p. 315). These men held not only anger over the attacks, but also the desire to retaliate and hurt

others, and were prone to involvement in physical fights, sexual aggressiveness towards women,

problems in relationships with wives and girlfriends, and anger towards women in general

(Leskela et al., 2001). The authors suggested that researchers and therapists lack a

comprehensive understanding of the types, severity, and differences in expressions of symptoms

of male victims, as well as which treatment methods are the most effective. Although this study

described the participants' experience with MST in great detail, the small sample size limits its

generalizability.

      While underreporting sexual assault is well documented in the literature for both sexes,

some research has found that men are generally less likely to report their traumatic sexual

experience than women (Lin, 2006; Suris & Lind, 2008). The problem of underreporting is in

part created when victims fail to trust those intended to help them such as law enforcement or

health care practitioners. This lack of trust may be related to how male victims are perceived by

society, which is logically related to gender socialization in the United States, where a sex-role

violation—associated with sexual victimization in a society where men are expected to be strong,

aggressive, and avoidant of sexual contact with other men—may be particularly harmful to

men's psychological health. As a result, sexual assault may be especially destabilizing to male

sexual identity and sense of self-worth. Male victims of sexual assault may carry a stigma of

reduced manhood. It is important to consider this in the subculture of the military where gender socialization and sex-role stereotypes may be inflated.

History of Military Sexual Trauma

The term *military sexual trauma* was coined to capture the different forms of sexual maltreatment reported by military personnel. The definition used by the Department of Veterans Affairs comes from Federal law (Title 38 U.S. Code 1720D) and is "psychological trauma, which in the judgment of a VA mental health professional, resulted from a physical assault of a sexual nature, battery of a sexual nature, or sexual harassment which occurred while the Veteran was serving on active duty or active duty for training" ("Military Sexual Trauma: VAMH Fact Sheet," 2013). Contemporary MST has its own culture and history (see Burgess et al, 2013 for a complete review). The data since 1990 reflect increasing numbers of people who report sexual abuse inflicted by active duty military personnel. The military first vowed to take stern measures against sexual assault and harassment in 1992, in the wake of a scandal at the Navy Fliers' 35th Annual Tailhook Association Convention in Las Vegas, Nevada (Burgess et al., 2013).

A year and a half later, a Pentagon report found that Tailhook was not an isolated incident leading the Secretary of the Navy Henry Garrett III to resign, stating he took full responsibility for his leadership failure (Burgess et al., 2013). These incidents prompted a series of Congressional hearings on veteran women's issues, which resulted in authorization for the VHA to provide outreach and counseling for sexual assault to women veterans (Kimerling et al., 2007). Increased attention to these issues led Congress to extend services to male veterans shortly thereafter (Kimerling et al., 2007). Following the mandate, 61% of VA medical centers developed sexual trauma treatment teams by 1995 (Allard et al., 2011). A hotline was also established after the Army's Aberdeen Proving Ground rape scandal in 1996. And in 1999, the

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VA's responsibility was extended from counseling to "all appropriate [MST-related] care and services" and universal screening for MST was initiated (Kimerling et al., 2007).

In 2003, the U.S. Air Force Academy was accused of systemically ignoring a sexual assault problem on its campus. More than 50 cases of sexual assault were identified as having occurred at the U.S. Air Force Academy between January 1993 and December 2002 (Burgess et al., 2013). The maelstrom over these incidents led to the establishment of sexual assault nurse examiners within the military health system in both active and reserve component force structure (Burgess et al., 2013). In 2004, Secretary of Defense Donald Rumsfeld publicly expressed his concern regarding the number of sexual assault cases in the military. Rumsfeld authorized an official task force to investigate current reporting and prevention policies as well as a means to provide recommendations for improvement (Burgess et al., 2013).

Most recently, Public Law 108-422, signed in 2004, made the VA's provision of sexual trauma services a permanent benefit (Kimerling et al., 2007). Screening programs and treatment benefits apply only to sexual trauma that occurred during military service. Each VA hospital has a designated coordinator to oversee MST screening and treatment, and make available standardized training materials for MST screening to all VHA providers.

Universal Screening

Universal screening is achieved through the use of a clinical reminder in the electronic health record (EHR). The brief screening instrument contains the following items: "While you were in the military: (a) Did you receive uninvited and unwanted sexual attention, such as touching, cornering, pressure for sexual favors, or verbal remarks?; and (b) Did someone ever use force or threat of force to have sexual contact with you against your will?" (Kimerling et al., 2007). These items have been validated against clinical interview using other psychometrically

sound assessment instruments. Question "a" has a sensitivity of .92 and specificity of .89, and question "b" a sensitivity of .89 and a specificity of .90, which suggests that the screen is accurate. The performance of this instrument is comparable to other widely used VA mental health screens for depression and PTSD. An alert remains visible to all clinicians until screen results are entered. Documentation of a positive screen enables the provider to code the visit as MST-related, so that care is delivered free of charge. All treatment for physical and mental health conditions related to experiences of MST is provided for free (Kimerling et al., 2007).

Research from civilian sectors suggests that only a minority of patients are screened for violence by their health care providers (Waalen, Goodwin, Spitz, Petersen, & Saltzman, 2000). Waalen and colleagues (2000) conducted a review of 24 published studies containing original research with a primary focus on screening for intimate partner violence (IPV) by health professionals. Twelve studies identifying barriers to IPV screening as perceived by health care providers yielded similar lists. Top provider-related barriers included lack of provider education regarding IPV, lack of time, and lack of effective interventions. Patient-related factors (e.g., patient nondisclosure, fear of offending the patient) were also frequently mentioned. Twelve additional studies evaluating interventions designed to increase IPV screening by providers revealed that interventions limited to education of providers had no significant effect on screening or identification rates. However, most interventions that incorporated strategies in addition to education (e.g., providing specific screening questions) were associated with significant increases in identification rates (Waalen et al., 2000).

VHA screening is integrated with standard clinical procedures and education on the sensitive nature of MST screening is a requisite of training at every VA hospital. These factors have been reliably associated with better screening compliance (Kimerling et al., 2007).

But even with these new measures in place, MST continues to make headlines in popular media. As recently as May of 2013, the Air Force officer in charge of the military branch's sexual assault prevention program was arrested for sexual assault (Dao, 2013). MST continues in the culture despite attempts by DoD to curtail incidents and by VHA to provide services to victims. The MST incidents that were publicly reported and subsequent administrative responses are offered as a background to understand the tenacious nature of this issue in contemporary military culture.

MST Prevalence

According to DoD (2011), 3,198 incidents of sexual assault were reported throughout the entire military in 2011; however, Defense Secretary Leon Panetta stated that he believed the number was underreported and estimated that the actual number was probably much higher and closer to the 19,000 range (Burgess et al., 2013). Nondisclosure of MST experiences seems prevalent in that the Pentagon report (DoD, 2011) estimates that 80% to 90% of sexual assaults go unreported. The report concluded that most victims stay silent because of fear of harassment, ridicule, retaliation, or are simply convinced that no action will be taken (Street & Stafford, 2002). Most (97%) of the military victims in the report knew their assailant (Street & Stafford, 2002). This is a remarkably high percentage and alludes to the treacherous nature of sexual maltreatment within military culture.

Notwithstanding the issue of nondisclosure, exact prevalence rates of MST have been difficult to determine, given variation across study methodologies, including in source and characteristics of the sample, data collection strategy, and definition and assessment of MST (Allard et al., 2011). Most prevalence studies are of actual or threatened sexual assault and report rates ranging from 22% - 45% (Allard et al., 2011; Goldzweig, Balekian, Rolón, Yano, &

Shekelle, 2006; Suris & Lind, 2008; Zinzow, Grubaugh, Monnier, Suffoletta-Maierle, & Frueh, 2007). Lower prevalence rates have been reported for men and in studies only asking about rape, whereas higher rates have been found in treatment seeking samples and when full MST definitions and/or sexual harassment experiences are included. To illustrate this point, Burgess and colleagues (2013) found that in treatment-seeking female veteran samples, estimates of sexual assault range from 14% to 43.1% and estimates of sexual harassment range from 55% to 63% (Burgess et al., 2013, p. 24).

Although women are 20 times more likely to be victimized during their military duty than men, there are 20 times more men in the military than women in the VA system (Department of VA, 2004). Therefore, because 22% of female and 1% of male VA users screen positive for MST, the actual numbers of men and women are about equal (Hoyt, Klosterman Rielage, & Williams, 2011). To illustrate this point, similar numbers of men (31,797) and women (29,418) screened positive for MST in the VA system in 2003 and more than 6,000 additional cases each of both men and women in 2005 were documented in a literature review by Hoyt and colleagues (2011). And with ever-increasing attention of abuses in the military by popular media, the numbers are likely to increase rather than decrease. Their review reported prevalence and incidence rates of men's MST in 29 studies. Sources for these studies included DoD, U.S. military service academies, and Department of Veterans Affairs. There was significant variability in reported rates of men's MST. Averaging across studies covering 30 years, the authors found that MST was reported by approximately 0.09% of male service members each year, with a range of 0.02% to 6%. MST was reported by 1.1% of male service members over the course of their military careers, with a range of 0.03% to 12.4% (Hoyt et al., 2011). Kimerling and colleagues (2010) reported MST rates of 15.1% for women and 0.7% among men in another

recent study of 125,729 Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF)

veterans seeking care at VA primary care or mental health clinics.

In contrast, Martin and colleagues (1998) found the prevalence among 555 male veterans

to be 6.7%, but the sample was relatively small in comparison to the larger samples previously

described. In another study by Murdock, Polusny, Hodges, and O'Brien (2004), a sample of

3,337 male and female veterans applying for VA benefits, were screened for sexual assault while

in the military. They found that 4.2% of the screened veterans reporting sexual assault were men.

This figure is consistent with civilian male sexual assault figures (Lin, 2006); however,

secondary gain issues related to disability compensation for MST are a potential confound in this

study. The prevalence of MST is similar to lifetime prevalence rates of sexual assault and

harassment in the general population (Tjaden & Thoennes, 2000). Given that MST occurs within

a limited time period (typically 2-6 years of service), the incidence of sexual maltreatment

appears to be higher for individuals in the military than in civilian life.

In a study directly comparing female veteran ($n = 142$) and civilian ($n = 81$) reports of

sexual victimization, Schultz, Bell, Naugle, and Palusny (2006) found significantly higher

reports of rape in veterans (49%) than civilians (22%). It should be noted however, that the

community sample was one of convenience and interest in participating may have been impacted

by relevance of the questions for women who identified previous victimization experiences. In a

more representative community sample, the magnitude of differences across populations may be

larger and similar to previous studies. Differences in sample sizes for comparison groups, demo-

graphic information (i.e., age, occupation, annual income, and relationship status), and the high

rate of CSA among community participants may have impacted analyses and subsequent

conclusions. Furthermore, it is common knowledge in the literature that sexual assaults are

underreported in the general population and contextual factors of a military environment may point to an even more insidious problem of underreporting in military populations.

Revictimization

Studies with civilian populations of sexual assault survivors suggest that help-seeking efforts can be arduous and potentially revictimizing. A growing body of research indicates that sexual assault survivors are often denied help by the legal and medical systems, and what help they do receive often leaves them feeling blamed, doubted, and revictimized (Campbell & Raja, 2005). Campbell and Raja (2005) conducted the first study to examine the extent to which female veteran and reservist sexual assault survivors ($n = 268$) experience secondary victimization (i.e., victim-blaming behaviors and practices engaged in by legal and medical staff, which exacerbates victims' trauma). Contrary to their hypotheses, medical secondary victimization behaviors were not more common in the incidents of military sexual assault compared to those that occurred outside of military service. Victims who described sexual assault incidents that occurred outside of military service reported more secondary victimization behaviors. However, some women who described sexual assault incidents that occurred during their military service sought medical assistance from civilian facilities, and some who described incidents outside of military service sought help from military/VA facilities.

