Gender differences in the association of military sexual trauma with suicide risk

Craig J. Bryan, PsyD, ABPP
AnnaBelle O. Bryan, BSPH
Tracy A. Clemans, PsyD

National Center for Veterans Studies

Corresponding Author:
Craig J. Bryan, PsyD, ABPP
National Center for Veterans Studies
260 S. Central Campus Dr., Room 205
Salt Lake City, UT 84112
Email: craig.bryan@utah.edu

Abstract

Objective: Military sexual trauma (MST) is a strong predictor of psychiatric disorders and negative health outcomes, but less is known about the relationship of MST with self-injurious thoughts and behaviors (SITB) among military personnel and veterans. The current study investigates the association of MST with SITB in a sample of military personnel and veterans.

Method: 422 U.S. military personnel and veterans enrolled in college classes completed standardized self-report measures of sexual trauma history, depression, posttraumatic stress disorder (PTSD), and SITB.

Results: The relationship of MST with SITB differed for male and female participants. Among men, MST was associated with significantly increased risk for suicide ideation, plans, and attempts. Among women, MST was associated with significantly increased risk for NSSI but not suicide ideation, plans, and attempts. Nonmilitary sexual trauma (NMST) was associated with increased rates of suicide ideation, plan, attempts, and NSSI for both men and women. Results were no longer significant when adjusting for age, depression, and PTSD symptoms.

Conclusions: MST is associated with increased risk for SITB among male but not female military personnel and veterans, and is explained by concurrent emotional distress.

Key Words: suicide, military sexual trauma, military, sexual trauma

Introduction

In light of recent high profile incidents of sexual abuse of military personnel, the issue of *military sexual trauma* (MST) has received increased attention. MST is defined as psychological trauma which "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" (Veterans' Benefits U.S. Code, Title 38, Section 1720D, 1992). As suicide rates among military personnel and veterans have risen during the past decade, questions have been raised about the possibility of an association among MST, suicide ideation, and suicide attempts. This assertion is based in large part on findings from studies conducted with non-military samples that suggest elevated risk for suicide ideation and suicide attempts among survivors of sexual trauma, likely due to the increased risk for psychiatric sequelae such as depression and PTSD, aggression, impulsivity, substance abuse, and depression (Breslau, Davis, Peterson, & Schultz, 2000; Roy, Gorodetsky, Yuan, Goldman, & Enoch, 2010; Wilcox, Storr, & Breslau, 2009). However, few studies have examined the relationships among sexual trauma, suicide ideation, and suicide attempts among military personnel and veterans. The purpose of the current project is to address this gap in the literature.

Multiple reviews have estimated the prevalence of MST to range from 22% to 45% (Goldzweig, Balekian, Rolon, Yano, & Shekelle, 2006; Suris & Lind, 2008; Zinzow, Grubaugh, Monnier, Suffoletta-Maierle, & Frueh, 2007; Allard, Nunnink, Gregory, Klest, & Platt, 2012). More recently, the Department of Veterans Affairs found that 23.0% of female and 1.2% of males positively screened for MST from during 2011 (Military Sexual Trauma Support Team, 2012), and a 2006 review found even higher rates of sexual harassment among female Veterans and active duty personnel, with rates ranging from 55% to 79% (Goldzweig et al., 2006). MST is

a strong predictor of impaired daily functioning, anxiety, depression, and substance abuse among military personnel and veterans (Goldzweig et al., 2006; Kimerling et al., 2010), with the most common psychiatric outcome being posttraumatic stress disorder (PTSD; Goldzweig et al., 2006). Among female survivors of MST, 60% met criteria for PTSD as compared to 43% of females who experienced other forms of trauma, and MST is more strongly associated with PTSD and demonstrates a stronger relationship with PTSD than other traumas (Kang, Dalager, Mahan, & Ishii, 2005; Kimerling, Gima, Smith, Street, & Frayne, 2007; Yaeger, Himmelfarb, Cammack, & Mintz, 2006; Zinzow, et al., 2007). Higher rates of sexually transmitted diseases and sexual dysfunction disorders have also been observed among MST survivors (Turchik et al., 2012). Risk for these negative outcomes are higher among individuals who have experienced military sexual harassment as well (Fontana, Litz, & Rosenheck, 2000; Vogt, Pless, King, & King, 2005), suggesting that non-contact forms of MST also contribute to mental health problems and psychiatric distress.

