



Research paper

Gender moderates the association of military sexual trauma and risk for psychological distress among VA-enrolled veterans

Hallie S. Tannahill^{a,b,*}, Whitney S. Livingston^{a,b}, Jamison D. Fargo^{a,b}, Emily Brignone^{a,b},
Adi V. Gundlapalli^{b,c}, Rebecca K. Blais^{a,b}

^a Department of Psychology, Utah State University, 2800 Old Main Hill, Logan, UT 84321, United States

^b Informatics, Decision Enhancement, and Analytic Sciences Center, VA Salt Lake City Health Care System, 500 Foothill Dr., Salt Lake City, UT 84148, United States

^c Departments of Internal Medicine and Biomedical Informatics, University of Utah School of Medicine, 30 N. 1900 E., Salt Lake City, UT 84132, United States



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ABSTRACT

Background: Military sexual trauma (MST) is associated with increased risk for posttraumatic stress disorder (PTSD) and depression diagnoses, as well as suicidal ideation/behavior (SI/B). Little is known about the differential effect of gender on the association of MST and the aforementioned mental health outcomes. As females are the fastest growing subpopulation of the Veterans Health Administration (VHA), it is imperative to assess possible between-gender differences in the association of MST with PTSD, depression, and SI/B.

Methods: Participants were 435,690 ($n = 382,021$, 87.7% men) 9/11 era veterans seen for care at the VHA between 2004 and 2014. Demographics, gender, PTSD and depression diagnoses, SI/B, and MST screen status were extracted from medical records. Adjusted logistic regression models assessed the moderating effect of gender on the association of MST with PTSD and depression diagnoses, as well as SI/B.

Results: Women with MST had a larger increased risk for a PTSD diagnosis (predicted probability = 0.56, 95% confidence interval [CI] [0.56, 0.56]) and comparable risk for a depression diagnosis (predicted probability = 0.63, 95% CI [0.63, 0.64]) compared to men with MST. Men were more likely to have evidence of SI/B (predicted probability = 1.07, 95% CI [0.10, 0.11]) relative to women, but the interaction between gender and MST was nonsignificant.

Limitations: Data were limited to veterans seeking care through VHA and the MST screen did not account for MST severity.

Conclusions: Non-VHA settings may consider screening for MST in both men and women, given that risk for PTSD and depression is heightened among female survivors of MST.

1. Introduction

Sexual harassment or assault that occurred during military service is referred to as “military sexual trauma” or “MST” by the Department of Veterans Affairs (VA; U. S. Government, 2014). Current VA estimates suggest that 29.1% of women and 1.6% of men who use Veterans Health Administration (VHA) services experienced MST as indicated by a positive screen for MST (Department of Veterans Affairs, 2018). However, a recent meta-analysis of MST prevalence rates among service members and veterans not necessarily enrolled in VHA-care showed that 38.4% of women and 3.9% of men experienced sexual assault and/or harassment during their military service (Wilson, 2018). The discrepant rates of MST may be due to under-reporting (Blais et al., 2018) or screen setting differences (e.g., Wilson, 2018). Although the rates of

MST vary between men and women, the actual number of those who have experienced MST is relatively equal, due to the disproportionate number of men in the armed forces (U.S. Department of Defense, 2015). MST is associated with increased risk for several negative mental health outcomes, such as posttraumatic stress disorder (PTSD), depression, and suicidal ideation/behavior, in both men and women veterans (Kimerling et al., 2007, 2010).

Currently, little is known about the differential effect of gender on PTSD and depression diagnoses as well as suicidal ideation/behavior among MST survivors. Extant studies are limited in that they only model risk for psychological distress among genders separately without a direct comparison of differences (e.g., Kimerling et al., 2007, 2010, 2016). For example, in an epidemiological study of 4,325,768 VHA-enrolled veterans, results showed women with a positive MST screen

* Corresponding author.

E-mail address: hallie.tannahill@aggiemail.usu.edu (H.S. Tannahill).