Although most military sexual assault incidents were reported to military medical officials and most nonmilitary incidents were reported to civilian officials, these variations in the data may have confounded the results regarding secondary victimization. Nevertheless, something in the interactions between victims and military medical professionals was distressing because these survivors were significantly more likely to report feeling blamed, depressed, anxious, distrustful of others, and reluctant to seek further help than victims who described

incidents of nonmilitary assault (Campbell & Raja, 2005). Unfortunately, this study could not identify the specific experiences that were distressing to sexual assault survivors, but overall, these data suggest that for victims seeking help in military facilities, contact with the medical system was often hurtful. The results of this study further substantiate findings that female veterans are at high risk for sexual assault and that creating environments where veterans (female *and male*) can receive sensitive and effective care is imperative. Although the proposed study is not investigating help-seeking behaviors and revictimization, these issues certainly influence response to treatment and treatment outcome.

Childhood Sexual Trauma among Military Men and Women

Within a broader context, MST has also been associated with a lifetime history of interpersonal trauma, including childhood sexual abuse and sexual assault prior and subsequent to service (Sadler, Booth, Mengeling, & Doebbeling, 2004). While many of the symptoms exhibited by survivors of sexual abuse are similar to those seen in sexually abused children, Green (1993) suggested that there are also many differences in how an adult adapts to the trauma. Some of the differences may be due in part to advanced age and psychological development (e.g., sexual dysfunction) while other differences may result from the symptoms being carried over from childhood, resulting in a more chronic condition.

Martin, Rosen, Durand, Stretch and Knudson (1998) surveyed 555 male and 573 female soldiers on active duty for their sexual trauma history. Results showed that 6.7% of males reported any sexual assault, the majority of which occurred before the soldiers entered the military, and 1% of males reported an attempted or completed rape during childhood (Martin et al., 1998). In addition, the researchers reported that sexual assault history also varied by sociodemographic characteristics. They concluded that a history of childhood sexual abuse

(CSA) may be more widespread among female soldiers than among civilian females, and that ascribed and achieved status characteristics might differentially expose soldiers to sexual assaults both before and after they enter the military. In an earlier study by Rosen and Martin (1996), 1,365 soldiers in the U.S. Army were surveyed to examine prevalence rates for childhood trauma for enlisted personnel. These researchers found that 15% of the men and 49% of the female soldiers reported a history of CSA. Rosen and Martin compared the results of their study with Finkelhor, Hotaling, Lewis and Smith's (1990) survey of U.S. adults ($N = 585$) concerning a history of childhood sexual abuse. Victimization was reported by16% of civilian men and 27% of civilian women. Based on the results of the previous study, Rosen and Martin (1996) found that male soldiers have a similar rate of sexual abuse histories as do civilian men, but female soldiers evidence a much higher rate than civilian women. Consistent with previous research, the authors found that soldiers with child abuse histories experience significantly more psychological symptoms than non-abused soldiers and that those with combined physical and sexual abuse histories reported more negative psychological symptoms than those reporting only one type of abuse.

Because the current study utilized retrospective data with a limited dataset, it was not possible to control for CSA, as well as multiple trauma exposure, and this is a limitation of the study. As traumatic experiences accumulate, responses become more intense and have a greater impact on functioning. Ongoing exposure to traumatic stress can impact all areas of people's lives, including biological, cognitive, and emotional functioning; social interactions/relationships; and identity formation ("Harvard University: Toxic Stress," 2013). Especially if the stress response is extreme and long-lasting, and buffering relationships are unavailable, the result can be damaged, weakened systems and brain architecture, with lifelong

repercussions ("Harvard University: Toxic Stress," 2013). People who have experienced multiple

traumas may not relate to the world in the same way as those who have not had these experiences

because foundations of trust, safety, power and control have been altered, they require services

and responses that are sensitive to their experiences and needs. It would logically follow that

individuals who have experienced multiple sexual traumas (e.g., childhood and adult) may not

respond to treatment in the same way, in terms of outcome measures and attrition rates, and thus

may inadvertently influence results since CSA and multiple sexual traumas were not controlled

for in the present study. However, it is probable that because of random selection, the two groups

did not significantly differ in this regard and thus impacted each group, those with and those

without MST histories, similarly.

Posttraumatic Sequelae

A wealth of research is available examining the psychological, social and medical

sequelae of sexual trauma. The impact of sexual violence has demoralizing and harmful effects

on victims. Left insufficiently addressed and/or untreated, sexual assault often leads to various

mental health consequences including: posttraumatic stress disorder, depression and anxiety

disorders, substance use disorders, sleeping and eating disorders, dissociative disorders,

Stockholm syndrome, personality disorders, self-harm/self-injury, and suicide (Allard et al.,

2011; Burgess et al., 2013; RAINN, 2009; Suris & Lind, 2008).

Recent research on MST indicated serious sequelae in both sexes (Hoyt et al., 2011;

Kimberling et al., 2007). In a study investigating posttraumatic sequelae associated with MST in

veterans enrolled in VA outpatient mental health clinics, Luterek and colleagues (2011)

interviewed and conducted a short battery of self-report measures, including the PCL-C, in a

sample of 104 female veterans. Regression analysis controlled for childhood and other adult

interpersonal trauma. They reported that those with a history of military sexual assault reported

greater frequency of other potentially traumatic events; PTSD symptoms; and symptoms

characteristic of disorders of extreme stress not otherwise specified, such as difficulties with

interpersonal relationships, emotion regulation, dissociation, somatization, and self-perception,

compared with those who did not report military sexual assault.

Men who experience MST have psychological sequelae similar to those that affect

women but may also suffer from gender-specific concerns, such as loss of masculinity and

identity confusion (Hoyt et al., 2011; Kimerling et al., 2007). Sexual harassment of men in the

military has shown a stronger association with emotional problems and decreases in work

productivity than sexual harassment of women (Hoyt et al., 2011). In addition, they may have an

even more chronic course of sexual symptoms compared with women (O'Brien, Gaher, Pope, &

Smiley, 2008). Kimberling and colleagues (2007) analyzed VHA administrative data for 185,880

women and 4,139,888 men who were veteran outpatients and were treated in VHA health care

settings nationwide during 2003 to explore the utility of the VHA universal screening program

for military sexual violence. Screening was completed for 70% of patients. Of the 134,894

women and 2,900,106 men who were screened for MST, positive screens were associated with

greater odds of virtually all categories of mental health comorbidities (adjusted odds ratio

[AOR]=8.83; 99% confidence interval [CI] = 8.34, 9.35 for women; AOR = 3.00; 99% CI =

2.89, 3.12 for men). Associations with medical comorbidities (e.g., chronic pulmonary disease,

liver disease, and for women, weight conditions) were also observed.

Although the profiles of men and women who reported MST were similar, the following

gender differences emerged: PTSD had the strongest association with MST, yet the association

of PTSD to MST was almost 3 times stronger among women than men; the link between

adjustment disorders and MST was significantly stronger among men; alcohol disorders and

anxiety disorders were more common among both women and men who reported MST, but the relation to MST was significantly stronger among women; the relation of MST to bipolar disorders and schizophrenia or psychoses was strong among men and women but significantly stronger among men (Kimerling et al., 2007). Additionally, the authors concluded that several gender-linked mental health conditions typically reported in the literature as more common among women—including dissociative, eating, and depressive disorders—showed similarly robust associations with MST among men as well. Psychological symptoms also appear to be more persistent and treatment resistant after MST in men than in women (Hoyt et al., 2011). Thus, treatment for sequelae associated with MST should be a consideration for clinicians who serve both female and *male* veterans, keeping in mind that assessment and treatment approaches should be adapted to address individual and gender-specific factors.

Growing evidence about the varied and complex presentations of MST-related distress and functioning difficulties suggests that further research in this area is needed. For example, complications in sexual functioning following sexual assault are a common yet understudied phenomenon and intervention targets are deficient for MST survivors (Allard et al., 2011). In the civilian sexual assault literature, survivors frequently report problems with sexual dysfunction and decreased sexual satisfaction, including fear, contempt, or avoidance of sexual intimacy, and arousal and desire problems (e.g., Burtoi & Kinder, 1998). Among female veterans, MST has been linked to decreased sexual satisfaction (Allard et al., 2011). Civilian male rape victims have been linked to a higher risk for problems concerning gender identity, sexual orientation ambiguity, and anger dysregulation (Allard et al., 2011; Leskela, Diepemik, & Kok, 2001). Men with MST histories have exhibited greater levels and persistence of PTSD and other psychiatric symptoms, poorer perceived health, and poorer functioning compared to women (Allard et al.,

2011). While there have been few outcome studies directly comparing sexually assaulted military and civilian men, the studies examining the prevalence of psychological disorders such as PTSD, substance abuse, and depression in male veterans exposed to sexual trauma seem to parallel the rates experienced by civilian men (Hoyt et al., 2011; Rosen & Martin, 1996). However, these studies suggest that the prevalence rates for substance abuse, in particular, for sexually assaulted male veterans may be underestimated since a proportion of these veterans cannot or do not seek treatment.

Posttraumatic Stress Disorder

Military personnel are among the most at-risk populations for exposure to traumatic events and the development of PTSD. Posttraumatic Stress Disorder (PTSD) was adopted by the American Psychiatric Association as part of the official classification of psychiatric disorders in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III; American Psychiatric Association, 1980). The definition of PTSD in the DSM-III and in subsequent DSM editions is based on the concept that traumatic events, in contrast with other stressful events, are linked etiologically to a specific syndrome. The PTSD syndrome is defined by three symptom clusters: (1) reexperiencing the traumatic event (1 out of 5 criterion symptoms is required), (2) avoidance of stimuli that resemble the event and numbing of emotional responsiveness (3 out of 7 criterion symptoms are required), and (3) increased arousal (2 out of 5 symptoms are required) (DSM-IV-TR; American Psychiatric Association, 2000). These symptoms are defined in terms of their connection to the identified traumatic event that is the presumed cause of the disorder. Temporal ordering is also essential in that the disturbances must not have been present before the trauma occurred.

In the United States, the vast majority of community residents (approximately 80%) have experienced one or more traumatic events (Breslau, 2009). The lifetime cumulative exposure to any traumatic event in a national sample of the U.S. population in 2000 was 82.8% (Breslau, 2009). Only a small proportion of victims of traumatic events meet criteria for PTSD. Estimates of PTSD are higher in the United States than in other countries; however, even in the United States, where the vast majority of the population has been exposed to one or more traumatic event, only a minority of trauma victims (< 10%) developed PTSD (Breslau, 2009). A consistent finding across epidemiologic studies is the higher PTSD prevalence in women compared to men. Although men are more likely to experience trauma, the likelihood of developing PTSD following exposure to traumatic events is higher in women (see Breslau, 2009, for a review).

Recent studies that used the DSM-IV expanded definition of stressors and a list of qualifying stressors based on the examples in the DSM-IV have reported estimates of exposure greater than 80%. All these studies have reported a higher lifetime prevalence of exposure in men than in women (Breslau, 2009). Although consistent across studies, the sex differences in exposure is modest, with a prevalence ratio in men versus women of < 1.2 to 1 (Breslau, 2009). The average number of traumatic events experienced by men exceeds the corresponding average in women.