MST is often assumed to be qualitatively different from other forms of sexual assault or harassment due to several contextual issues inherent to the military system. First, because of the collectivist orientation of the military and high salience of in-group identification (Bryan, Jennings, Jobes, & Bradley, 2013), a service member who has been offended or victimized by another service member may experience a greater sense of betrayal and feel less willing to seek out assistance. Along these same lines, survivors of MST may experience greater social isolation from others and a greater degree of emotional distress afterwards. Data regarding potential differences between MST and nonmilitary sexual trauma (NMST), which can include child sexual abuse and/or other forms of sexual victimization that occurred before or after military service, suggest that MST is associated with worse physical health (Suris, Lind, Kashner, &

Borman, 2007) and increased rates of PTSD (Himmelfarb, Yaeger, & Mintz, 2006; Kimerling et al., 2010), whereas other studies have reported no differences between MST and NMST (Suris, Lind, Kashner, Borman, & Petter, 2004). Although the relative weight of MST versus NMST with mental health outcomes is not yet clear, MST is clearly associated with more severe psychopathology among military personnel and veterans. As a result, MST may also confer relatively greater risk for suicide ideation and suicide attempts among military personnel and veterans.

Little is known about the association of MST with suicide ideation and suicide attempts, however. Among U.S. veterans of Iraq and Afghanistan, a history of pre-military sexual abuse was found to be associated with increased risk for suicide ideation, although this relationship was no longer significant when controlling for gender, depression, and anxiety (Lemaire & Graham, 2011). In contrast, a study of active duty Air Force personnel suggested that a history of rape and/or unwanted sexual experiences as an adult was associated with a 4- to 6-fold increase in risk for suicide attempts even when adjusting for depression and anxiety (Bryan, McNaughton, Osman, & Hernandez, 2013). A history of sexual assault has similarly been associated with significantly increased risk for suicide attempts for both male and female Canadian military personnel even when controlling for demographic variables and comorbid mental health disorders (Belik, Stein, Asmundson, & Sareen, 2009). Unfortunately, these three studies are unable to address the issue of a potential link between MST and suicide-related outcomes because none differentiated between military and nonmilitary sexual trauma, thereby limiting our ability to draw definitive conclusions regarding the potential link among, MST, suicide ideation, and suicide attempts. Thus, although it is commonly assumed that the risk for suicide ideation

and suicide attempts may be higher for MST victims relative to other sexual trauma victims, to date this hypothesis has not been rigorously tested.

Even less is known about potential differences in this relationship between men and women. The majority of research on MST has focused primarily on female military personnel and veterans because they are significantly more likely to experience sexual victimization and MST (Goldzweig et al., 2006; Maguen, Luxton, Skopp, & Madden, 2012; Military Sexual Trauma Support Team, 2012). Data from the Department of Veterans Affairs, for instance, suggests that MST is approximately 20 times more common among female than male veterans (Military Sexual Trauma Support Team, 2012). Similar gender disparities in unwanted sexual experiences as an adult have been reported in active duty military samples (Bryan et al., 2013). Female military personnel are also three times more likely to report physical or sexual abuse as a child (Bryan et al., 2013). In terms of suicide, considerable gender differences also exist among military personnel, with epidemiological data indicating that male military personnel are approximately three times more likely to make a suicide attempt and die by suicide (Department of Defense, 2012). Few differences between male and female military personnel exist in terms of depression and posttraumatic stress, however, which may be due to the fact that female personnel are significantly more likely than male personnel to experience sexually-based traumas whereas male personnel are significantly more likely than female personnel to experience combat-related traumas (e.g., exposure to death, killing) and traumatic physical injuries (Maguen et al., 2012).

Examination of gender differences in the relationships among MST, suicide ideation, and suicide attempts could lead to important information relevant to the clinical care of MST survivors. For instance, survivors of MST may have unique clinical needs relative to other service members and veterans that could influence treatment outcomes and prevention strategies.