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were 8.8 times more likely to have a PTSD diagnosis, 2.3 times more likely to have a depressive diagnosis, and 2.2 times more likely to have documented suicidal ideation/behavior compared to women with a negative MST screen (Kimerling et al., 2007). Conversely, this same study showed that men with a positive MST screen were only 3.0 times more likely to have a PTSD diagnosis and 2.2 times more likely to have a depression diagnosis, but 2.9 times more likely to have documented suicidal ideation/behavior compared to men with a negative MST screen (Kimerling et al., 2007). Such findings suggest that women may be particularly vulnerable to develop PTSD after experiencing MST, but the risk of a depression diagnosis or experiencing suicidal ideation/behavior might be roughly equal among men and women. However, it is unclear if the associations of depression and suicidal ideation/behavior with MST are statistically significant between genders due to the genders being modeled separately.

Though empirical evidence suggests that women may have higher or relatively equal risk for PTSD and depression diagnoses, as well as presence of suicidal ideation/behavior following MST (Kimerling et al., 2007), there is evidence to suggest that men who experienced MST may have more *severe symptoms* relative to women who have experienced MST. For instance, previous studies observed that among those who have experienced MST, men experience more severe PTSD symptoms than women (Hourani et al., 2015; Shipherd et al., 2009; Tannahill et al., 2020). Though informative, these data were based on self-report from convenience samples and actual PTSD diagnoses could not be confirmed. Nonetheless, in an epidemiological study of active duty and reserve-component service members, results showed that men have more severe sexual assault experiences than women (Morrall et al., 2015). Specifically, compared to women, men who were sexually assaulted were more likely to have been assaulted repeatedly, been assaulted by two or more offenders, to have sustained injuries or threats of violence, and to have described their sexual assault as intended humiliation or hazing (Morrall et al., 2015). Such experiences support the findings that men may have more severe symptoms following MST compared to women (e.g., Hourani et al., 2015; Shipherd et al., 2009; Tannahill et al., 2020).

Notwithstanding, such findings are consistent with theories that suggest that men may experience poorer outcomes following sexual trauma due to unique stressors and gender-specific belief systems. For instance, one such theory is *rape myth* (Burt, 1980). This theory suggests that people hold false beliefs about sexual assault, such that only women are raped, or that someone who was sexually assaulted instigated or deserved the assault (Castro et al., 2015). Further, Castro et al. (2015) theorized that these myths are engrained in our society and in military culture more specifically, due to the heavy emphasis on traditional masculine roles. As such, a survivor of sexual assault not only has to process their traumatic experience, but they must also process potential cognitive dissonance between previously held myths and their experience. For example, before a sexual assault, a heterosexual man may have held the belief that only gay men could get raped. Now, he must process his previously held schema with the conflicting experience of being a heterosexual man who was raped. Rape myth poses an opposition to one's masculine identity, which may lead to further distress (Eisler and Skidmore, 1987; Eisler et al., 1988; Juan et al., 2017). Similarly, *male gender role stress* refers to the cognitive distress related to when a man struggles with upholding, or acts contrary to, the traditional societal standards of behavior associated with the male gender (Eisler and Skidmore, 1987). Indeed, among military service members/veterans, higher male gender role stress related to suppressing emotionality was associated with higher PTSD and depressive symptoms (Jakupcak et al., 2014) and it fully mediated the association between MST and depression (Juan et al., 2017). Taken together, this suggests that veteran men who have experienced MST may be at higher risk for depression relative to veteran women.

The current study seeks to expand on the current literature to assess if men and women veterans have different rates of PTSD and depression

diagnoses, and suicidal ideation/behavior following MST. We hypothesized that women veterans with a positive screen for MST would have a larger increased risk for a PTSD diagnosis relative to men veterans with a positive screen for MST. Given theory on how unwanted sexual assault may affect men (i.e., Castro et al., 2015), we hypothesized that men veterans with a positive screen for MST would have a larger increased risk for both a depression diagnosis and documented suicidal ideation/behavior relative to women veterans with a positive screen for MST.