Since sexual assault is the trauma associated with the highest rates of PTSD, the elevated exposure to this particular type of assault may, in part, explain the disproportionate prevalence rates of PTSD in women (Galovski et al., 2013; Resick, 1993). However, a recent meta-analysis demonstrated that the increased risk for PTSD in women cannot solely be attributed to differences in exposure to sexual assault as these sex differences remain when the type of trauma

is controlled for (Galovski et al., 2013). Tolin and Foa (2006) suggested additional variables of interest to help describe sex differences in the development of PTSD, including specific aspects of the traumatic event itself and differences in important clinical correlates of PTSD.

Physiological Outcomes

Although MST appears to be primarily linked to mental health problems, research has consistently found a relationship with increased numbers of medical conditions (Kimerling et al., 2007). Individuals reporting MST endorse a greater number of current physical symptoms, more impaired health status, and more chronic health problems than those reporting no MST. Specifically, pelvic pain, menstrual problems, back pain, headaches, gastrointestinal symptoms, chronic fatigue, as well as cardiovascular risk factors like obesity and smoking, are more likely in individuals reporting MST (see reviews by Goldweig et al., 2006; Suris & Lind, 2008; Zinzow et al., 2007).

Women who were sexually or physically assaulted during military service demonstrate poorer health-related quality of life as compared to nonassaulted women (Burgess et al., 2013). These findings suggest that MST, like other traumatic stressors, may be correlated with negative health behaviors. Studies have also found associations with sexual and reproductive conditions such as endometriosis, sexually transmitted diseases, and HIV, similar to findings in research on sexual assault conducted with civilian samples (Burgess et al., 2013; Street & Stafford, 2002). In addition to the above conditions, Burgess and colleagues (2013) report that a large number of both men and women endorsing MST are infected by human papillomavirus (HPV). This poses two risks: capability of spreading HPV as well as enduring the negative consequences of HPV.

Empirically Supported Treatments Used in MST Populations

A review of studies of treatment for sexual assault related to distress in women found the most empirical support for Prolonged Exposure (PE; Foa, Hembree & Rothbaum, 2007) and Cognitive Processing Therapy (CPT; Resick & Schnicke, 1992), and some support for the efficacy of Stress Inoculation Training and Eye Movement Desensitization and Reprocessing (Vickerman & Margolin, 2009). Psychotherapies tested with veterans have primarily consisted of exposure techniques. There may be an advantage to treatments such as cognitive processing therapy, which includes both cognitive and exposure components.

At the direction of the VA Office of Mental Health Services (OMHS), the rollouts of two evidence-based therapies for PTSD, CPT and PE continued to be a highlight of the National Center for PTSD's educational endeavors in FY 2011 ("Dissemination and Education Within the VA - National Center for PTSD," 2013). Over the past few years, both programs have been included in best practice guidelines and the VA has created extensive trainings and support materials. Additionally, both programs now have processes in place to certify both clinicians and trainers. In a new effort to decentralize the dissemination of the therapies, local experts are being trained as trainers and consultants. Consequently, these treatments are increasingly being offered to veterans who endorse MST-related distress, although precise utilization rates are unknown.

While many of the treatment outcome studies supporting the efficacy of PE and CPT have included sexual trauma survivors, only two have reported outcomes specific to MST survivors (Monson et al., 2006; Surís et al., 2013). The particular combination of stressors faced by MST survivors and the potential gender differences summarized previously in this review suggest that treatment outcomes in other trauma populations are not necessarily generalizable and/or applicable to MST populations. Of additional concern is that an analysis of clinical trial

effect sizes revealed a less robust treatment outcome for military populations compared to nonmilitary samples (Cason, Grubaugh, & Resick, 2002).

Cognitive Processing Therapy

Cognitive processing therapy (CPT) was developed to treat the symptoms of PTSD in civilian female rape victims. CPT is based on an information processing theory of PTSD and includes education, exposure, and cognitive components (Resick & Schnicke, 1992). Information processing theory speaks to the process by which information is encoded, stored in memory, and recalled. The Foa, Steketee, and Olasov-Rothbaum (1989) emotional processing theory of PTSD, which is based on Lang's (1977) information processing model, proposes that information is stored in fear networks that consist of stimuli, responses, and the meanings of the stimulus and response components. The network is viewed as a platform to elicit escape and avoidance behavior. Within this model, fear and anxiety reduction occur when emotional information structures are activated and modified via habituation and the assimilation and accommodation of corrective fear-relevant information occurs (Foa & Kozak, 1986).

Foa and colleagues (1989) proposed that systematic exposure to the traumatic memory in a safe environment functions to alter the feared memory such that threat cues are reevaluated and habituated. However, although activation of the network, or schema, in a safe environment may sufficiently alter perceptions of danger and fear, there may be no change in emotional reactions other than fear without direct confrontation of conflicts, misattributions, or expectations (Resick & Schnicke, 1992). Victims may still blame themselves, feel they have not recovered or returned to baseline functioning quickly enough, feel shame or disgust, or experience anger, all of which surface with enough intensity to facilitate intrusive thoughts and avoidance behavior.

CPT is a manualized 12-session therapy that has been found effective for PTSD and other corollary symptoms following traumatic events (Monson et al., 2006; Resick & Schnicke, 1992; Resick et al., 2012). Although CPT was originally developed for and subsequent research efforts focused on civilian women suffering sexual assault-related PTSD, the therapy has been used successfully with a range of other traumatic events, including military-related traumas.

CPT seems well suited to the veteran population and VA treatment setting. Strengths of CPT include: a focus on the range of emotions, in addition to anxiety, that may result from traumatization (e.g., shame, sadness, anger), the ability to generalize to comorbid mental health conditions and day-to-day problems, a manualized treatment format amenable to widespread dissemination, and treatment deliverable in group and individual formats (Monson et al., 2006).

After establishing absolute efficacy, the next step in examining CPT as a viable treatment for PTSD involved comparative outcome studies to establish relative efficacy. In addition to comparison with a wait-list group, the therapy should also be compared against the best available treatment package (Kazdin, 1998). The therapy approaches that have received the most empirical support for treating PTSD among sexual assault survivors prior to CPT were PE and stress inoculation training (SIT; Foa et al., 1999; Foa, Rothbaum, Riggs, & Murdock, 1991). Best-practice guidelines endorse cognitive–behavioral techniques for the treatment of PTSD (Foa, Keane, Friedman & Cohen, 2009; Institute of Medicine, 2008; U.S. Department of Veterans Affairs & Department of Defense, 2010).

In randomized controlled studies, CPT was as effective as PE in reducing posttraumatic symptoms in women with sexual assault and sexual abuse histories (Resick, Nishith, & Griffin, 2003; Resick, Nishith, Weaver, Astin, & Feuer, 2002). In a study comparing CPT to PE and a minimal attention condition (MA) for the treatment of PTSD and depression, Resick et al. (2002)

conducted a randomized controlled trial with 171 female rape victims. Participants were randomized into 1 of the 3 conditions, and 121 completed treatment. Participants were assessed with the Clinician-Administered PTSD Scale, the PTSD Symptom Scale, the Structured Clinical Interview for *DSM–IV,* the Beck Depression Inventory, and the Trauma-Related Guilt Inventory. Independent assessments were made at pretreatment, posttreatment, and 3 and 9 months posttreatment. Analyses did not indicate statistical differences between the treatments in improving assault-related PTSD and depression. However, across outcomes and assessment points, the effect size advantages for CPT were between *ds* of .10 and .29 better than PE. CPT also produced statistically significant improvements compared with PE in some aspects of trauma-related guilt (i.e., hindsight bias, lack of justification). Surıs, Lind, Kashner, and Borman (2007) suggested that MST differs clinically from civilian adult or childhood sexual trauma, bringing into question whether a civilian-based treatment is as effective with veterans with MST-related PTSD.

Monson and colleagues (2006) conducted a randomized clinical trial with 60 veterans, including 10 with MST-related PTSD and found a significant reduction in PTSD symptoms for those receiving CPT versus a waitlist control. The intention-to-treat results indicate significant improvements in both clinician- and self- reported PTSD symptoms; 40% did not meet criteria for PTSD and 50% had a reliable change in their PTSD symptoms at posttreatment assessment (Monson et al., 2006). Moreover, the positive effects of CPT extended beyond PTSD symptoms to include improvements in frequently co-occurring symptoms of depression and general anxiety, affect functioning, guilt distress, and social adjustment. However, the generalizability of these findings is significantly limited since the sample was predominantly male, Vietnam-era Veterans with primarily combat-related PTSD.

Another study by Galovski, Blain, Chappuis, and Fletcher (2013) evaluated the treatment response trajectory for 69 male and female interpersonal assault survivors, using a modified CPT protocol that allowed survivors to receive up to 18 sessions, with treatment end determined by therapy progress. Few sex differences were observed in trauma history, baseline PTSD and depressive severity, Axis I comorbidity, anger, guilt and dissociation. Women reported more sexual assault in adulthood and elevated baseline guilt cognitions, whereas men reported more baseline anger directed inward (Galovski et al., 2013). Attrition and total number of sessions did not differ by sex. Over the course of treatment and 3-month follow-up, both sexes demonstrated similar rates of change in PTSD and depressive symptoms.

Only one published randomized controlled trial to date has specifically examined the effectiveness of CPT for MST (Surís et al., 2013). The goal of that study was to evaluate the effectiveness of individual CPT in the treatment of posttraumatic and depressive symptoms related to MST in a randomized, controlled trial comparing CPT to present-centered therapy (PCT). Nineteen sexual assault survivors received 12 weekly CPT sessions in a group format. Participants were assessed at pretreatment, posttreatment, and 3- and 6-month follow-up. CPT subjects were compared with a 20-subject comparison sample, drawn from the same pool that waited for group therapy for at least 12 weeks. CPT subjects improved significantly from pre- to posttreatment on both PTSD and depression measures and maintained their improvement for 6 months. The comparison sample did not change from the pre- to the posttreatment assessment sessions (Surís et al., 2013).

The combined treatment dropout rate was 28% ($n = 24$), with rates of approximately 35% for CPT and approximately 18% for PCT. The difference in dropout rates between the treatment conditions was not significant (Surís et al., 2013). Mean number of sessions completed was 9.7

in CPT and 10.5 in PCT; $F(1, 84) = 1.17$, $p = .28$ (Surís et al., 2013). Although not statistically different from the 18% dropout rate of the PCT group in the current study, the 35% dropout rate in the CPT group was higher than in other randomized control trials of CPT (Monson et al., 2006; Resick et al., 2002). Because no other studies of CPT specifically in a population with MST-related PTSD have been conducted, it is unknown if the current dropout rate is representative of this population. Dropouts did not differ from treatment completers on baseline measures (all ps > .05). Separate analyses of PTSD outcomes comparing treatment completers with dropouts were not performed.

The inclusion of males was, in theory, an advantage of this study; however, they were represented in limited numbers ($n = 13$). Sample size was a limitation ($n = 86$) in this study in terms of generalizability and especially in terms of male representation. Researchers must make every effort to include men to prevent underrepresentation in the growing research literature on MST-related PTSD. The fact that CPT was designed for and predicated on the experiences of female victims of civilian sexual assault presents both an opportunity and a challenge to adapt the model to effectively address the experiences of female and male service members with a history of MST and more importantly prove efficacious in MST-related PTSD symptom reduction.

