

More Than Military Sexual Trauma: Interpersonal Violence, PTSD, and Mental Health in Women Veterans

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Abstract: Military sexual trauma (MST) is reported by 20–40% of female veterans. The purpose of this study of female veterans referred for MST treatment was to examine the relationships between lifetime trauma (physical, sexual, and psychological) and posttraumatic stress disorder (PTSD), depression, physical health, and quality of life using retrospective cross-sectional data from medical records. Of the 135 participants, 95.4% reported at least one trauma in addition to MST, most notably sexual abuse as adult civilians (77.0%) and as children (52.6%). PTSD, depression, and sleep difficulty rates were clinically significant. Chronic pain (66.4%) was associated with childhood abuse, physical health, sleep difficulties, and coping. Integrating mental and physical health treatment is necessary to treat MST and PTSD in female veterans. © 2011 Wiley Periodicals, Inc. *Res Nurs Health*

Keywords: trauma; military sexual trauma; child sexual abuse; child physical abuse; child emotional abuse; intimate partner violence; physical abuse; cumulative trauma; female veterans; posttraumatic stress disorder; health

Experiences of military sexual trauma (MST) are common among female veterans, who represent 8% of the total veteran population (Department of Veterans Affairs, 2007). There are currently 1.5 million female veterans; this number is expected to grow significantly over the next decade (Department of Veterans Affairs, 2007; National Center for Veterans Analysis and Statistics [NCVAS], 2011). MST is a veterans affairs (VA) term that refers to sexual assault and to repeated threatening sexual harassment during military service. Researchers have consistently reported prevalence rates of sexual assault of women during military service

of 21–25% or higher and of sexual harassment of 24–60% (Skinner et al., 2000). In a national random sample of women seeking health care in a VA medical center, approximately one in every four women reported experiencing sexual trauma while on active duty (Skinner et al., 2000). In one study of posttraumatic stress disorder (PTSD) disability-seeking female veterans, 71% reported MST experiences (Murdoch, Polusny, Hodges, & O'Brien, 2004). Published reports indicate that women veterans who experienced MST also experienced other traumas and that MST is strongly associated with PTSD (Zinzow, Grubaugh, Monnier,

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Suffoletta-Maierle, & Frueh, 2007). However, the relationships among specific childhood and adult trauma experiences and mental and physical health problems in these female veterans have not been adequately described. This study explored these relationships in a population of PTSD treatment-seeking female veterans who experienced MST.

Many female survivors of MST go on to develop mental health problems, most frequently PTSD, which is strongly associated with sexual trauma (Kimerling et al., 2010; Street, Gradus, Stafford, & Kelly, 2007; Street, Stafford, Mahan, & Hendricks, 2008). Both MST and PTSD are associated with a variety of other mental and physical health disorders and symptoms, negative health behaviors (Brewin, Andrews, & Valentine, 2000; Sadler, Booth, Nielson, & Doebbeling, 2000; Zinzow et al., 2007), and impairments in social functioning and quality of life (QOL; Rheingold, Acierno, & Resnick, 2004; Suris & Lind, 2008). Comorbidity between PTSD and pain has been reported as high as 80% in veteran populations (Haskell, Papas, Heapy, Reid, & Kerns, 2008; Shipherd et al., 2007). In one study of sexually traumatized female veterans, PTSD was a strong correlate ($r = .80, p \leq .01$) and significant predictor of chronic pain (Campbell, Greeson, Bybee, & Raja, 2008), consistent with other reports of the high correlation between MST, PTSD, and chronic pain in female veterans (Dobie et al., 2004; Sadler et al., 2000). Moreover, PTSD is a strong predictor of suicidal ideation and suicide attempts for both men and women (Cougale, Keough, Riccardi, & Sachs-Ericsson, 2009).