2. Method

2.1. Participants

Participants were VHA-enrolled Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans seen for care in VHA medical facilities between 2004 and 2014, as identified by the 2011 OEF/OIF roster file and VHA medical record. Inclusion criteria required veterans to have at least five years of follow-up VHA data to allow for the manifestation and detection of clinical diagnoses and suicidal ideation/behavior. Of the 531,667 identified veterans, 18.1% ($n = 95,977$) were excluded due to missing information on biological sex or a declined response on the MST screen, resulting in a final sample of 435,690 (81.9%) veterans.

2.2. Procedure

The 2011 OEF/OIF roster file included military service and demographic information for each participant. Veterans listed in the OEF/OIF roster file were matched to their corresponding VHA medical record. The VHA medical record was obtained from the Corporate Data Warehouse and included information on MST screen status and clinical diagnoses through fiscal year 2014. The Institutional Review Board of the University of Utah School of Medicine and Research and Development Committee for the VA Salt Lake City Health Care System approved this study.

2.3. Measures

2.3.1. Demographic and military service characteristics

The 2011 OEF/OIF roster file included information on veterans' branch of service (Air Force, Army, Marines, Navy/Coast Guard), age, gender (male, female), race/ethnicity (Black, White, Hispanic, other, unknown), and history of combat exposure (present, absent). These demographic and military service characteristics served as covariates, and gender served as the moderator for the current study.

2.3.2. MST

History of MST was extracted from the medical record from the MST screening tool. Veterans responded to the following screening questions: "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?; (b) Did someone ever use force or threat of force to have sexual contact with you against your will?" (U.S. Department of VA, 2020). An affirmative answer to either question was coded as positive for MST. A negative answer to both questions was coded as negative for MST. Responses to the two MST screening tool items are not recorded separately, and therefore can only be analyzed as a single item documenting history of MST.

2.3.3. PTSD, depression, and suicidal ideation/behavior

Evidence of PTSD, depression, and suicidal ideation/behavior were assessed by licensed VHA clinicians and documented in veterans' medical records with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes. These codes were then classified into grouping categories as determined by the

Healthcare Utilization and Costs Project Clinical Classification Software (HCUP-CCS; Agency for Healthcare Research and Quality, 2009). The HCUP-CCS code of 5.13 (suicide and intentional self-inflicted injury) documented suicidal ideation/behavior. The HCUP-CCS code of 5.8.2 (depressive disorders) documented depression. The ICD-9-CM code of 309.81 documented PTSD. The codes for suicidal ideation and suicidal behavior were combined to create the suicidal ideation/behavior variable. Veterans were considered to have a positive history of any of the above mental health outcomes if the corresponding code was listed at any time during the five-year surveillance period.

2.3.4. Analytic plan

All statistical tests were conducted in the R environment through the VHA's secure Informatics and Computing Infrastructure research workspace (R Core Team, 2018). Descriptive statistics were calculated to examine demographic and clinical characteristics stratified by gender and MST status. To examine whether gender moderated the association of MST with PTSD, depression, and suicidal ideation/behavior, three separate adjusted logistic regression models were run. The interaction of MST and gender in each regression was calculated by multiplying MST (0 = no history of MST, 1 = history of MST) by gender (0 = male, 1 = female). PTSD, depression, and suicidal ideation/behavior were individually regressed onto MST, gender, age, race, military branch, combat exposure, and the interaction of MST and gender. The regressions with depression and suicidal ideation/behavior as the dependent variables also included PTSD as a covariate due to the prevalence of PTSD in veterans with depression and suicidal ideation/behavior (Gradus et al., 2017).

In the circumstance where there was a significant interaction and the interaction plots suggested a minimal contribution of gender on the association between MST exposure and our outcomes of PTSD, depression, and suicidal ideation/behavior, a post-hoc likelihood ratio test (LRT) assessed the additive contribution of the interaction term beyond the main effects of MST and gender. Minimal contributions were determined by visual inspections of the plots. If the LRT was statistically non-significant, it suggested the interaction term did not significantly contribute to predicted risk of PTSD, depression, or suicidal ideation/behavior. In this case, the main effect model was presented. If the LRT was statistically significant, it suggested the interaction term significantly contributed to the predicted risk in PTSD, depression, suicidal ideation/behavior above and beyond the contribution of the main effect model. In this case, the interaction model was presented.