From a research perspective, research on MST and suicide risk could yield clues into how clinical interventions might need to be adapted, adjusted, or otherwise modified for male versus female military personnel. Furthermore, the identification of high risk subgroups of military personnel and veterans could inform decision-making regarding optimal allocation of limited resources for clinical services and outreach activities. The primary aim of the current study was therefore to test the associations of MST with suicide ideation and suicide attempts in a sample of military personnel and veterans who were enrolled in college classes. We specifically tested two hypotheses: (1) survivors of MST would report significantly increased rates of lifetime suicide ideation, suicide planning, and suicide attempts; and (2) MST will demonstrate a significant relationship with suicide ideation, suicide planning, and suicide attempts beyond the effects of NMST. We further hypothesized that the results of hypotheses 1 and 2 would be similar for both male and female participants.

Method

Participants and procedures

Participants included 422 military personnel (35.1%) and veterans (64.9%) enrolled in college and university classes across the United States. Participants were predominantly male (71.9%) and ranged in age from 19 to 78 years (M = 36.29, SD = 10.25). Racial distribution was 85.5% Caucasian, 7.0% African American, 4.2% Native American, 3.3% Asian, and 1.5% Pacific Island; 11.6% additionally endorsed Hispanic/Latino ethnicity. Participants represented all branches of service: 37.8% Army, 33.2% Air Force, 20.1% Navy, 7.7% Marines, and 1.2% Coast Guard. The majority (n = 305, 72.3%) had deployed at least one time while in the military, of which 241(57.1% of full sample) endorsed being deployed to a combat zone.

Participants were invited to complete an anonymous online survey focused on student veteran academic success and well-being. The investigators coordinated recruitment efforts with campus administrators at universities across the country. An email invitation to participate in the study was forwarded by student veteran coordinators to all student veterans enrolled in classes at each university. The email invitation included information about study procedures and contact information for the researchers, as well as an embedded hyperlink that connected to the online survey. A total of 561 individuals accessed the online survey, of which 448 completed the survey. From this pool of 448 individuals, 422 (75.9%) were student veterans (i.e., 25 respondents indicated they had never served in the military) from 102 universities across the U.S. The overall response rate for the current sample is unknown, since the sampling approach precluded us from determining the total number of individuals who received an invitation to complete the survey relative to the number of individuals who actually participated. Quality checks were conducted by comparing the concordance of responding among similar items located throughout the survey, as well as checking for impossible or highly improbable values that might indicate careless responding (e.g., age of enlistment in military). There were no indictors of inconsistent responding or outliers that would adversely influence the data.

Measures

Sexual victimization. History of sexual victimization was assessed using the Life Events Checklist (LEC; Gray, Litz, Hsu, & Lombardo, 2004). The LEC is a 17-item self-report measure designed to screen for potentially traumatic events that have occurred during the respondent's lifetime. The LEC has demonstrated strong psychometric properties as a stand-alone assessment of trauma exposure. For the present study, we focused on responses to the following two items: "sexual assault (e.g., rape, attempted rape, made to perform any type of sexual act through force

or threat of harm)" and/or "other unwanted or uncomfortable sexual experiences." Participants who positively endorsed either item were then asked if the sexual assault and/or unwanted sexual experience occurred before, during, or after military service. Participants who endorsed sexual assault and/or unwanted sexual experiences while he or she was currently serving in the military were categorized as survivors of *military sexual trauma (MST)*. Individuals who indicated a history of sexual assault or unwanted sexual experience prior to or after military service were categorized as *nonmilitary sexual trauma (NMST)*. Participants who denied experiencing either a sexual assault or an unwanted sexual experience were categorized as *no sexual trauma*.

Suicide ideation, suicide plans, and suicide attempts. Histories of suicide ideation, suicide planning, and suicide attempts were assessed with the self-report version of the Self-Injurious Thoughts and Behaviors Interview (SITBI; Nock, Holmberg, Photos, & Michel, 2007). The SITBI differentiates between different forms of self-injurious thoughts and behaviors by asking the following questions with dichotomous (i.e., yes/no) responses: "have you ever had thoughts of killing yourself?" (suicide ideation), "have you ever actually made a plan to kill yourself?" (suicide plan), and "have you ever made an actual attempt to kill yourself in which you had at least some intent to die?" (suicide attempt). The interview has good interrater reliability ($\kappa = .99$), test-retest reliability over six months ($\kappa = .70$), and demonstrates strong convergent validity with other measures of suicidal thoughts and behaviors (Nock et al., 2007), although the psychometric properties of the self-report version have not been published.