Attrition

Dropout, or attrition, is the failure of a participant to complete, comply, or be prematurely discontinued or discharged from a treatment condition (Matthieu & Ivanoff, 2006). In outcome research, attrition can be a substantial problem, resulting in lost data and ambiguity in the analysis of treatment outcomes. Excluding dropouts from analysis causes an artificially inflated outcome that affects information about the efficacy, effectiveness, and potential success of the

intervention. On the other hand, inclusion after defined therapeutic failure, may be biased or unwarranted. Matthieu and Ivanoff (2006) conducted a literature review of 10 years of adult PTSD treatment outcome literature specific to Criterion A events of human origin. They examined how attrition was defined and addressed, methodologically and statistically. Of the 13 experimental or quasi-experimental studies reviewed, 11 reported attrition information. Compared to treatment completers, dropouts more often had elevated pretest scores on PTSD and other symptom measures. In the population of human-caused trauma survivors (e.g., combat, sexual assault, childhood sexual assault), the issue of dropouts takes on a more problematic clinical scenario. When a trauma patient drops out of a clinical research study, the reasons are often unknown at the point of departure (Matthieu & Ivanoff, 2006). The treatment intervention may be too overwhelming for the individual and cause maladaptive coping. Amplified symptom levels may cause various treatment side effects, including withdrawal from treatment (Foa, Steketee, & Rothbaum, 1989; Matthieu & Ivanoff, 2006). Exclusion from the study can also be based on symptomology at levels above the criteria in the treatment protocol, (e.g., chronicity and/or impairment), symptoms that do not meet inclusion criteria, (e.g., psychosis, or active substance use), or management issues needing clinical intervention beyond the stated scope of the intervention, (e.g., psychotropic medication referral, Axis II disorders, or medical conditions; Matthieu & Ivanoff, 2006).

No investigation of treatment completion has been conducted specifically with MST survivors (Allard et al., 2011). Attrition rates in PTSD treatment studies have ranged from 0% to 54% (Matthieu & Ivanoff, 2006; Schottenbauer et al., 2008), with reported averages of 32.2% (Sharf, 2008). An important meta-analysis of 125 studies on psychotherapy dropout revealed that the average dropout rate across studies was 47%, supporting claims that dropout is a significant

concern (Wierzbicki & Pekarik, 1993). A consistent finding is that the initial dropout rates (after a few sessions or a few weeks of treatment) are high, and it is suggested that the early stages should be regarded as a tentative approach.

Dropout rates in non-research clinical practice can be higher than those reported in clinical trials in part due to fewer resources for follow-up contact (Sharf, 2008). Considering the highest attrition rate in PTSD studies, Zayfert and colleagues (2005) predicted an expected clinical dropout rate of 80%. It is critical to identify predictors of dropout in an effort to develop and/or promote interventions that can address them more successfully.

Examining patterns of attrition and completion, as well as the rates and levels of change clinically and statistically has the power to improve treatment methods: What we learn about differential response rates can help inform recruitment strategies, pretreatment, and adjunct treatment or services, which ultimately may enhance treatment gains. Identifying those less likely to benefit from a particular treatment can help answer the question, "what treatment works best for whom and under what conditions?"

This study was designed to test differences in treatment outcomes for veterans with and without a documented history of MST enrolled in outpatient CPT within VA settings across the country. The study examined differences between self-reported symptomology for pre- and post-treatment, measured by scores on the PTSD Checklist (PCL; Weathers, et al., 1993), for veterans with PTSD and a history of MST compared to those veterans without a documented history of MST who completed the CPT 12-session treatment protocol. The study also explored patterns of attrition and completion in outpatient individual CPT for male and female participants for those with MST and combat PTSD. This chapter describes participant selection, independent variables, measures, research hypotheses, and data analyses of the current study.

Participants

In collaboration with VA Informatics and Computing Infrastructure (VINCI) data managers, four samples were selected for the current retrospective, multi-year cohort study. This was a retrospective data extraction maintained in the VINCI workspace. As such, a waiver for HIPAA authorization and informed consent was granted.

Demographics. Demographic information and descriptive statistics for the final sample are presented in Table 1. The same demographic information and descriptive statistics are further differentiated into the four unique cohort conditions: (1) Cohort 1 was comprised of individuals who completed the CPT protocol and are MST negative, (2) Cohort 2 included CPT treatment completers who were MST positive, (3) Cohort 3 was comprised of CPT treatment participants

who were MST negative, and (4) Cohort 4 included CPT treatment participants who were MST positive. The data for each cohort is presented in Table 2.

Fifty-four (67.5%) of the patients were male, 26 (32.5%) were female. However, 25 (66%) of MST positive patients were women, and 41 (98%) of MST negative patients were men. The mean age (*SD*) was 56.3 (9.2). Forty-seven (58.8%) of the participants were White, 29 (36.3%) were African American, and 3 (3.8%) were Hispanic. Forty-seven (58.8%) of the total sample were divorced or separated. Seventy-five percent of both MST cohorts were divorced or separated; 35% of Cohort 1 and 42% of Cohort 3 (the two non-MST cohorts) were divorced or separated.

Roughly half of the sample (*n* = 42; 52.5%) did not have a documented history of MST, while the remaining 38 (47.5%) had a documented history positive for MST. The index trauma (e.g., the worst trauma the patient has experienced) chosen by patients as the focus of their trauma narratives in CPT treatment was: 47.5 percent (*n* = 38) MST, 37.5 percent (*n* = 30) combat trauma, and 15 percent (*n* = 12) non-combat trauma. The most common mental health diagnoses were PTSD (100%), substance or polysubstance use disorder (57.5%), depressive disorder (44%) and anxiety disorder (12%). Of the patients diagnosed with substance use disorders, alcohol-related use disorders accounted for 85 percent (*n* = 39), stimulant use disorders 54 percent (*n* = 25), cannabis use disorders 26 percent (*n* = 12), and opioid use disorders 9 percent (*n* = 4). Seventy (88%) of the participants had at least two mental health diagnoses. The mean (*SD*) number of mental health diagnoses was 2.5 (.92).

The mean (*SD*) number of sessions attended for CPT was 9.4 (3.5). Sixty percent (*n* = 48) of patients were defined as treatment completers (finished session 12 of the protocol with 10 or more PCL scores documented in the EHR).

Table 1. *Demographics of sample and descriptive statistics*. (*n* = 80)

Variable	*n*	*%*	*M*	*SD*
Sex[1]				
Men	54	67.5		
Women	26	32.5		
Age (years)			56.3	9.2
Race/ethnicity				
White	47	58.8		
African American	29	36.3		
Hispanic	3	3.8		
Native Hawaiian or Pacific Islander	3	3.8		
Unknown or Declined	1	1.3		
Marital status				
Divorced or separated	47	58.8		
Married	20	25		
Never married	9	11.3		
Widowed	4	5		
Level of education in years				
< 12	4	5		
12	31	38.8		
> 12	22	27.5		
Unknown	23	28.8		
Branch of service				
Army	49	61.3		
Navy	14	17.5		
Air Force	10	12.5		
Marines	10	12.5		
National Guard	2	2.5		
Service era				
Vietnam era	33	41.3		
Post-Vietnam era	26	32.5		
Persian Gulf – present	21	26.3		
MST status				
Positive	38	47.5		
Negative	42	52.5		

[1] The VA national rates for outpatient mental health care services utilization by gender reported for FY 2014 were 91% males (n = 2,245,521) and 9% females (n = 234,788). This data reflects all mental health care service utilization, not only utilization specific to MST-related treatment.

Index trauma								
MST	38		47.5					
Combat	30		37.5					
Non-combat	12		15					
Number of sessions					9.3		3.5	
Completed full therapy protocol?								
Yes	48		60					
No	32		40					

Table 2. *Demographics of sample and descriptive statistics by cohort.* (*n* = **128**)

Variables	MST-Treatment Completers (*Cohort 1*)		MST+ Treatment Completers (*Cohort 2*)		MST-Treatment Participants (*Cohort 3*)		MST+ Treatment Participants (*Cohort 4*)	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Sex								
Men	27	100	8	38	41	98	13	34
Women	0	0	13	62	1	2	25	66
Age (years) *M*	*M* = 56.1		*M* = 55.2		*M* = 57.7		*M* = 54.7	
SD	*SD* = 12.5		*SD* = 5.6		*SD* =10.9		*SD* = 6.7	
Race/ethnicity								
White	19	70.5	10	47.6	28	66.7	19	50
African American	7	26	10	47.6	12	28.6	17	44.7
Hispanic	1	4	1	4	2	5	1	3
Native Hawaiian or Pac Islander	1	4	1	4	2	5	1	3
Marital status								
Divorced or separated	10	35.7	16	76.2	18	42.9	29	76.3
Married	9	32.1	1	4	16	38.1	4	10.5
Never married	5	17.9	3	14.3	5	11.9	4	10.5
Widowed	3	10.7	1	4	3	7	1	3
Level of education in years								
< 12	3	11	0	0	4	10	0	0
12	8	30	9	42.9	17	40	14	36.8
> 12	8	30	7	33.3	10	23.8	12	31.6
Unknown	8	30	5	23.8	11	26.2	12	31.6
Branch of service								
Army	16	59	12	57.1	25	59.5	23	60.5
Navy	4	15	3	14.3	8	19	6	15.8

Air Force	3	11	4	19	4	10	6	15.8
Marines	5	18.5	1	4	6	14.3	4	10.5
National Guard	1	4	1	4	1	2	1	3
Service era								
Vietnam era	16	59.3	5	23.8	24	57.1	9	23.7
Post-Vietnam era	2	7.5	12	57.2	7	16.7	19	50
Persian Gulf – present	9	33.3	4	19	11	26.2	10	26.3
MST status								
Positive	0	0	21	100	0	0	38	100
Negative	27	100	0	0	42	100	0	0
Index trauma								
MST	0	0	21	100	0	0	38	100
Combat	20	74	0	0	30	71.4	0	0
Non-combat	7	26	0	0	12	28.6	0	0
Number of sessions	$M = 11.9$		$M = 11.8$		$M = 9.6$		$M = 9.2$	
Completed full therapy protocol?								
Yes	27	100	21	100	27	64.3	21	55.3
No	0	0	0	0	15	35.7	17	44.7

Procedure

Data Availability. In this retrospective cohort study, data from the cohort were extracted from the VHA electronic health record (EHR). Structured administrative data were used to describe demographic information of the sample. Also, a retrospective chart review was performed to extract additional information from the cohorts including: gender, age, marital status, level of education, race, ethnicity, branch of service, period of service, combat status, and patient diagnoses. Data analyses for this project were conducted on the VA Informatics and Computing Infrastructure (VINCI), a secure, virtual computing environment developed through a partnership between the VA Office of Information Technology (OI&T) and the Veterans Health Administration's Office of Research and Development (VHA ORD). VINCI is a partner with the Corporate Data Warehouse (CDW) and hosts all data available through CDW. VHA National Data Services (NDS) authorizes research access to patient data. Data are only available for

researchers who meet the criteria for access to confidential data. VINCI is part of the

Transformation for the 21st Century Initiative #13 to provide researchers a nation-wide view of

high-value VA patient data. In addition to secure data storage, VINCI includes a cluster of

servers set aside for tasks like analysis and data processing. This allows VA researchers to have

access to the data and the applications needed to select, transform, and analyze veteran data in a

central and secure location accessible from the VA intranet.

Data Security. The study used retrospective data and required the use of protected health

information (PHI) including social security numbers and dates of birth. All data, including

personally identifiable records, was stored on the secure VA Informatics and Computing

Infrastructure (VINCI) drive to which only the principal and co-investigators had access. VINCI

is an initiative to improve researchers' access to VA data and to facilitate the analysis of those

data while ensuring veterans' privacy and data security. Chart reviews were conducted using the

National Compensation and Pension Records Interchange (CAPRI). The investigator performed

all data clean up and statistical analyses on the secure VINCI workspace using SAS, SPSS, and

Microsoft Excel. Raw data from this study were not removed from the VA-protected

environment. No raw data, including PHI, were removed from the secure research drive or made

available to individuals not involved in the study. The results of aggregated statistical tests were

transferred from the VINCI workspace to facilitate the reporting of overall study results.