3. Results

Demographic, military service, and mental health characteristics of the sample are provided in Table 1. Of the 53,669 veteran women, 32.0% ($n = 17,164$) were diagnosed with PTSD, 43.3% ($n = 23,256$) were diagnosed with depression, and 3.1% ($n = 1,658$) had documentation of suicidal ideation/behavior. Of the 382,021 veteran men, 40.3% ($n = 154,031$) were diagnosed with PTSD, 35.7% ($n = 136,321$) were diagnosed with depression, and 3.8% ($n = 14,491$) reported suicidal ideation/behavior. Additionally, 23.0% ($n = 12,362$) of veteran women and 1.1% ($n = 4,222$) veteran men screened positive for MST. Bivariate tests showed significant differences on all study variables between genders in those who have a negative screen for MST and in those who have a positive screen for MST (see Table 2).

After adjusting for age, race, military branch, and combat exposure, PTSD was differentially experienced as a function of MST status and gender (significant interaction: AOR = 1.46, 95% CI [1.35, 1.58]). After probing the predicted probabilities of PTSD, women with MST had rates of PTSD diagnoses comparable to men with MST, and also higher than men without MST, though men had a higher overall risk for a PTSD diagnosis than women (see Table 2; Fig. 1). Visual inspection of the plot suggested a more-than-minimal contribution of gender on the association between MST exposure and PTSD, therefore an LRT was not

conducted (see Fig. 1).

Depression was also differentially experienced as a function of MST status and gender (significant interaction: AOR = 0.84, 95% CI [0.77, 0.91]). Probing the predicated probabilities of a depression diagnosis showed women with MST had rates of depression diagnoses comparable to men with MST and higher than men without MST (see Table 2; Fig. 2). Upon visual inspection of the interaction plot, the differences in risk for depression between men and women appeared minimal. Indeed, women had a predicted probability only 0.02 higher than men in the “no history of MST” group and 0.02 higher than men in the “history of MST” group (see Fig. 2). Given the minimal difference of risks for depression between genders, an LRT was conducted. Results demonstrated that the interaction between gender and MST history contributed to significantly more variance in the risk for a depression diagnosis than the main effect alone (LRT = 16.45 [1], $p < .001$). It is possible that the large sample size resulted in a significant interaction that is not statistically meaningful and the result of a Type I error. As such, its effect should be interpreted with caution.

Finally, men were more likely to have suicidal ideation/behavior (AOR = 0.71, 95% CI[0.66, 0.76]) relative to women, and a positive screen for MST increased odds for suicidal ideation/behavior (AOR = 2.17, 95% CI [1.96, 2.40]) though no significant interaction between gender and positive screen for MST was observed (AOR = 0.91, 95% CI[0.79, 1.05]; see Table 2).

4. Discussion

The current study aimed to assess whether gender moderated the association of a positive MST screen with a diagnosis of PTSD, depression, and suicidal ideation/behavior. Consistent with our first hypothesis, women with a positive MST screen had a larger increased risk for a PTSD diagnosis relative to men. Contrary to our latter study hypotheses, men with a positive MST screen were not at increased risk for a depression diagnosis compared to women. Further, gender did not moderate the association between positive MST screen and suicidal ideation/behavior.

The finding that women with MST have a larger increased risk for a PTSD diagnosis is consistent with existing literature on mental health outcomes following MST in men and women using VA samples (e.g., Kimerling et al., 2007, 2010). Despite the significant interaction of MST and gender on risk for depression, the differences in the predicted probability for depression between genders was minimal. This significant finding may be a result of Type I error and should be interpreted with caution. Further, the finding that men with MST were *not* at higher risk for a depression diagnosis relative to women was unexpected given theory (e.g., rape myth; Burt, 1980) suggesting men may have higher cognitive distress following MST and previous research showing men may report more severe MST experiences (e.g., Morral et al., 2015). Nonetheless, the main effect showing women were at an overall higher risk for a depression diagnosis may be due to factors that disproportionately affect them relative to men. For instance, women are more likely to have experienced prior interpersonal victimization compared to men (Polusney et al., 2014), which can exacerbate mental health symptoms (Brewin et al., 2000; Nishith et al., 2000). Women are also found to have lower perceived unit support (Carter-Vissler et al., 2010; Vogt et al., 2005; Polusney et al., 2014), a factor related to worsened PTSD and depressive symptoms (Brailey et al., 2007). It is also possible that there is an effect of time on diagnosis development. Previous research showing that men had more severe MST experiences was conducted on an active duty sample (Morral et al., 2015), and the current study examined diagnoses among veterans who have separated from the military. Thus, length of time since the assault may moderate the risk for distress. Future research in this domain should consider the impact of time on diagnosis development.