Data Analysis

Fewer than 7% of data points were missing completely at random (Little's test for missingness: $\chi^2 (52) = 41.601$, $p = .849$). Data were therefore analyzed using maximum likelihood estimation. Univariate and multivariate logistic regression was used to test the

association of MST and NMST with lifetime history of suicide ideation, suicide plan, and suicide attempt. Logistic regression analyses were conducted for the full sample then for women and men separately in three steps. In the first and second steps, the main effects of MST and NMST were tested, respectively. In the third step, MST and NMST were entered into the model simultaneously. Adjusting for age, race, and deployment history did not affect results; only the unadjusted main effects are therefore presented and discussed.

Results

Rates of sexual victimization are displayed in Table 1. Lifetime rates of sexual victimization were significantly higher for female than male participants (49.6% vs. 12.2%; OR = 8.04 [4.64, 13.92], $p < .001$). MST, which was defined as sexual assault and/or other wanted sexual experiences that occurred during military service, was endorsed by 39.1% of female participants and 5.8% of male participants in the current sample (OR = 9.71 [5.10, 18.49], $p < .001$). NMST, which was defined as sexual assault and/or other unwanted sexual experiences that occurred either before or after military service, was endorsed by 24.4% of female participants and 9.8% of male participants (OR = 3.44 [1.77, 6.68], $p < .001$). Of those reporting NMST, the considerable majority (88.9% of men and 95.5% of women) indicated the victimization occurred prior to military service.

A total of 132 (31.3%) participants reported a lifetime history of suicide ideation, 56 (13.3%) reported a lifetime history of suicide plan, and 27 (6.4%) reported a lifetime history of suicide attempt. There were no gender differences in rates of suicide ideation (30.9% male vs. 35.0% female; OR = 1.21 [0.77, 1.90], $p = .417$), suicide plan (12.6% male vs. 13.7% female; OR = 1.10 [0.58, 2.06], $p = .777$), or suicide attempts (6.0% male vs. 7.7% female; OR = 1.31 [0.57, 3.04], $p = .523$).

Is MST associated with increased risk for suicide ideation, suicide plan, and suicide attempts?

We first tested the independent effect of MST on lifetime history of suicide ideation, suicide plan, and suicide attempt. Results are summarized in Table 2 (Steps 1 and 2). In the full sample, victims of MST were significantly more likely to report a lifetime incidence of suicide ideation (44.8% vs. 29.1%; OR = 1.97 [1.13, 3.45], p = .017), suicide plan (22.4% vs. 11.8%; OR = 2.28 [1.16, 4.47], p = .017), and suicide attempt (15.5% vs. 4.9%; OR = 3.81 [1.68, 8.67], p < .001). Victims of NMST were also significantly more likely to report a lifetime incidence of suicide ideation (59.5% vs. 28.2%; OR = 3.89 [2.15, 7.04], p < .001), suicide plan (28.6% vs. 11.6%; OR = 3.01 [1.53, 5.92], p = .001), and suicide attempt (21.4% vs. 4.7%; OR = 5.27 [2.33, 11.90], p < .001).

Among male participants, victims of MST were significantly more likely to report a lifetime incidence of suicide ideation (66.7% vs. 28.9%; OR = 4.79 [1.59, 14.45], p = .005), suicide plan (46.7% vs. 10.7%; OR = 7.15 [2.42, 21.10], p < .001), and suicide attempt (26.7% vs. 4.8%; OR = 6.78 [1.92, 24.01], p = .003). Victims of NMST were also significantly more likely to report a lifetime incidence of suicide ideation (61.1% vs. 28.8%; OR = 3.73 [1.61, 8.67], p = .002), suicide plan (38.9% vs. 10.9%; OR = 3.83, 1.52, 9.65], p = .004), and suicide attempt (22.2% vs. 4.9%; OR = 4.85 [1.57, 14.96], p = .006).

Among female participants, victims of MST were not more likely to report lifetime incidence of suicide ideation (34.1% vs. 35.5%), suicide plan (12.2% vs. 14.5%), or suicide attempt (9.8% vs. 6.6%; OR's = 0.92-1.97, p's > .496). In contrast, victims of NMST were significantly more likely to report lifetime incidence of suicide ideation (54.5% vs. 30.5%; OR =

2.90 [1.18, 7.14], p = .021) and suicide attempt (18.2% vs. 5.3%; OR = 4.50 [1.19, 17.03], p = .027).

Is MST associated with increased risk for suicide ideation, suicide plan, and suicide attempts beyond the effects of NMST?