Ethical Issues. Ethical issues need to be managed in all forms of research. Primary

ethical issues that needed to be managed in the present study included client confidentiality and

autonomy. It is hoped that the security measures outlined above minimized risks to participants

by ensuring that confidentiality was maintained. Specifically, the location of all data on a secure

VINCI server and the removal of individual identifiers from study-related files as soon as they were no longer needed helped reduce the risk of any breaches of confidentiality.

The current study also received approval for exemption waiver of informed consent. Obtaining informed consent from each participant would have been impractical due to (1) the amount of time it would take to directly contact participants, and (2) to the fact that contacting patients directly who received mental health treatment could have resulted in further breaches of confidentiality since it would have identified them as former recipients of mental health treatment. All clients who enter the VA system grant consent for their data to be used in research. To protect research participants in the current study, all procedures and ethical issues were approved by the Kansas City VA Medical Center Institutional Review Board (IRB) and the VA Eastern Kansas Health Care System Research and Development Committee (R&DC).

Patient Selection. Patients who completed the PCL three or more times within a five month period from January 1st, 2008 to October 31st, 2013 were randomly selected for chart review. The CPT protocol recommends regular administration of the PCL on a weekly basis during treatment. However, these measures are administered frequently in the VA system in other trauma-focused psychotherapies (i.e., Prolonged Exposure), as well as in contexts other than psychotherapy. The threshold of three or more completed PCLs in a five-month timeframe was chosen in an attempt to filter out individuals who did not receive mental health treatment while increasing the likelihood of retaining people who initiated CPT but did not complete the protocol to investigate questions of attrition.

The data selection procedure randomly selected participants from 30 unique VA sites. VA Medical Centers and Community Based Outpatient Clinics in 19 different states were included in the study. Since all data were retrospective, the assignment of participants to the different cohorts was based on information gathered via chart review on the basis of treatment type, modality, and index

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trauma or MST status. The main inclusion criterion was whether patients had received CPT in individual outpatient therapy.

In keeping with the principles of effectiveness research, exclusionary criteria for the study were limited. The goal was to reflect, as accurately as possible, the overall population of veterans in VA settings that have received CPT in individual outpatient therapy. However, data from clinical work in real world settings also tends to be highly inconsistent. The number of measurements each patient received and the time interval between measurements was highly inconsistent. Specifically, clinicians utilizing the CPT protocol were inconsistent in how frequently they administered and documented PCL scores. Additionally, the time interval between sessions and/or scores was also inconsistent. Data that are structured in this way may bias the results due to the time interval between measurements as well as the exclusion of many participants who did not have sufficient PCL scores to meet inclusion criteria for the first two CPT treatment completer cohorts.

Three hundred fifty patients' charts were reviewed. One hundred eighty-five patients were identified as having received CPT. One hundred five patients received CPT in individual therapy. Of these, 25 patients were excluded from statistical analyses for the following reasons: (a) patient was involved in individual CPT, but in an inpatient setting ($n = 10$), (b) patient lacked sufficient PCL scores and/or too many consecutive PCL scores were missing to merit inclusion criteria ($n = 12$), (c) CPT treatment was modified according to clinician progress note ($n = 2$), and (d) patient died of apparent natural causes during CPT treatment, which may have confounded the attrition analysis ($n = 1$). Thus, the final unique sample was 80 patients; however 48 patients met criteria for both CPT completer criteria as well as CPT participant criteria. Therefore, data from these 48 patients were investigated in multiple analyses examining completion patterns as well as attrition patterns The total sample for all four cohorts was 128 patients.

Power Analysis. Because this study investigated the effects of MST on treatment outcomes (i.e., PCL scores pre- and post- treatment) and patterns of attrition in individual outpatient CPT, the effect size for the PCL was used. The most conservative effect size reported for the PCL was used for the power analysis: Cohen's d = 1.02, which is an r of .447 (Surís, et. al, 2013). Since this was the effect desired, 17 participants in each of the four conditions (i.e., four unique cohorts) were needed according to the power analysis; thus, 34 participants total in each of the two sub-samples: (1) treatment completer conditions [i.e., MST negative (*cohort 1*) and MST positive (*cohort 2*)]; and (2) treatment participation conditions (participants who completed 3-12 CPT sessions) [i.e., MST negative (*cohort 3*) and MST positive (*cohort 4*)] 2 sub-samples (i.e., cohorts 1 & 2; cohorts 3 & 4), were needed to meet the standard 80% or greater chance of finding a statistically significant difference when there is one, based on an alpha (α) set at .05 (Cohen, 1988; Friedman, 1992).

Independent Variables

MST Status. Technically MST positive or MST negative categorization is a status variable, due to lack of researcher control or manipulation (Heppner, Kivlighan, & Wampold, 1999). MST negative conditions (i.e., cohorts 1 & 3) were coded as 1; MST positive conditions (cohorts 2 & 4) were coded as 2 in their respective analyses.

Gender. The sex of each patient was included as an additional independent variable.

Dependent Variables

PCL Scores. The primary dependent variable for this study was self-reported PTSD symptoms on the PTSD Checklist (PCL; Weathers, et al., 1993). Since its adoption in the 1990s, the PCL is one of the most commonly used self-report measures of PTSD (Wilkins, Lang, & Norman, 2011). The VA requires PCL administration to veterans with PTSD in active treatment

as part of an effort to establish national PTSD outcome measures. The PCL is a standardized self-report rating scale for PTSD comprising 17 items that correspond to DSM- IV-TR criteria for PTSD. Respondents are asked to rate the degree to which they were bothered by symptoms in the past month on a 5-point severity scale [from 1 (not at all) to 5 (extremely)]. Three PCL versions exist and differ with regard to the event they are anchored to and the wording describing the event. The PCL-military (PCL- M) anchors items to "stressful military experiences," the PCL-civilian (PCL-C) anchors items to "stressful experiences," and the PCL-specific (PCL-S) is anchored to a specific traumatic event. The total score is calculated by summing all of the individual items.

PCL scores can range from 17 to 85. Lower total scores indicate fewer and less severe PTSD symptoms while higher scores suggest more frequent and more severe and/or chronic PTSD symptoms. Subscales on the PCL include re-experiencing, avoidance/numbing, and hyperarousal. (Note: Only the full PCL score was used, not the subscale scores.) Because the PCL is a measure of PTSD symptoms, decreases on the PCL over time represent therapeutic gains. Weathers et al. (1993) recommended a cut-score of 50 for the diagnosis of PTSD. The National Center for PTSD (2014) recommends a decline of 5 points as a minimum threshold for determining whether a person has responded to treatment. A 10-point decline is the minimum threshold for clinically meaningful change. Internal consistency for the PCLC is very high (α =.97). Test-retest reliability over a one week time period is also very high ($r = .96$).

Number of CPT Sessions. The number of CPT sessions was operationalized as the number of CPT sessions the patient attended according to clinician progress notes in the electronic medical record.

Data Analysis

The present study analyzed how MST-related PTSD differentially impacts treatment outcomes in outpatient individual CPT. Specifically, the analyses examined PTSD symptomology for veterans with PTSD and a history of MST compared to PTSD symptomology endorsement by those without a documented history of MST enrolled in VHA outpatient individual CPT using descriptive analysis.

Hypothesis I. For CPT treatment completers, individuals with a history of MST will endorse greater pre- and post-treatment PTSD symptomology.

Analysis. An independent samples *t*-test was performed to determine if participants with a history of MST endorsed higher pre- and post-treatment PTSD symptomology than participants without a history of MST.

Hypothesis II. Regardless of gender or MST history, participants will show improvements in self-reported PTSD symptomology from pre- to post- outpatient individual CPT treatment as evidenced by lower total PCL scores.

Analysis. A dependent samples *t*-test was performed to determine if treatment completers (irrespective of gender or cohort assignment) showed significant improvements in self-reported PTSD symptomology from pre- to post- outpatient individual CPT treatment as evidenced by lower total PCL scores. An additional independent-samples *t*-test compared PCL change scores for treatment completers in MST positive and MST negative conditions.

Hypothesis III. Treatment completers with a history of MST will show different patterns of change on the PCL from treatment completers without a history of MST.

Hypothesis IV. Individuals in both groups, with and without MST, will show an elevation of PCL scores in sessions 4-5 (the trauma narratives).

Analysis. In order to describe the distribution and pattern of responses for hypotheses III and IV, PCL scores were plotted by group, using line graphs to describe trends within the sample.

Hypothesis V. Veterans without a history of MST will complete more CPT sessions than those with a documented history of MST.

Analysis. An independent samples *t*-test was performed to establish whether veterans without a history of MST completed more CPT sessions than those with a documented history of MST.

Hypothesis VI. Women will complete more CPT sessions than men in the group of veterans who have a documented history of MST.

Analysis. An independent samples *t*-test was conducted to ascertain whether women completed more CPT sessions than men in the group of veterans who had a documented history of MST.

Statistical packages available within VINCI, including Microsoft Excel, SPSS 21, and SAS 9.4 were used for data analyses.

Chapter IV

Results

The present study was designed to understand how MST-related PTSD impacts individual differences in treatment outcomes in outpatient individual cognitive processing therapy. Two main research questions guided this study. The first question involved determining if PTSD symptoms in outpatient individual CPT were reduced and whether there was a differential rate of response to CPT for individuals with a history of MST as compared to those without a documented history of MST. The second research question examined differences in attrition for veterans with a history of MST compared to those without a documented history of MST. It had been proposed to examine gender difference in attrition (crossing gender with MST status), but the number of males in the MST+ condition was sufficiently low that this analysis could not be completed. Analysis of variables using descriptive statistics was utilized to answer five research questions. Based upon prior literature on trauma-focused therapy, six hypotheses were developed to answer these questions.

Research Question I. Are there overall differences in PTSD symptomology at the beginning and end of treatment for veterans with PTSD and a history of MST compared to those without a documented history of MST who complete the CPT 12-session treatment protocol?

      Hypothesis I. For CPT treatment completers, individuals with a history of MST will endorse greater pre- and post-treatment PTSD symptomology.

      In order to test differences in PTSD symptomology at the beginning and end of treatment, an independent-samples t-test was conducted to compare pre- and post- treatment PCL scores in MST positive and MST negative conditions for veterans who completed individual outpatient

CPT. There were no significant differences between the pre- and post- treatment PCL scores for

MST positive (pre-treatment: $M = 66.1$, $SD = 12.4$; post-treatment: $M = 56.5$, $SD = 18.6$) and

MST negative conditions (pre-treatment: $M = 62.4$, $SD = 11.4$; post-treatment: $M = 49.0$, $SD =$

17.1). An independent samples t-test did not reach statistical significance, pre-treatment: $t(46) = $ -

1.07, $p = 0.29$, nor post-treatment: $t(46) = -1.46$, $p = 0.15$, which suggests that a positive history

of MST does not have a significant effect on pre- and post- treatment PCL scores. The results of

this t-test are presented in Table 3.

Table 3. *CPT treatment completers' pre- and post- treatment PCL scores by cohort.*

PCL Score	MST+ (*n* = 21)	MST- (*n* = 27)	*t*	*df*	*p*
Pre-treatment	66.1 (12.4)	62.4 (11.4)	-1.07	46	.29 (*ns*)
Post-treatment	56.5 (18.6)	49.0 (17.1)	-1.46	46	.15 (*ns*)

Research Question II. Do CPT treatment completers (irrespective of gender or MST history)

show improvement in PTSD symptomology following treatment?