Results have potential implications for routine screening of veterans for MST in non-VA settings. Indeed, only 40% of eligible veterans utilize

Table 1
Demographic characteristics of male and female U.S. veterans with and without a positive screen for MST (N = 435,690).

Characteristic	Male		Female	
	No MST n = 377,799	Yes MST n = 4,222	No MST n = 41,307	Yes MST n = 12,362
	n (%) or M (SD)	n (%) or M (SD)	n (%) or M (SD)	n (%) or M (SD)
Race ^{a, b}				
White	256,462 (67.9)	2644 (62.6)	21,228 (51.4)	6937 (56.1)
Black	57,080 (15.1)	809 (19.2)	12,777 (30.9)	3330 (26.9)
Hispanic	41,070 (10.9)	499 (11.8)	4473 (10.8)	1305 (10.6)
Other	12,292 (3.3)	143 (3.4)	1594 (3.9)	447 (3.6)
Unknown	10,895 (2.9)	127 (3.0)	1235 (3.0)	343 (2.8)
Age ^{a,b}	32.2 (9.4)	32.1 (9.1)	31.0 (8.7)	30.8 (8.4)
Branch ^{a,b}				
Navy/Coast Guard	45,987 (12.2)	829 (19.6)	6625 (16.0)	2217 (17.9)
Marines	60,546 (16.0)	484 (11.5)	1654 (4.0)	581 (4.7)
Air Force	34,765 (9.2)	389 (9.2)	6701 (16.2)	1727 (14.0)
Army	236,499 (62.6)	2519 (59.7)	26,326 (63.7)	7837 (63.4)
Combat exposure ^{a,b}				
Yes	141,179 (37.4)	1732 (41.0)	15,570 (37.7)	4824 (39.0)
No	236,620 (62.6)	2490 (59.0)	25,737 (62.3)	7538 (61.0)
PTSD diagnosis ^{a,b}				
Yes	151,381 (40.1)	2650 (62.8)	10,231 (24.8)	6933 (56.1)
No	226,418 (59.9)	1572 (37.2)	31,076 (75.2)	5429 (43.9)
Depression diagnosis ^{a,b}				
Yes	133,767 (35.4)	2554 (60.5)	15,434 (37.4)	7822 (63.3)
No	244,032 (64.6)	1668 (39.5)	25,873 (62.6)	4540 (36.7)
Suicidal ideation/behavior ^{a,b}				
Yes	14,039 (3.7)	452 (10.7)	807 (2.0)	851 (6.9)
No	363,760 (96.3)	3770 (89.3)	40,500 (98.0)	11,511 (93.1)

Note: MST = military sexual trauma; PTSD = posttraumatic stress disorder.

^a Significant difference between genders in “No MST” group (*p* < .01).

^b Significant difference between genders in “Yes MST” group (*p* < .01).

VA health services (Kang, 2008) where universal screening for MST is practiced (Street and Stafford, 2019). The other 60% may be seeking services elsewhere where universal screening is not practiced. Such sites may be served by screening for MST in both men and women,

knowing that risk for PTSD and depression is heightened among female survivors of MST. Given the small effect of gender on the association of MST and depression, future research should examine this relationship in studies with more recent data or unique military samples to see if the

Table 2
Results of models predicting VHA-documented posttraumatic stress disorder (PTSD), depression, and suicidal ideation among OEF/OIF veterans as a function of MST screen status, gender, and covariates.