We next entered MST and NMST into the regression models simultaneously to examine each variable's association with the outcomes while controlling for the other. Results are summarized in Table 2, Step 3. In the full sample, MST was not significantly associated with any outcome, but NMST remained a significant predictor of suicide ideation (OR = 3.12 [1.66, 5.86]), suicide plan (OR = 2.65 [1.21, 5.82]), and suicide attempt (OR = 3.83 [1.40, 10.47]).

Among male participants, MST remained a significant predictor of suicide ideation only (OR = 2.89 [1.18, 7.06], p = .020) and NMST remained a significant predictor of suicide ideation (OR = 3.34 [1.01, 11.01], p = .047) and suicide plan (OR = 4.99 [1.42, 17.57], p = .012). The association of NMST with suicide attempt fell just shy of statistical significance (OR = 4.44 [0.76, 25.91], p = .097).

Among female participants, MST was not associated with any outcome, but NMST remained a significant predictor of suicide ideation (OR = 2.97 [1.20, 7.39], p = .019) and suicide attempt (OR = 4.18 [1.02, 17.16], p = .047).

Discussion

Using a sample of military personnel and veterans enrolled in college classes, the current study sought to examine the relationships among sexual victimization, suicide ideation, suicide plans, and suicide attempts. The observed rates of MST in the current sample (39.1% for females and 5.8% for males) were consistent with previously published estimates (Goldzweig, Balekian, Rolon, Yano, & Shekelle, 2006; Suris & Lind, 2008; Zinzow, Grubaugh, Monnier, Suffoletta-

Maierle, & Frueh, 2007; Allard, Nunnink, Gregory, Klest, & Platt, 2012). Observed rates of sexual assault were also consistent with the estimated prevalence of individuals who have experienced sexual assault in the general U.S. population (i.e., 20% of women and 3% of men; Centers for Disease Control, 2012), as well as among college students (19-28% of undergraduate women and 3-4% of undergraduate men; Douglas et al., 1997; Krebs, Lindquist, Warner, Fisher, & Martin, 2007, 2009; Tjaden & Thoennes, 1998). Rates of suicide ideation (31%), suicide plans (13%), and suicide attempts (6%) were also comparable to rates previously reported among military personnel and veterans enrolled in college by Rudd, Goulding, & Bryan (2011), who found that 46% reported a history of suicide ideation, 20% reported a history of suicide plans, and 8% reported a history of suicide attempts. Taken together, these results suggest that, in terms of sexual victimization, the current sample is comparable to other military and veteran samples.

Results of the current study were only partially consistent with expectations. In terms of the relationship of MST with suicide risk, results suggest that although victims of MST are 2 to 3 times more likely to report a history of suicide ideation, suicide plans, and suicide attempts overall, there were considerable differences between men and women. Among men, victims of MST were 3 times more likely to have thought about suicide, 4 times more likely to have made a suicide plan, and 6 times more likely to have made a suicide attempt as compared to men who were not victims of MST. Among women, however, MST was not related to a history of suicide ideation, suicide plans, or suicide attempts. When adjusting for the effects of NMST, MST remained a significant predictor of suicide ideation among men, but the relationships of MST with suicide plan and suicide attempts were no longer significant. For both men and women, NMST demonstrated relatively larger magnitude relationships with suicide risk as compared to NMST. Taken together, results partially supported our hypothesis that MST would be

significantly associated with suicide risk, but did not support our hypothesis that MST would be significantly associated with suicide risk beyond the effects of NMST or the hypothesis that the relationships of MST with suicide risk would be similar for men and women. Findings therefore indicate that NMST was a relatively stronger risk factor for suicide ideation, suicide plans, and suicide attempts among military personnel and veterans in the current study, and that MST served as a suicide risk factor primarily for men.