Female Veterans and Trauma Exposure

In addition to MST, women in the military are increasingly exposed to combat-related trauma, which includes both physical and psychological traumatic events (e.g., receiving hostile fire and observing or handling human remains). Reports of combat exposure by female veterans vary widely, likely due to variation in the types of combat experiences assessed. Estimates of combat exposure within female Gulf War era veterans range from 4% to 31% (Zinzow et al., 2007). In one study of non-treatment seeking veterans of Gulf War I, for females the mean number of combat experiences was 2.02 ($SD = 2.38$) and aftermath of battle experiences (e.g., observing or handling human remains)

was 5.41 ($SD = 4.18$; Vogt, Pless, King, & King, 2005). In Iraq and Afghanistan more women are being exposed to combat-related trauma than in any prior war, largely due to their expanding roles in the conflicts and the lack of a discrete front line, both of which put them at higher risk for physical and psychological combat-related experiences (Street, Vogt, & Dutra, 2009).

Female veterans also experience high rates of non-military service-related trauma; 81–93% report at least one lifetime trauma. These include 38–64% lifetime sexual assault, 27–49% childhood sexual abuse, 24–49% adult sexual abuse, 46–51% adult physical assault, 35% childhood physical abuse, and 18–19% domestic violence (Zinzow et al., 2007). These estimates are higher than reported estimates among nationally representative samples. Research findings suggest that many women join the military in an effort to leave violent home environments. In one study of female veterans, more than half of the sample ($n = 520$) reported pre-military physical or sexual violence; one in four had been raped prior to her entry into the military; one in five had experienced both childhood sexual abuse and rape as an adult (Sadler, Booth, Mengeling, & Doebbeling, 2004).

Female Veterans and PTSD

PTSD is a mental disorder that may develop after exposure to life-threatening or other traumatic events that are accompanied by intense fear, feelings of helplessness, and/or horror (American Psychiatric Association [APA], 2000). Female veterans experience PTSD at similar rates to male veterans (Kang, Dalager, Mahan, & Ishii, 2005; Vogt et al., 2005). Female veterans with histories of sexual assault are as much as five times more likely to develop PTSD compared to those without sexual assault histories (Suris, Lind, Kashner, & Borman, 2007). As a specific assault type, MST was found to confer a ninefold risk for PTSD (Suris et al., 2007).

It is only recently that trauma-related mental health disorders other than PTSD have been investigated in female veterans. Findings from a few studies have shown that the other mental health disorders most strongly associated with sexual trauma among female veterans are major depressive disorder (MDD), anxiety, and substance abuse (Zinzow et al., 2007). In one

study of female veterans who screened positive for PTSD, 62.4% screened positive for MDD compared to 7.8% of those with negative PTSD screens; they were 18.9 times more likely to have MDD, consistent with findings of PTSD–MDD co-morbidity in civilian populations (Cascardi, O’Leary, & Schlee, 1999; Stein & Kennedy, 2001). Despite the relative lack of data linking specific psychiatric disorders to PTSD, it is very clear that female veterans with MST and PTSD have complex mental health profiles.

There is a paucity of theoretical models to help explain the interplay of mental and physical health symptoms and QOL among MST survivors. As noted previously, many women who join the military report pre-military trauma exposure (Sadler et al., 2004). A multitude of studies have demonstrated that adverse early life experiences can lead to the development of poor coping skills and difficulties with emotional regulation (Cloitre et al., 2010; Felitti et al., 1998; Kim & Cicchetti, 2010). However, some survivors of childhood and adult trauma do well and do not develop mental or physical health symptoms or impairments in functioning; these survivors are deemed resilient. Resilience has many definitions in the literature and has been considered variously as a character trait, a process, and an outcome (Reich, Zautra, & Hall, 2010). Resilience has been demonstrated to have a protective effect on individual’s risk for trauma-related mental and physical health disorders. A theoretical model that reflects the current state of knowledge is illustrated in Figure 1. Resilience moderates the development of PTSD symptoms in response to childhood,

adult, and military trauma. Resilience also moderates the sequelae of trauma and PTSD symptoms, including mental health problems (depression, anxiety, and suicidality), physical symptoms (chronic pain and sleep disturbance), health status, and QOL. However, the mechanisms of the protective effect of resilience are not well-understood and are areas that continue to be studied by many scholars in the field of trauma.