Characteristic	PTSD ^a		Depression ^b		Suicidal Ideation ^c	
	AOR	95% CI	AOR	95% CI	AOR	95% CI
Intercept	1.17	[1.14, 1.20]***	0.17	[0.17, 0.18]***	0.02	[0.02, 0.03]***
Military sexual trauma (Ref = No)	2.92	[2.73, 3.12]***	2.07	[1.92, 2.22]***	2.17	[1.96, 2.40]***
Sex (Ref = Male)	0.51	[0.50, 0.52]***	1.68	[1.64, 1.72]***	0.71	[0.66, 0.76]***
Age	0.99	[0.99, 0.99]***	1.00	[1.00, 1.01]***	0.97	[0.97, 0.98]***
Race/ethnicity						
Black	1.09	[1.07, 1.11]***	0.95	[0.93, 0.97]***	0.83	[0.80, 0.87]***
Hispanic	1.01	[0.99, 1.03]	1.02	[1.00, 1.05]*	0.85	[0.81, 0.90]***
Other	0.94	[0.91, 0.97]***	0.79	[0.76, 0.82]***	0.80	[0.72, 0.89]***
Unknown	0.68	[0.65, 0.70]***	0.67	[0.64, 0.70]***	0.61	[0.53, 0.69]***
Branch of service (Ref = army)						
Navy/coast guard	0.30	[0.29, 0.31]***	1.17	[1.14, 1.19]***	1.17	[1.11, 1.24]***
Marines	0.94	[0.93, 0.96]***	0.75	[0.74, 0.77]***	0.71	[0.67, 0.74]***
Air force	0.32	[0.31, 0.33]***	0.99	[0.96, 1.02]	1.10	[1.03, 1.18]**
Combat exposure	1.27	[1.25, 1.29]***	1.03	[1.01, 1.04]***	0.96	[0.93, 1.00]*
PTSD (Ref = no)	–	–	9.51	[9.37, 9.65]***	9.50	[9.08, 9.94]***
Interaction	1.46	[1.35, 1.58]***	0.84	[0.77, 0.91]***	0.91	[0.79, 1.05]

Note. Each model included the interaction of military sexual trauma (Ref = No) and sex (Ref = Male). PTSD was added as a covariate for the models assessing depression and suicidal ideation as outcomes. VHA = Veterans Health Administration; OEF = Operation Enduring Freedom; OIF = Operation Iraqi Freedom; PTSD = posttraumatic stress disorder; AOR = adjusted odds ratio; CI = confidence interval.

^a PTSD is the outcome for this model.

^b Depression is the outcome for this model.

^c Suicidal ideation is the outcome for this model.

*** *p* ≤ .001

** *p* ≤ .01

* *p* ≤ .05

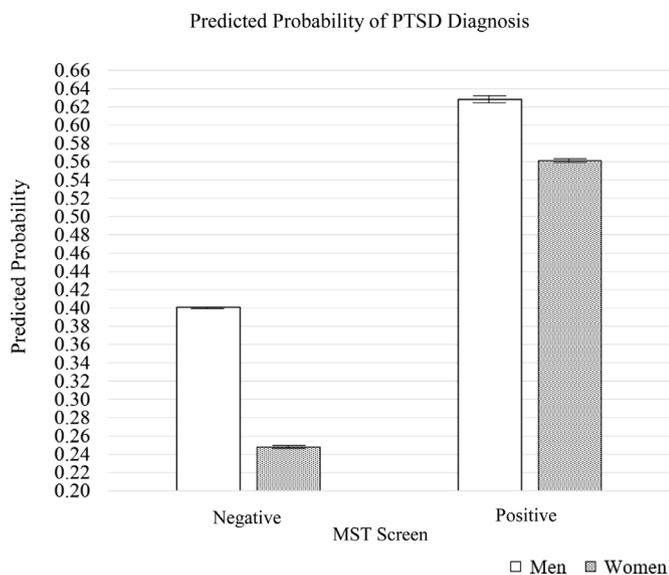


Fig. 1. Women with a positive MST screen have a larger increased risk for a PTSD diagnosis compared to men with a positive MST screen. *Note.* MST = military sexual trauma; PTSD = posttraumatic stress disorder. Standard error bars represent ± 1.96 times the standard error.