The observed patterns in the current study are consistent with the *fluid vulnerability theory* (FVT) of suicide (Rudd, 2006), which posits that risk for suicide ideation and suicide attempts occurs due to the interaction of relatively static or chronic risk factors (i.e., predispositions) with acute stressors (i.e., triggers), which activates a suicidal episode. According to the FVT, traumatic experiences function as predispositions that sensitize the individual to life stressors and degrade the ability to tolerate or cope with emotional distress, thereby making it "easier" to become suicidal over the long-term. Recent research suggests, for instance, that the association of childhood trauma with later suicide attempts occurs primarily among individuals with certain genes associated with HPA axis functioning (i.e., CRHBP and FKBP5; Roy, Hodginson, Deluca, Goldman, & Enoch, 2012). In the current study, approximately 90% of participants who reported NMST indicated this event occurred *prior* to military service. Given the modal age of participants at the time of enlistment in the military was 18 years (median = 19 years), it is likely that the majority of NMST cases in the current study were victims of child sexual abuse. NMST therefore may have a relatively larger influence on participants' vulnerability to suicide ideation, suicide plans, and suicide attempts than MST.

Our findings specific to MST among men might also be explained by the FVT. Within the FVT, trauma victims are also hypothesized to be at increased risk for suicide ideation and

suicide attempts because traumas negatively influence the individual's belief system and self-perceptions over time. For example, trauma victims who blame themselves or perceive themselves as defective, flawed, weak, or broken afterwards are especially vulnerable to experiencing suicidal episodes later in life. Military cultural norms may therefore pose a relatively greater vulnerability for male service members who have experienced MST. Specifically, military cultural norms emphasize traditional masculine values such as physical and mental strength, toughness, and self-reliance (Barrett, 1996; Brooks, 1990; Bryan et al., 2013; Jakupcak, 2003; Jakupcak, Osborne, Michael, Cook, & McFall, 2006; Levant & Richmond, 2007). Previous research has confirmed that cultural masculinity norms may impact mental health symptoms and interfere with treatment and recovery (Carpenter & Addis, 2000; Eisler, Skidmore, & Ward, 1988; McDermott, Tull, Soenke, Jukupcak, & Gratz, 2010). Supporting this is research suggesting that male survivors of MST are significantly less likely to seek out mental health care than female survivors (Turchik, Pavao, Hyun, Mark, & Kimerling, 2012). Male victims of MST may therefore experience a threat to their masculinity and be especially prone to shame, which has been identified as an especially strong predictor of suicide ideation and suicide attempts in military personnel (Bryan, Morrow, Etienne, & Ray-Sannerud, 2013). Such negative identity-based perceptions such as shame and self-hatred increase the intensity of suicide ideation and risk for future suicide attempts among military personnel and veterans (Bryan et al., 2014). Bryan et al. further reported that shame and self-hatred confer greater risk for future suicide attempts among military personnel beyond the effects of suicide ideation. Male survivors of MST may therefore be more susceptible to suicide ideation, suicide plans, and suicide attempts than female survivors of MST. Additional research is needed to more explicitly test this

hypothesis, and to identify other potential mechanisms that underlie the association of MST with suicide risk among male military personnel and veterans.

Overall, results of the current study suggest that sexual victimization is associated with increased suicide risk among military personnel and veterans enrolled in college classes, which aligns with the extant literature supporting a link between sexual assault suicide risk among military personnel and veterans (Belik, Stein, Asmundson, & Sareen, 2009; Bryan, McNaughton, Osman, & Hernandez, 2013; Lemaire & Graham, 2011). Because previous studies with military personnel and veterans did not explicitly consider the timing of assault during participants' lifespans, however, the present findings add to our understanding of sexual victimization and suicide risk in this population. If these findings are replicated, future studies should seek to identify the mechanisms that underlie these gender differences among MST survivors, as such studies could uncover critical information that may lead to the refinement of treatments for survivors of sexual assault. From a clinical perspective, these data suggest that male and female military personnel and veterans with a history of MST may have different treatment needs. In particular, health care professionals and victim advocates may need to be especially alert for suicide ideation and suicide attempts among male victims of MST, and should assess for these clinical variables during clinical encounters and service delivery. In terms of treatment, cognitive processing therapy (CPT) and prolonged exposure (PE) for PTSD are effective for reducing symptoms of both posttraumatic stress and depression among sexual assault survivors (Resick, Williams, Suvak, Monson, & Gradus, 2012), and recent evidence indicates suicide ideation decreases among sexual assault victims receiving both of these treatments (Gradus, Suvak, Wisco, Marx, & Resick, 2013). Clinicians should therefore consider prioritizing these treatments with military personnel and veterans who are survivors of sexual victimization, especially men.

Unfortunately, the beneficial effects of CPT and PE with sexual assault survivors have only been tested with women. The current findings therefore suggest that additional research may be needed with male survivors of sexual trauma in general, and MST in particular, to ensure empirically-supported treatments are as effective with male survivors as they are with female survivors.