In the past decade the VA has implemented a national initiative to provide treatment to veterans who experienced MST. This included the development of a national MST Support Team and local MST Coordinators in each VA medical center. Individual VA medical centers have developed MST treatment programs; however, programs and treatment approaches vary widely and are segmented, with MST, PTSD, and primary care issues addressed separately. Nationally, there is a lack of a consistent and comprehensive model of care for this population.

The MST/Women’s Trauma Program within the Trauma Recovery Program was developed in 2007 to respond to the distinct needs of traumatized female veterans who experienced MST. At that time, existing mental health treatment for PTSD was primarily developed for male veterans with combat-related trauma. Given the lack of a comprehensive treatment model that addressed the needs of female veterans with MST experiences and PTSD, the Trauma Recovery Program developed a gender-specific treatment program that was based on the complex trauma exposure and mental health treatment needs of this population. Program evaluation is used to assess the

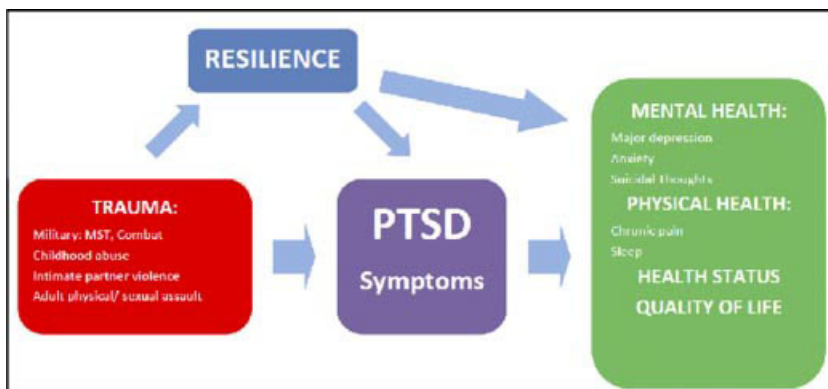


FIGURE 1. Trauma, resilience, and trauma-related outcomes.

relevance and effectiveness of specific components of this VA Trauma Recovery Program Women's/MST treatment program.

The purpose of this program evaluation study was to characterize the population of female veterans receiving care for PTSD within this program. Specific aims were to: (1) describe (a) lifetime trauma exposure, (b) mental health symptoms, (c) health status, and (d) QOL; and (2) describe the relationships between trauma exposure and the levels of (a) PTSD symptoms, (b) other mental health symptoms, (c) health status, and (d) QOL.

Methods

Design Overview

This cross-sectional and retrospective study was part of a VA Medical Center MST-related PTSD treatment program evaluation study. Appropriate Institutional Review Board approval was obtained for this study.

Sample

Data were collected on female veterans ($N = 135$) who experienced MST and sought mental health care in a southeastern VA medical center Trauma Recovery Program from August 2006 to June 2008. Compared to all women veterans (NCVAS, 2011), this sample was younger (mean age 40.3 years [$SD = 10.01$] vs. 49.0 years), primarily African American (71.9% vs. 23.9%), with significantly fewer White, non-Hispanic women (17.1% vs. 69.6%). They were less likely to be married (26.6% vs. 47.4%). More women in the sample had never been married (26.6%) compared to all female veterans (16.6%). All women in the sample completed high school, with an average of 14.4 years of education ($SD = 2.17$).

Variables and Their Measurement

The data used in this study were obtained using the Veterans Affairs Military Stress Treatment Assessment (VAMSTA), a psychometrically sound instrument that assesses veterans' symptom severity, social functioning, QOL, and service use (Fontana, Ruzek, McFall, & Rosenheck, 2006). Additional data were

extracted from electronic medical records. Study variables, their measurement, and primary sources are detailed in Table 1. Independent variables included trauma exposures: military (MST and combat) and non-military (childhood and adult). Outcome variables include PTSD, MDD, suicidal thoughts, health status, sleep, pain, coping, and QOL.

MST was defined as including at least one of the following: (a) sexual assault, (b) threatened sexual assault, and (c) repeated threatening sexual harassment. Combat exposure was defined as receipt of friendly or hostile fire. In this study, combat exposure did not include other combat-related trauma exposure (e.g., seeing or handling dead bodies, encountering landmines or IEDs, or taking care of injured or dying people).