Hypothesis II. It is hypothesized that across groups, participants will show

improvements in self-reported PTSD symptomology from pre- to post- outpatient individual

CPT treatment as evidenced by lower total PCL scores.

Excluding those individuals who did not complete all 12 CPT sessions (i.e., the full

protocol), a dependent-samples t-test was conducted to determine if there was a significant

change in PCL scores from pre-treatment (T1) to post-treatment (T2) in outpatient individual

CPT. A t-test for dependent samples revealed that there was a significant change on test scores

$t(47) = 5.96$, $p < .001$. These results suggest that treatment completers showed improvement

from pre- to post- treatment PCL scores; however, because there was no control group, it cannot be determined that the significant finding is a function of CPT treatment. The results of this *t*-test are presented in Table 4.

Table 4. *CPT treatment completers' pre- and post- treatment PCL scores.*

	PCL Scores				
	Pre-CPT	Post-CPT	*t*	*df*	*p*
CPT Treatment Completers (*n* = 48)	64.0 (11.9)	52.3 (18.0)	5.96	47	<..001

An additional analysis was conducted in order to test differences in self-reported PTSD symptom change between those veterans with and without a history of MST. An independent-samples *t*-test was performed to compare PCL change scores in MST positive and MST negative conditions for veterans who completed individual outpatient CPT. An independent samples *t*-test revealed no significant mean differences between MST positive (*M* = -9.6, *SD* = 11.2) and MST negative (*M* = -13.4, *SD* = 15.3) conditions, $t(46) = -.98$, $p = 0.34$. In the absence of a significant *t*-test, the null hypothesis was retained, which suggests that MST does not have a significant effect on PCL change scores. The results of this *t*-test are presented in Table 5.

Table 5. *CPT treatment completers' PCL change scores.*

	MST + (*n* = 21)	MST- (*n* = 27)	*t*	*df*	*p*
PCL change score	-9.6 (11.2)	-13.4 (15.3)	-.98	46	.34 (*ns*)

Research Question III. Do CPT treatment completers with a history of MST and those without a history of MST show different patterns of change on the PCL?

Hypothesis III. Treatment completers with a history of MST will show different patterns of change on the PCL from treatment completers without a history of MST.

Hypothesis IV. Individuals in both groups, with and without MST, will show an elevation of PCL scores in sessions 4-5 (i.e., reading the trauma narratives).

In order to describe the distribution of responses, PCL scores were plotted by group using line graphs to describe trends observed within the sample. Keeping in mind independent t-test analyses did not reach statistical significance in both pre- and post- treatment PCL scores for MST positive and MST negative conditions, both groups showed PCL elevations in sessions 4-5, as predicted in hypothesis IV. CPT treatment completers with a history of MST had the highest mean scores at session 4 ($M = 68.6$, $SD = 11.6$) and session 5 ($M = 67.0$, $SD = 11.8$). Treatment completers without a history of MST had their highest PCL elevation at session 5 ($M = 63.0$, $SD = 14.4$). The two conditions show similar slopes following a trajectory moving toward improvement; however the way they get there tends to be different. In both conditions, PCL scores show a decrease from pre- to post- treatment; however the MST negative group shows a more linear and consistent pattern of decline after the peak elevation at session 5. The MST positive group appears to have responded differently to treatment in unpredicted ways, their score trajectory showing a secondary PCL spike at session 9 ($M = 64.4$, $SD = 14.2$), where session content focuses on trust issues. The greatest score divergence between groups occurred at session 9, with a mean difference of 11.2 points. The PCL score trajectories are plotted below according to MST and non-MST trauma group in Figures 1 and 2.
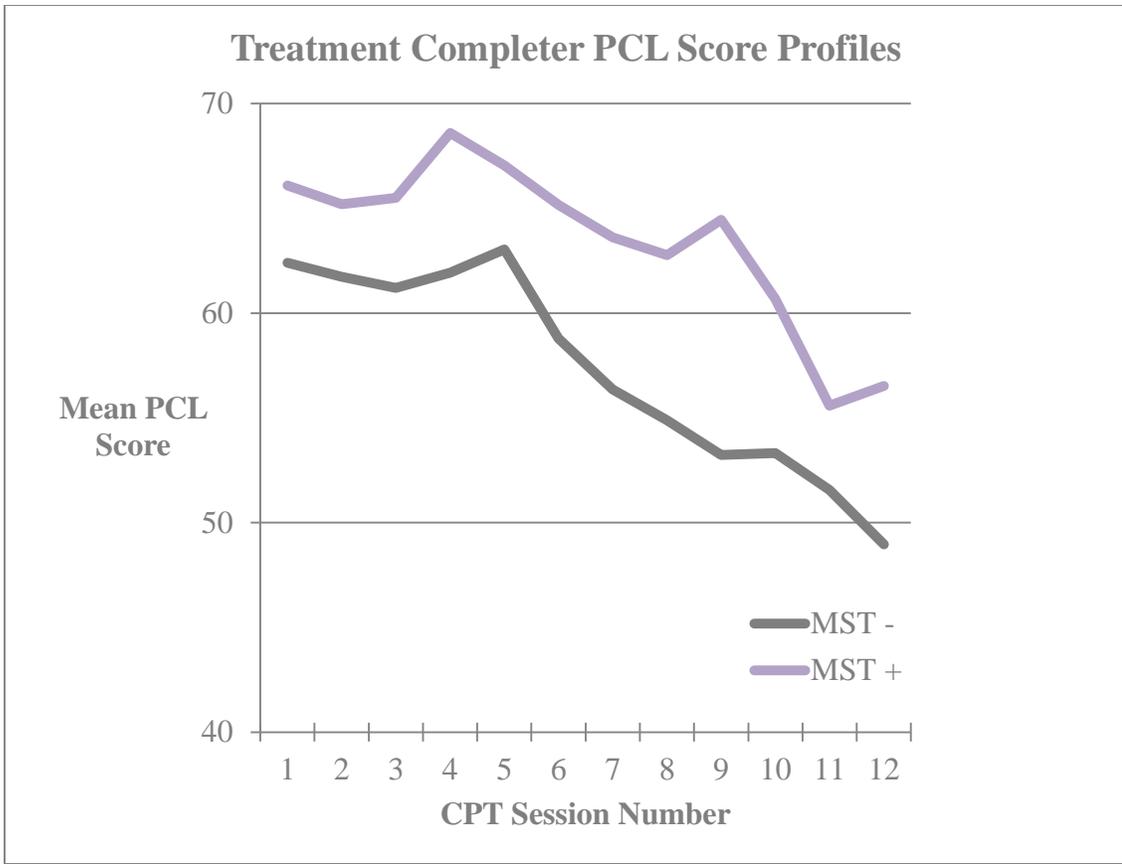
Figure 1. Treatment completer PCL score profiles according to cohort.
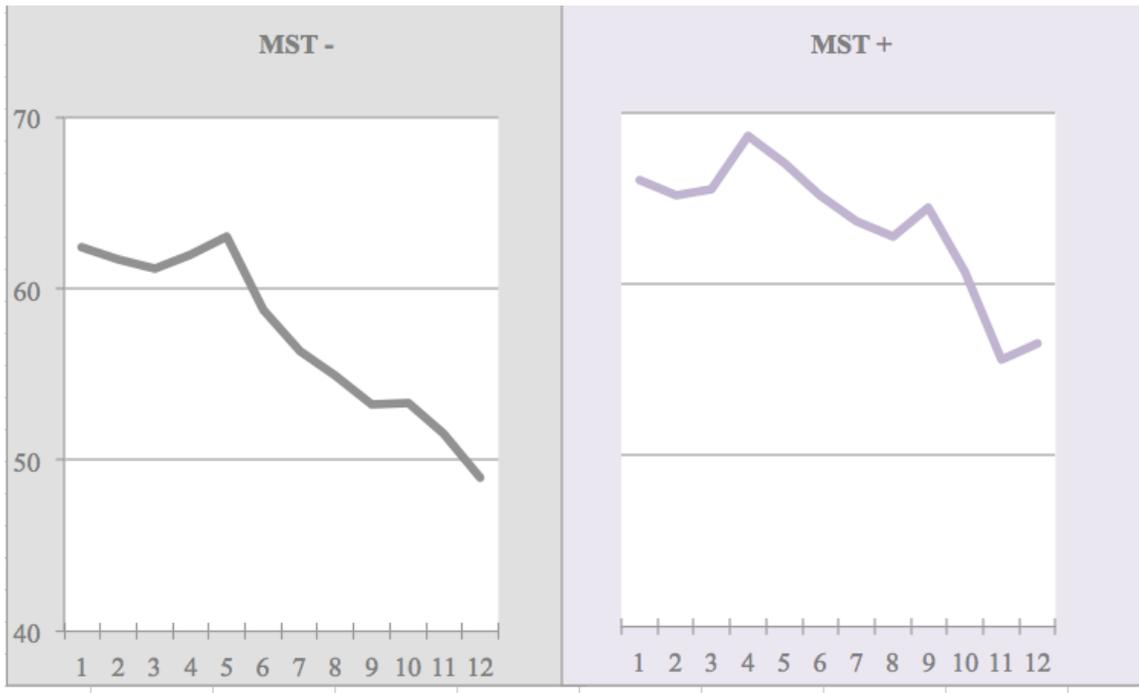
Figure 2. PCL score trajectories by cohort.

Research Question IV. Do veterans without a history of MST complete more CPT sessions than those with a documented history of MST?

Hypothesis V. Veterans without a history of MST will complete more CPT sessions than those with a documented history of MST.

In order to test differences in CPT session completion and attrition rates between those veterans with and without a history of MST, an independent samples *t*-test was performed comparing the mean number of sessions completed in MST positive and MST negative conditions for veterans who participated in individual outpatient CPT. The independent samples *t*-test revealed no mean differences between MST positive ($M = 9.1$, $SD = 3.5$) and MST negative ($M = 9.6$, $SD = 3.5$) conditions, $t(78) = .63$, $p = 0.53$, suggesting that MST does not have a significant effect on attrition rates and that MST produces equivocal treatment engagement as does combat or non-combat trauma. The results of this *t*-test are presented in Table 6.

Table 6. *Number of CPT sessions completed.*

	MST + (*n* = 38)	MST- (*n* = 42)	*t*	*df*	*p*
CPT sessions completed	9.1 (3.5)	9.6 (3.5)	.63	78	.53 (*ns*)

Research Question V. Do the number of CPT sessions completed differ by gender?

Hypothesis VI. Women will complete more CPT sessions than men in the group of veterans who have a documented history of MST.

The current study could not disaggregate sex differences to reach significant power due to the limited sample size in the two cohorts comprised of patients with a documented history of

MST (i.e., *cohort 2* MST+ treatment completers and *cohort 4* MST + treatment participants).

The sex of the cohort sample participants is reported in Table 7.

Table 7. *Sex of the cohort sample participants.*

	Treatment Completers				Treatment Participants			
	Cohort 1 MST-		*Cohort 2* MST+		*Cohort 3* MST-		*Cohort 4* MST+	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Sex								
Men	27	100	8	38	41	98	13	34
Women	0	0	13	62	1	2	25	66

To test for sex differences in the overall sample of CPT participants, using aggregate data from MST+ and MST- patients, an independent-samples *t*-test was performed to compare number of CPT sessions completed by males and females, who participated in individual outpatient CPT. An independent samples *t*-test revealed no mean differences between males (*M* = 9.4, *SD* = 3.7) and females (*M* = 9.2, *SD* = 3.1) for number of CPT sessions completed regardless of MST history, $t(78) = .19$, $p = 0.85$. This suggests that no significant sex differences exist for the number of CPT sessions completed in the overall sample. The results of this *t*-test are presented in Table 8.