Conclusions based on the current results should be made cautiously, however, due to our cross-sectional design, which limits our ability to understand temporal relationships among sexual victimization, suicide ideation, and suicide attempts across the lifespan. Future studies that can identify and trace the trajectories from MST to suicide attempts are necessary to better understand how these variables emerge over time. A second limitation is our use of self-report methodology, which may be vulnerable to response bias. Future studies that can use structured diagnostic interviews and/or behavioral methods for measuring psychopathology that are less vulnerable to response bias would bolster these findings. Finally, our sample was comprised of military personnel and veterans enrolled in college courses, which may reflect a unique subgroup that does not necessarily reflect the larger community of military personnel and veterans. Findings therefore may not generalize to other settings. Despite these limitations, the current study provides important information regarding the relationship of MST with suicide risk, which can inform rehabilitation, clinical, and prevention initiatives.

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Table 1

Rates of sexual victimization among student service members/veterans, by gender

	Lifetime sexual trauma	NMST	MST
Sexual assault			
Men (n = 294)	21 (7.1%)	17 (5.8%)	9 (3.1%)
Women (n = 115)	30 (26.1%)	15 (13.0%)	21 (18.3%)
Total (n = 409)	51 (12.5%)	32 (7.8%)	30 (7.3%)
Unwanted sexual experience			
Men (n = 294)	30 (10.2%)	21 (7.2%)	15 (5.8%)
Women (n = 115)	49 (42.6%)	20 (17.4%)	39 (36.8%)
Total (n = 409)	79 (19.3%)	41 (10.0%)	54 (14.8%)
Any sexual victimization			
Men (n = 294)	36 (12.2%)	29 (9.8%)	17 (5.8%)
Women (n = 115)	57 (49.6%)	28 (24.4%)	45 (39.1%)
Total (n = 409)	93 (22.7%)	57 (13.9%)	62 (15.2%)

Table 2

Relationship of military sexual trauma (MST) and nonmilitary sexual trauma (NMST) with lifetime incidence of self-injurious thoughts and behaviors

	Suicide ideation		Suicide plan		Suicide attempt	
	OR	(95% C.I.)	OR	(95% C.I.)	OR	(95% C.I.)
Full Sample (n = 422)						
Step 1						
MST	**1.97**	**(1.13, 3.45)**	**2.28**	**(1.16, 4.47)**	**3.81**	**(1.68, 8.67)**
Step 2						
NMST	**3.89**	**(2.15, 7.04)**	**3.01**	**(1.53, 5.92)**	**5.27**	**(2.33, 11.90)**
Step 3						
MST	1.35	(0.69, 2.67)	1.82	(0.71, 4.63)	2.54	(0.75, 8.60)
NMST	**3.12**	**(1.66, 5.86)**	**2.65**	**(1.21, 5.82)**	**3.83**	**(1.40, 10.47)**
Men (n = 294)						
Step 1						
MST	**4.79**	**(1.59, 14.45)**	**7.15**	**(2.42, 21.10)**	**6.78**	**(1.92, 24.01)**
Step 2						
NMST	**3.73**	**(1.61, 8.67)**	**3.83**	**(1.52, 9.65)**	**4.85**	**(1.57, 14.96)**
Step 3						
MST	**2.89**	**(1.18, 7.06)**	2.47	(0.81, 7.54)	3.09	(0.66, 14.44)
NMST	**3.34**	**(1.01, 11.01)**	**4.99**	**(1.42, 17.57)**	4.44	(0.76, 25.91)
Women (n = 115)						
Step 1						
MST	0.99	(0.45, 2.17)	0.92	(0.32, 2.65)	1.97	(0.54, 7.25)
Step 2						
NMST	**2.90**	**(1.18, 7.14)**	2.18	(0.73, 6.56)	**4.50**	**(1.19, 17.03)**
Step 3						
MST	0.86	(0.38, 1.98)	0.82	(0.26, 2.61)	1.63	(0.40, 6.68)
NMST	**2.97**	**(1.20, 7.39)**	2.26	(0.71, 7.23)	**4.18**	**(1.02, 17.16)**

MST = Military sexual trauma, NMST = nonmilitary sexual trauma. Values in bold are statistically significant at $p < .05$