Data Collection

The program evaluation data measures were completed by patients over the course of treatment. These data were de-identified and kept in a locked filing cabinet and on a password protected VA network computer. Two sources of data were used: VAMSTA self-report questionnaires completed by women at the time of their Intake interview and clinician-obtained trauma histories during the Intake interview, both taken from the VA program evaluation data base.

Data Analysis

Data were analyzed using PAWS 18.0 for Windows. Descriptive statistics were computed for all variables. Pearson product-moment correlation coefficients were used to analyze the relationships between trauma types (childhood, military-service related, and adult non-military service related) and all outcome variables. Given the limited sample size relative to variables, regression analyses were not conducted.

Results

Trauma Exposure

Military trauma. Nearly all of the women experienced MST (83.1%). Experiences of at least one lifetime trauma exposure in addition to MST were nearly universal (95.4%) and far

Table 1. Study Constructs, Variables, Instruments, and Sources

Constructs	Variables and Operationalization	Instruments (Cronbach Alpha)	Number of Items/ (Range)	Primary Sources/Refs.
Trauma: non-military related	Adulthood: verbally or physically abusive relationship; physical abuse or beating; sexual abuse or assault; emotional abuse Childhood: physical, sexual, and emotional abuse	Trauma Recovery Program Intake Interview	Single items	VA Electronic Medical Record
Trauma: military-related	MST: sexual harassment, threats and sexual assault Combat: service in war zone, received friendly or hostile fire PTSD: symptom severity	Trauma Recovery Program Intake Interview VAMSTA VAMSTA	Single items	VA Electronic Medical Record Fontana et al. (2006) Fontana et al. (2006)
Mental health disorders and symptoms	PTSD: symptom severity	Short Mississippi Scale ($\alpha = .87$) PTSD Checklist (PCL) ($\alpha = .94$)	11 items (13-65) 17 items (17-85)	Fontana and Rosenheck (1994) Weathers, Litz, Huska, and Keane (1994)
Health status	MDD: symptom severity Suicidal Thoughts: presence, frequency and severity Mental health, physical health, overall health	PHQ-9 ($\alpha = .89$) Scale for Suicide Ideation ($\alpha = .89$) SF-36 ($\alpha = .78-.93$)	9 items (1-36) 3/19 items 7/36 items	Kroenke et al. (2001) Beck, Kovacs, and Weissman (1979) Ware, Kosinski, Dewey, and Gandek (2001)
Pain	Presence of pain/severity of pain in previous 4 weeks Bodily pain in previous month	Trauma Recovery Program Intake Interview SF-36 ($\alpha = .78-.93$)	Single item/(1: none—6: very severe) Single item	Electronic Medical Record Ware et al. (2001)
Sleep	Sleep quality	Pittsburgh Sleep Quality Index ($\alpha = .83$)	Total index based on 19 items (0: very good—3: very bad)	Busse, Reynolds, Monk, Berman, and Kupfer (1989)
Coping	Ability to cope with military stress reactions	VAMSTA	Single item (1: none—4: very well)	Fontana et al. (2006)
Quality of life	Overall life satisfaction; composite of satisfaction with 10 life domains	Quality of Life Interview ($\alpha = .74$)	11 selected items (overall plus 10 domains, 1: terrible—7: delighted)	Lehman (1988)

VAMSTA, Veterans Affairs Military Stress Treatment Assessment; PHQ-9, Patient Health Questionnaire-9.

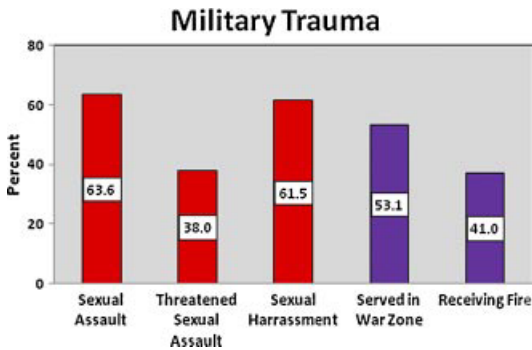


FIGURE 2. Experiences of military sexual and combat trauma.

exceeded rates reported in other female VA populations. Over half of the sample (53.1%) served in a war zone, with 41.0% reporting combat-related trauma (Fig. 2).