Table 8. *Number of CPT sessions completed by sex.*

	Males (*n* = 54)	Females (*n* = 26)	*t*	*df*	*p*
CPT sessions completed	9.4 (3.7)	9.2 (3.1)	.19	78	.85 (*ns*)

Summary

In summary, across all hypotheses, the data reveals that there were non-significant findings in differential rate of response to CPT for individuals with a history of MST as compared to those without a documented history of MST. Additionally, there were no significant differences in attrition for these two groups (i.e., MST positive and MST negative conditions). The current study could not disaggregate sex differences to reach significant power due to limited sample size in the two cohorts comprised of patients with a documented history of MST. Aggregate data for the overall sample of CPT participants showed that no significant sex differences existed for the number of CPT sessions completed.

Chapter V

Discussion

This chapter summarizes and offers an interpretation of the main findings of the study by reviewing results from each of the research questions. The general discussion includes how the results from the current study fit within the prior literature on military sexual trauma, treatment outcomes, and attrition, as well as an examination of what these findings may mean for psychology. The limitations of this study, future directions for new research, and implications for practitioners of CPT are then discussed.

Summary of the Findings

The current study was designed to investigate how MST-related PTSD impacts individual differences in treatment outcomes in outpatient individual CPT. The study examined whether PTSD symptoms in outpatient individual CPT were reduced and whether there was a differential rate of response to CPT for individuals with a history of MST as compared to those without a documented history of MST who complete the CPT 12-session treatment protocol. Next, the study explored rates of change, levels of change, and patterns of attrition and completion in CPT for veterans with and without a history of MST. Finally, this study was designed to investigate sex differences in the number of CPT sessions completed in the group of veterans who have a documented history of MST.

Research Question I. Question I examined overall differences in PTSD symptomology at the beginning and end of a 12-session CPT treatment protocol for veterans with PTSD and a history of MST compared to those without a documented history of MST. Hypothesis I predicted that for CPT treatment completers, individuals with a history of MST would endorse greater pre- and post-treatment PTSD symptomology. The current analysis showed a non-significant difference in both the pre- and post- treatment PCL scores for MST positive and MST negative

conditions. An independent samples *t*-test comparing means did not reach statistical significance for pre- or post- treatment PCL scores, which suggests that a history positive for MST does not have a significant effect on pre- and post- treatment PCL scores. Although significant differences were not uncovered in PCL scores pre- or post-treatment, it should be noted that the post-treatment PCL scores showed a mean difference of 7.5 points between the two conditions, where veterans with MST had higher PCL scores post-treatment, which is representative of higher PTSD symptom severity endorsement.

Research Question II. Question II investigated whether CPT treatment completers (irrespective of gender or MST history) show improvement in PTSD symptomology following treatment. Hypothesis II predicted that regardless of gender or MST history, results would show improvements in self-reported PTSD symptomology from pre- to post- outpatient individual CPT treatment as evidenced by lower total PCL scores. As predicted, Hypothesis II was confirmed. Excluding those individuals who did not complete all 12 CPT sessions, a dependent samples *t*-test was conducted to determine if there was a significant change in PCL scores from pre-treatment (T1) to post-treatment (T2) in outpatient individual CPT. Results revealed that there was a significant reduction on test scores from pre- to post-treatment, suggesting that treatment completers show improvement from T1 to T2; however, because there was no control group established in this study, it cannot be determined that the significant finding is a function of CPT treatment. The lack of a control group is a limitation of the study.

Recall that on the PCL, veterans rate the frequency with which they experience 17 PTSD symptoms on a Likert scale ranging from 1 (not at all) to 5 (extremely). Responses on the 17 items are summed to derive a total PCL score. This score is an indicator of PTSD symptom severity. A decline in total PCL scores indicates an improvement in PTSD symptoms. In the

current study, collective results showed that participants in both conditions experienced a significant reduction in PTSD symptoms. On average, a 12-point score reduction was revealed from pre- to post- treatment. This decline falls above the threshold of 5 points needed to indicate a favorable response to treatment (National Center for PTSD, 2014), and above the 10-point threshold that indicates clinically significant change. Thus, patients in both MST positive and MST negative conditions who completed the 12-session CPT protocol showed a reliable difference from pre- to post- treatment scores, but it cannot be concluded that this was a function of treatment due to the lack of a control group.

Research Question III. Question III explored patterns of change on the PCL for CPT treatment completers with a history of MST and those without a history of MST. Hypothesis III predicted that treatment completers with a history of MST would show different patterns of change on the PCL from treatment completers without a history of MST. Hypothesis IV predicted that individuals in both groups, with and without MST, would show an elevation of PCL scores in sessions 4-5 (i.e., reading the trauma narratives). PCL scores were plotted by group using line graphs to describe trends within the sample. Keeping in mind analyses showed non-significant differences in both pre- and post- treatment PCL scores for MST positive and MST negative conditions, both groups showed PCL elevations in sessions 4-5 (reading of the trauma narratives), as predicted in Hypothesis IV. As predicted, the two conditions did show different slope trajectories over the course of treatment. In both conditions, PCL scores showed a decrease from pre- to post- treatment; however the MST negative group showed a more linear and consistent pattern of decline after the highest elevation at session 5. The MST positive group appears to have responded differently to treatment in unpredicted ways, their score trajectory showed a secondary PCL spike at session 9, where session content focuses on trust issues. The

greatest score divergence between groups occurred at this session, with a mean difference of 11.2 points.

Research Question IV. Question IV tested whether veterans without a history of MST complete more CPT sessions than those with a documented history of MST. Hypothesis V predicted that veterans without a history of MST would complete more CPT sessions than those with a documented history of MST. In order to test differences in CPT session completion and attrition rates between those veterans with and without a history of MST, an analysis was performed to compare mean number of sessions completed in MST positive and MST negative conditions for veterans who participated in individual outpatient cognitive processing therapy. Mean number of sessions completed for individuals with a history of MST was 9.1 and 9.6 for patients without a history of MST. This analysis revealed no mean differences between MST positive and MST negative conditions, suggesting that MST does not have a significant effect on completion rates. In a recent randomized controlled clinical trial, Surís et al. (2013) evaluated the effectiveness of cognitive processing therapy (CPT) in the treatment of self-reported and clinician-assessed PTSD related to MST. Mean number of sessions completed was 9.7, which is comparable to results from the current study.

Research Question V. Question V was designed to investigate sex differences in the number of CPT sessions completed. Hypothesis VI predicted that in the group of veterans who have a documented history of MST, women would complete more CPT sessions than men, which is related to previous research results, which indicate that when victimized, women are more likely than men to seek medical services (Elliott et al., 2004; Tjaden & Thoennes, 1998). Furthermore, most research on sex differences in presenting symptoms suggests that women generally are more willing than men to acknowledge psychological distress and physical trauma.

Although most studies show similar treatment outcomes regarding PTSD symptomatology, some mixed trauma type studies indicate that women may realize greater treatment gains (Galovski, Blain, Chappuis, & Fletcher, 2013). Notably, when attrition was compared in these studies, drop-out rates were generally comparable across men and women, with a few exceptions, suggesting that males may be at higher risk to drop out of treatment prematurely (Galovski et al., 2013).

In the MST positive conditions (i.e., *cohort 2* MST+ treatment completers and *cohort 4* MST+ treatment participants), the current study could not disaggregate sex differences to reach significant power due to limited male representation. Therefore, an analysis to test for sex differences in the *overall* sample of CPT participants, using aggregate data from MST+ and MST- patients, was performed. This analysis revealed no mean differences between males and females for number of CPT sessions completed regardless of MST history. This suggests that significant sex differences do not exist for number of CPT sessions completed in the overall sample, which is commensurate with results from the study by Galovski et al. (2013) where attrition and total number of sessions did not differ by sex.

General Discussion

When the results of the present study are compared to the prior research on trauma-focused therapy, a promising picture emerges regarding the effectiveness of CPT specifically for veterans with a history of military sexual trauma. Although CPT was designed for civilian sexual assault survivors and modified for use with a military population, very few studies have been conducted examining the effectiveness of CPT with the military sexual assault survivor population. In contrast, numerous studies *have* examined and verified claims about the effectiveness of CPT when working with veterans who have PTSD from combat exposure.

Within this VA sample, regardless of the type of trauma experienced, those receiving CPT showed significant improvement. Whether this was a function of CPT cannot be clearly determined given the absence of a control group. However, there does appear to be general evidence that those who receive CPT treatment show improvement (and do not show deterioration) over the course of that treatment, which points toward encouraging outcomes for individuals diagnosed with PTSD.

The present study did not confirm that effects of MST result in significant differences in treatment outcomes or patterns of attrition in CPT. One plausible interpretation is that MST does not compound PTSD symptoms as treatment looks to be equally efficacious across trauma types. Other interpretations might be that the non-significant findings across hypotheses are a function of the limited sample size or compromised data. The following section discusses these limitations amongst others.

Limitations

Internal validity. The present study lacked the types of controls that are used to maximize internal validity. Patients were not randomly assigned into treatment groups, but selected by trauma-type. Random assignment is necessary to limit the influence of selection bias and to control for treatment gains due to maturation. The current study also did not have a control group. Control groups enable any observed gains in therapy to be attributed to the treatments rather than due to maturation. However, multiple past studies that contained control groups have verified the absolute efficacy of CPT and this study was designed specifically to look at the effects of MST on treatment outcomes in CPT.

External validity. Although the minimum sample size determined by the power analysis was met in this study, this number may be insufficient when looking at large health care systemic

data. This is a primary supposition as to why it may have been difficult to detect differences. It is plausible that with enhanced power (i.e., a larger more representative sample), the small effects would have reached significance. Conversely, it is also plausible that a larger sample and similar differences with respect to means variance may have replicated these results, thus retaining the null hypotheses—that there are no differences in treatment outcomes and patterns of attrition in CPT for veterans with and without a positive history of military sexual trauma.

One difficulty encountered in this limited sample size was that there was not a clean way to pull out effects of individuals who complete the protocol in less than 12 sessions ($n = 9$). *How* or *if* completing the protocol in less than the recommended 12-session protocol impacted participant's results is unknown and a potential threat to external validity. Relatedly, time between sessions was not accounted for in the present study. The CPT protocol recommends weekly sessions. Within the overall sample, some participants adhered to this recommendation, others did not, still others had large gaps in treatment before resuming CPT, according to progress note dates and content in participants' electronic health record. These are examples of how situational factors in the current study may have limited generalizability of the results.

Other situational specifics (e.g., treatment conditions, time, location, treatment administration, therapist, timing, scope and extent of measurement, etc.) of a study potentially limit generalizability. Concerted efforts were made to control for outside variance like recognizable treatment confounds by restricting inclusion criteria to outpatient individual CPT participants. The outpatient criterion was designed to control for the multiple confounds of inpatient treatment, where specialized or general treatment programs provide a combination of psychotherapy, psychoeducation, and psychiatric medication management to the inpatient milieu. Participation in individual versus group CPT was also a criterion for the present study in an

effort to control for the effects of group dynamics that could likely confound results. However, it was apparent during the chart review phase that priming effects were impossible to control for due to previous treatment factors in the following ways: unpredictable psychotherapy succession, multiple treatment modalities, multiple treatment site histories, therapist effects, CPT protocol fidelity and dissemination, modifications in EBP delivery, inconsistent PCL documentation, and high-utilization rates, including multiple CPT protocol utilization (e.g., repeat customers). Moreover, sample data were highly variable. In the clinical context of the VA, it would be infeasible to control for all of the potential pre-treatment effects that the aforementioned factors have the potential to contribute to treatment outcome. However, due to the random sample selection in this study, it was expected that individuals in the MST positive and MST negative cohorts being compared would have an equal number of these potential confounding influences.