Non-military adult trauma. Sexual abuse/assault was the most common non-military adult trauma, reported by more than three-quarters of the women (77.0%). More than half of the women reported having been in an abusive relationship in the past (52.7%). As adults, 54.8% had been beaten or physically abused and 48.9% had been persistently emotionally abused. Only 14.4% reported no non-military adult trauma, while 36.7% reported experiencing all three types of abuse (physical, sexual, and emotional; Fig. 3).

Childhood abuse. Abuse in childhood was more common than not. Nearly two-thirds (60.4%) reported at least one form of child abuse, more than one in four reported at least two forms of child abuse (26.7–30.6%), and nearly one in four women (23.1%) reported experiencing all three: physical, sexual, and emotional. Sexual abuse was the most common, and was reported by more than half of the sample (52.6%).

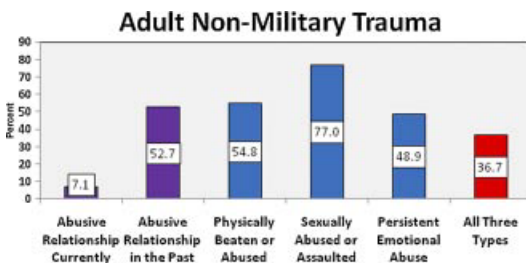


FIGURE 3. Experiences of intimate partner violence and adult physical, sexual and emotional abuse.

Mental Health Symptoms

PTSD. The recommended clinical cutoff score for the PTSD Checklist (PCL) is 30–50. The mean severity of PTSD symptoms in this sample was 65.15 ($SD = 14.05$), a very clinically significant result. The mean of the Short Mississippi Scale was mid-range, 36.87 ($SD = 7.23$).

MDD. The mean score of the Patient Health Questionnaire-9 (PHQ-9) was 17.58 ($SD = 5.49$). Clinical cutoff scores recommended in the literature are 10–12 (Kroenke, Spitzer, & Williams, 2001). Within the VA, a screening PHQ-9 score >9 necessitates a suicide assessment within 24 hours. The mean score for this sample falls within the clinical range for moderately severe depression (15–19).

Suicidal thoughts. Suicidal thoughts in the previous month were endorsed by 43% of the sample; 6.7% had attempted suicide in the previous 4 months.

Health Status and Symptoms of Distress

Health status. Respondents rated their overall health and health-related impairments as moderate to severe. They reported personal and emotional problems as more strongly limiting their ability to perform usual physical activities than did their physical health (Table 2).

Sleep, pain, coping, and QOL. All of the respondents endorsed some amount of sleep difficulty. Two-thirds (66.4%) endorsed the presence of chronic pain, with a mean severity of 4.14 ($SD = 1.20$), a moderate to severe level. The mean score of ability to cope with stress reactions was mid-range, 2.31 ($SD = .82$). QOL was measured as a single question, “How do you feel about your life as a whole, overall?” and as a composite of 10 QOL domains. The mean scores for these two QOL variables were nearly identical and mid-range: 3.19 ($SD = .82$) for the single item and 31.88 ($SD = 9.09$) for the mean of the 10 items in the composite score.

Correlations Between Trauma and Health Outcomes

Total child abuse and emotional childhood abuse alone were strongly associated with chronic physical pain, which was also negatively associated with sleep quality and physical

Table 2. Health Status in the Previous 4 Weeks

	Mean	SD	Median	Rating Scale
Overall health	4.03	1.03	4.00	1 = <i>Excellent</i> 6 = <i>Very poor</i>
Bothered by emotional problems, e.g., anxious, depressed, or irritable	4.06	.90	4.00	1 = <i>Not at all</i> 5 = <i>Extremely</i>
Energy level	3.66	.73	4.00	1 = <i>Very much</i> 5 = <i>None</i>
Physical health limited usual physical activities	3.10	1.28	3.00	1 = <i>Not at all</i> 5 = <i>Could not do activities</i>
Personal or emotional problems limited usual physical activities	3.51	1.01	4.00	1 = <i>Not at all</i> 5 = <i>Could not do activities</i>
Physical health or emotional problems limited usual social activities with family and friends	3.69	1.02	4.00	1 = <i>Not at all</i> 5 = <i>Could not do activities</i>
Physical health limited ability to do daily work	3.09	1.27	3.00	1 = <i>Not at all</i> 5 = <i>Could not work</i>

health (Table 3). Pain severity in the previous 4 weeks was strongly associated with physical health, mental health, sleep quality, and coping (Table 3). Additionally, childhood sexual abuse was associated with suicidal thoughts ($r = .216, p = .017$). As expected, combat-related trauma was associated with PTSD symptoms (PCL: $r = .217, p = .012$). Combat-related trauma also was associated with violence and anger ($r = .248, p = .005$). In turn, violence and anger were negatively associated with coping ($r = -.300, p = .001$). Notably, the data did not suggest a significant association between MST and the identified outcome variables. Given the overall low variability in the MST

variable, as well as the overall high levels of PTSD and MDD symptoms in this sample, there may be a ceiling effect with these data.

Discussion

This sample of treatment seeking female veterans was remarkable for high levels of lifetime trauma exposure and clinically significant levels of mental health symptoms, as well as co-morbid physical health symptoms and diagnoses. Combat exposure (41%), which was measured using one type only, far exceeded reported rates of combat exposure for women that include multiple types of exposure and often involve the aftermath of battle (e.g., handling human remains; 4–31%; Zinzow et al., 2007). Non-military trauma exposure also exceeded rates reported in other samples of female veterans typically obtained from health care registries and primary care patients; for example, childhood sexual abuse (52.6% vs. 27–49%) and domestic violence (52.7% vs. 18–19%; Zinzow et al., 2007). The complex trauma exposures experienced by this sample are best illustrated by the high percentages of women who experienced all three types of child abuse (21.3%) and adult abuse (36.7%). These results indicate a lifelong pattern of trauma in families of origin, during military service, and as civilian adults.

These complex trauma histories are matched by complex mental health profiles. On average, symptoms of PTSD and MDD in this sample far exceeded DSM-IV (APA, 2000) diagnostic

Table 3. Correlations With Physical Pain

	Current Chronic Pain (Y/N)	Severity of Bodily Pain in Previous 4 Weeks
Child abuse		
Physical	.193*	.009
Sexual	.034	.070
Emotional	.239**	.105
All three	.208*	.074
Distress symptoms		
Sleep quality	.239*	.410***
Coping	-.035	.329***
Physical health	-.403**	-.732**
Mental health	-.117	-.255**

* $p \leq .05$.
** $p \leq .01$.
*** $p \leq .001$.

criteria, with PCL and PHQ-9 scores at or above clinical significance. The women reported high levels of sleep disturbances and chronic pain, which were strongly associated with each other, with childhood abuse, and with current physical health status. Pain severity was strongly associated with mental health status. These findings are consistent with data suggesting that patients with MST frequently present with substantial mental health treatment needs (Kimerling et al., 2010; Suris et al., 2007). Further, these findings illustrate the interplay of mental health and physical health symptoms in trauma survivors.

A number of investigators have established links between deployment-related trauma, both MST and combat-related, PTSD, and multiple adverse outcomes in female veterans (Suris & Lind, 2008; Zinzow et al., 2007). The findings of this study support those findings and characterize the full range of trauma exposure and severity of mental and physical health outcomes in a primarily African American sample of female veterans who experienced MST. These data are consistent with data from other samples indicating that exposure to early life adverse experiences contributes significantly to both physical and mental health problems and their co-morbidities across the lifespan (Felitti et al., 1998). Overall, the findings in this study are consistent with the current state of knowledge in the field, illustrated in the model in Figure 1. The complexity of the trauma histories and severity of mental and physical health symptoms in this sample suggest a dose-related relationship between trauma, PTSD, and associated negative sequelae.