Testing effects and limitations of self-report measures. An additional limitation of the present study involved issues related to testing and self-report measures. All data on patient progress in therapy were obtained from the PTSD Checklist (PCL), a popular self-report measure. Although there is evidence attesting to the validity and reliability of this self-report instrument and it is an efficient PTSD symptom severity measure used widely in the VA, there are inherent limitations involved in self-report measures. Limitations of self-report measures include biases due to social desirability and different response styles while completing the assessments, which increase measurement error. The PCL may be even more susceptible to biases in a larger systemic context within the VA due to factors related to service-connection status.

The issue of secondary gain is a necessary consideration in this study due to service-connection compensation. Direct service connection is when a veteran's in-service injury,

disease or incident is shown to have directly caused a present medical disability and results in a certain percentage of financial compensation for service-connected disabilities; PTSD or possible comorbid psychiatric diagnoses are the relevant disabilities in the present discussion. This brings into question how reliable the PCL is at portraying *accurately* PTSD symptom reduction in the VA setting, when there are obvious financial benefits to maintaining a disability. This factor may consciously or unconsciously cause veterans to over-report PTSD symptom severity, conversely under-reporting reductions in PTSD symptomology for understandable reasons—namely fear related to decreases in or losing altogether one's PTSD service-connection rating, which would result in loss of financial compensation. Therefore, despite reductions in PTSD symptom severity endorsement across MST+ and MST- cohorts over the course of CPT treatment as evidenced by the significant PCL score reductions from pre- to post- treatment, the possibility of secondary gain to veterans by maintaining a disability (e.g., sustaining PTSD symptoms) may have restricted the range or influenced the magnitude of the change scores. An analysis of scores from a larger group of psychometric measures (not just the PCL), as well as a collection of several demographic characteristics would provide a clearer picture of CPT treatment within the VA and military veterans identified as MST intersect.

Unaccounted for variables. Cultural factors particular to military culture may have influenced self-reported PTSD symptoms on the PCL. There is an identity that many combat veterans share in having a PTSD diagnosis (related to combat exposure, not MST). Distinct from other contexts where PTSD is often regarded as a stigma—an unwanted *disorder*, in the VA healthcare system, PTSD is normalized due to its pervasive presence, and for some it is regarded as a badge of honor—a rite of passage if you will. Anecdotally, many veterans share their perceived dilemmas with decreasing PTSD symptom severity—e.g., "getting better," while

simultaneously fearing loss of an identity that has become familiar and holds with it a sense of triumph or honor having served one's country.

In military culture, there are certain subtle and not-so-subtle cultural factors that are important to consider, depending on how steeped an individual may be within that culture (i.e., many veterans have long family legacies of military service). Military personnel share similar training, often-similar trauma history, including norms about how they understand and view trauma. As a result, they may conceptualize trauma and its etiology differently than civilians. These factors unique to military culture may have also contributed to how participants in the current study self-reported PTSD symptomology.

One way to control for many of the limitations addressed in this chapter would be to research a much more controlled sample. For example, one could test the same hypotheses, but draw the sample from a specific program. The program example for illustration purposes is the Colmery O'Neil VA Medical Center 7-week inpatient *Stress Disorder Treatment Program* (SDTP), which is one of five in the U.S. designated Specialty Inpatient PTSD Units (SIPU). Despite the confounds intrinsic to an inpatient setting, where multiple psychotherapy treatment interventions are delivered, psychotropic medication is managed, and group CPT treatment is the modality of treatment, there are compelling reasons to repeat the present study in a setting like the one described. Ultimately, unaccounted variance and other threats to external validity may be improved in such a design. Therapist effects would be better controlled for since there are three veteran psychologists who deliver CPT. The same treatment coordinator screens and admits program applicants, so the screening process is the same. The criteria for discharge are uniform across all patients. The timeframe CPT is completed in is also consistent across CPT cohorts. Diversity (e.g., in trauma type, age, period of service, race and ethnicity, branch, and gender)

would not be threatened because SDTP applicants come from all over the U.S. to this program. Thus, sample diversity would plausibly not be compromised by choosing this unique treatment setting as opposed to selecting patients from multiple treatment sites. In fact the homogeneity of the setting would likely limit effects of the aforementioned treatment variance present in the current study.

Future Directions for Research

This study can provide consideration and a foundation for future prospective studies. There are several potential future directions researchers could take in light of the findings from the current study. Future studies could examine overall differences in PTSD symptomology at the beginning and end of treatment for veterans with PTSD and a history of MST compared to those without a documented history of MST by narrowing the focus and examining what factors lead to favorable and non-favorable treatment response. The current study was unable to disaggregate effects of sex on treatment outcomes and patterns of attrition in the MST positive conditions. Recall that women are 20 times more likely to be victimized during their military duty than men, however, there are 20 times more men in the military than women in the VA system (Department of VA, 2004). Therefore, because 22% of female and 1% of male VA users screen positive for MST, the actual numbers of men and women are about equal (Hoyt, Klosterman Rielage, & Williams, 2011). Despite these statistics reporting roughly equal numbers of male and female MST victims, the fact that so few males were randomly selected in the MST positive conditions in the present study is noteworthy and could merit future research.

Future studies on attrition, utilizing dose-response theory with a larger sample could yield more discriminated results than the present study, which was limited in scope. It is critical to identify predictors of dropout in an effort to develop and/or promote interventions that can

address them more successfully. Examining patterns of attrition and completion, as well as the

rates and levels of change clinically and statistically has the power to improve treatment

methods. What we learn about differential response rates can help inform recruitment strategies,

pretreatment, and adjunct treatment or services, which ultimately may enhance treatment gains.

The results of the present study revealed different trends or trajectories in the response to

treatment for individuals with and without MST. Specifically, individuals with a history of MST

had the greatest PCL score divergence from individuals without a history of MST at session 9,

the session that focuses on trust issues. Research investigating how individuals with MST

address and respond to issues of trust and how these factors may mediate or moderate their

PTSD symptom severity merit attention.

Relatedly, trust issues may enhance or impede attachment in interpersonal relationships.

It was noticed in the present study that 75% of both MST cohorts had been divorced or

separated; whereas only 35% of Cohort 1 and 42% of Cohort 3 (the two non-MST cohorts) were

divorced or separated. Conceptually, it may make sense to look at relational/marital status and

other interpersonal relationship issues in terms of trauma and treatment. Past studies have found

that a history of MST has been highly correlated with difficulties in interpersonal relationships

(Luterek, Bittinger, & Simpson, 2011).

A more comprehensive look at military culture and how treatment is embedded in the

overall VA healthcare system, including how service connection may impact treatment outcome

data are future areas with research potential. Perhaps another way to look at trauma is not by

categorizing type as the present study did, but by degree of intimacy of the trauma. This

categorization could be a different and instructive way to investigate trauma-focused treatment

outcomes. For example, hand-to-hand combat and MST rape and gang rape may share more in

common than sexual harassment (still codified MST), close proximity to an IED blast, loss of a "battle buddy," or being shot at. Yet, in the present study, the delineating markers are strictly by category of MST trauma or combat and non-combat traumas. There may be more commonalities shared by codifying the traumas differently based on level of intimacy violation.

Another future direction could be more comprehensive analyses of the effects of complex and multi-generational trauma and how these factors impact treatment in the military population. As traumatic experiences accumulate, responses become more intense and have a greater impact on functioning. Consistent with previous research citing high prevalence rates of childhood physical, emotional, and sexual abuse in military personnel (Rosen & Martin, 1996), significant histories positive for all types of trauma were evidenced in chart reviews for the current study.

Larger-scale retrospective and prospective studies are needed to advance our understanding of MST treatment. The future direction of research, practice, and policy surrounding MST treatment should be further examined to consistently provide competent, effective care to every veteran served by the VA.

Implications for Practice

This study aimed to provide a basic framework of MST and its relation to CPT for future studies to build upon. Although findings from the present study on overall outcomes from pre- to post- treatment can confirm neither the absolute nor relative effectiveness of CPT, the significant positive change (i.e., PCL score reductions) in the patients' symptomology over the course of the treatment is promising. The non-significant findings in terms of effects of MST on treatment outcomes and patterns of attrition are also encouraging as these results suggest that individuals with and without a history of MST show similar PTSD symptom reduction (i.e., 12 point average score reduction on the PCL), as well as CPT completion rates (approximately 9 sessions on

average were completed across cohorts and sex).

This study also speaks to the challenges that patients and mental health practitioners alike encounter in CPT in the large VA healthcare system. It does appear that treatment completers with a history positive for MST exhibit a different trajectory of PTSD symptom reduction than those without a history of MST. This may be useful information when considering tracking outcome evaluation data and better identification of patients who have not reported decreases in their PTSD symptoms in an effort to alter their interventions to reduce the risk of dropout. Many patients who complete CPT still have clinically significant PTSD symptoms. More could be done to help this group of veterans, who begin therapy with more severe PTSD, achieve a higher level of relief from their symptoms.

Conclusion

Based on results from the current study, military sexual trauma does not compound PTSD symptoms nor contradict CPT indication and effectiveness. Participation in CPT treatment looks to be equally efficacious for those with and without a history of MST. Both MST+ and MST- conditions show similar trends following a trajectory moving toward improvement over the course of treatment; however the way they get there tends to be different. Furthermore, veterans of varying levels of initial PTSD symptom severity all showed significant positive change (i.e., PCL score reductions) across trauma types. Results revealed no significant differences in attrition rates between cohort assignments, suggesting that MST does not have a significant effect on attrition. These findings suggest that CPT can be applied broadly to the wide population of veterans in need of treatment for trauma.

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Appendix A

PTSD CheckList – Civilian Version (PCL-C)

Client's Name: _____

Instruction to patient: Below is a list of problems and complaints that veterans sometimes have in response to stressful life experiences. Please read each one carefully, put an "X" in the box to indicate how much you have been bothered by that problem *in the last month*.

No.	Response	Not at all (1)	A little bit (2)	Moderately (3)	Quite a bit (4)	Extremely (5)
1.	Repeated, disturbing *memories, thoughts, or images* of a stressful experience from the past?					
2.	Repeated, disturbing *dreams* of a stressful experience from the past?					
3.	Suddenly *acting* or *feeling* as if a stressful experience were happening again (as if you were reliving it)?					
4.	Feeling *very upset* when *something reminded* you of a stressful experience from the past?					
5.	Having *physical reactions* (e.g., heart pounding, trouble breathing, or sweating) when *something reminded* you of a stressful experience from the past?					
6.	Avoid *thinking about* or *talking about* a stressful experience from the past or avoid *having feelings* related to it?					
7.	Avoid *activities* or *situations* because they *remind you* of a stressful experience from the past?					
8.	Trouble *remembering important parts* of a stressful experience from the past?					
9.	Loss of *interest in things that you used to enjoy?*					
10.	Feeling *distant* or *cut* off from other people?					
11.	Feeling *emotionally numb* or being unable to have loving feelings for those close to you?					
12.	Feeling as if your *future* will somehow be *cut short?*					
13.	Trouble *falling* or *staying asleep?*					
14.	Feeling *irritable* or having *angry outbursts?*					
15.	Having *difficulty concentrating?*					
16.	Being *"super alert"* or watchful on guard?					
17.	Feeling *jumpy* or easily startled?					

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