Limitations

We used a cross-sectional, single-site, retrospective design to obtain data from a self-selected population of women seeking treatment for MST/PTSD. This treatment seeking sample is not likely to be representative of the overall population of female veterans seeking care in the VA who may have experienced MST but either were not appropriately screened and referred for treatment or did not follow through with referrals made to the Trauma Recovery Program. Additionally, the relatively small sample size and the sample characteristics (i.e., primarily African American and on average younger than most women veterans) limit the generalizability of the results to a national

sample. Also, the low MST variability and the high levels of PTSD and MDD symptoms may be associated with ceiling effects which limit analyses of the strength of the relationships between trauma and mental health symptoms. Trauma history variables were based on clinical records; future researchers should instead use well-validated instruments. Given the design, we are not able to determine causal relationships between trauma experiences and outcome variables. Longitudinal research would address this limitation. However, characterizing the trauma and health outcomes in a treatment seeking sample can help guide the development of programs designed to address the range and depth of trauma and health problems in this population.

Implications for Treatment

The steadily rising rate of female veterans is matched with an increased demand within the VA for services for women trauma patients, particularly those with MST. The significant associations between childhood abuse and health outcomes in women exposed to MST suggests the necessity of assessment for pre-military trauma as part of routine mental health evaluations of women presenting with PTSD or other psychological distress.

The development of specialized treatment teams within VA PTSD Treatment Programs can facilitate access to appropriate and effective trauma-focused care for female veterans. Given the emergence in this study of pain and sleep difficulty as predominant problematic health effects of trauma, integrated clinical assessments, and interventions are indicated. Pain and sleep difficulty are two common treatment refractory disorders seen in many clinical settings and are examples of symptoms that would be best treated with close coordination between mental health and physical health care providers. Pain and sleep were, in turn, significantly associated with QOL and overall functioning. As such, they illustrate the intertwined and nuanced effects of interpersonal trauma on the health and wellness of female veterans. Further, detailed assessment of patients with chronic pain and sleep disorders can help identify trauma and its mental health sequelae, particularly PTSD and MDD. Treatment programs for traumatized female veterans that integrate services from mental health, primary care, nursing, and pain

management and rehabilitation clinicians will be well-suited to address the complex mental and physical health problems of female veterans who have experienced MST and other lifetime trauma.

By definition, MST occurs while victims are serving in the military. Therefore, those serving in the military on active duty are also at risk for developing PTSD, MDD, and associated mental and physical health disorders and symptoms, prior to becoming veterans. This suggests the need to screen for pre-military trauma at enlistment as well as during active duty. Treatment for MST-related PTSD in this population has not been studied adequately; theoretically, given soldiers' need to function at high levels in stressful situations, standard PTSD treatment, particularly prolonged exposure, might not be indicated. Further research in this area is warranted.

Implications for Research

Areas for future research include assessing whether specific characteristics of MST, such as the victim's relationship to the perpetrator, the deployment status of the survivor, and active duty versus reserves duty at the time of the MST, are associated with subsequent mental and physical health outcomes. An additional variable that needs to be evaluated is how length of service among MST survivors correlates with mental, physical, and social functioning.

More broadly, there is an important gap in our knowledge in this field of study in that we have little understanding of the specific factors influencing vulnerability to PTSD and its negative health and functional effects in traumatized female veterans. Particular attention needs to be paid to understanding why some female veterans with pre-military service trauma histories function fairly well (i.e., are resilient, and do not require intervention) whereas others display a range of mental and physical health problems in addition to poor QOL. Such future research on the mechanisms whereby risk and resilience factors affect the development of PTSD and associated mental and physical health and functional outcomes related to MST, combat-related, and lifetime trauma in female veterans could be vital for developing effective treatment interventions. Particular consideration also should be given to the interplay between trauma-related mental health and physical health

outcomes. A more thorough understanding of the vulnerability and protective factors for PTSD and other negative health outcomes of MST and cumulative trauma on female veterans will enable us to better plan for and provide effective health care to this important population.

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