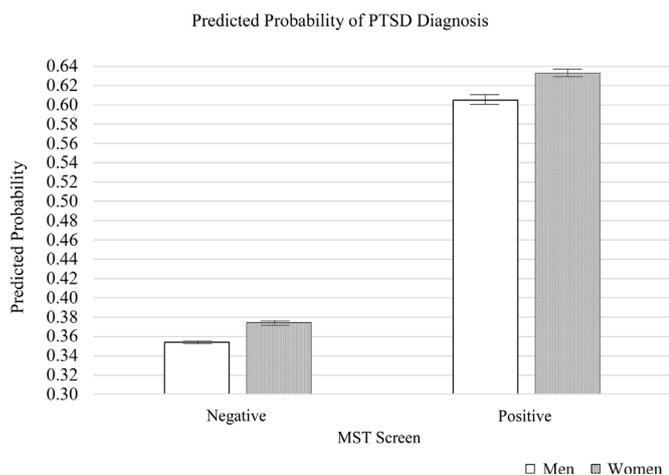


Fig. 2. Women with a positive MST screen have a comparable risk for a depression diagnosis compared to men with a positive MST screen. *Note.* MST = military sexual trauma. Standard error bars represent ± 1.96 times the standard error.

association holds in other studies.

The current study has several limitations. First, it is unknown if the veterans’ PTSD and depression diagnoses and suicidal ideation/behavior were related to their MST experience. The current study was also limited to veterans enrolled in VHA care. Given that men have lower rates of utilizing VHA care compared to women (Cohen et al., 2010; Duggal et al., 2010; Frayne et al., 2007; Haskell et al., 2011; Kaur et al., 2007; Maguen et al., 2012; Turchik et al., 2012), it is possible the current study is not capturing the full range of experiences of veteran men. Further, previous research shows that civilian sexual trauma is shown to be a risk factor for MST (Wolfe-Clark et al., 2017) and uniquely contributes to PTSD symptoms (Miller et al., 2013). Unfortunately, this data is not included in the VHA medical record and therefore, was unable to be assessed in the current study. Future research in this area would be strengthened by considering the relative contribution of civilian sexual assault on the association of gender, MST, and psychological outcomes. The current sample had lower rates of suicidal ideation/behavior than what was expected. That is, extant

literature examining suicidal ideation/behavior in veterans suggests that the prevalence of suicidal ideation/behavior in veteran samples is estimated to be 17–33% (Bryan et al., 2015a, 2015b), and up to 78% in those who have experienced MST (Monteith et al., 2019). This is notably higher to the overall rate of 3.71% of suicidal ideation/behavior observed in the current sample. It is possible that the diagnostic codes for suicidal ideation and suicidal behavior used in the current study do not fully capture the true prevalence of suicidal behavior/ideation in veterans and therefore may not give an accurate representation of the association between gender and MST with suicidal ideation/behavior. It is important to interpret these results with caution.

Future research in this area may be strengthened by assessing if the observed interaction between gender and MST with PTSD, depression, and suicidal ideation/behavior remains constant given varying severities of MST. Recent research shows that assault MST, compared to harassment-only MST, is associated with increased risk for PTSD, depression, and suicidal ideation (Blais et al., 2019). As previously mentioned, future research should also consider how time since trauma relates to diagnoses and distress. Nonetheless, the results from the current study provide support that men and women may have different mental health outcomes following MST. Specifically, though men had overall higher rates of PTSD, MST predicted a larger risk for women to have a diagnosis of PTSD compared to men. Future research should explore the mechanisms by which MST leads to poor mental health outcomes in each gender to better inform treatment targets and prevention strategies specific to men and women veterans.

Author statement

Contributors: All authors have reviewed and approved the final article.

Hallie S. Tannahill, Developed concept for study, wrote the manuscript.

Whitney S. Livingston, Conducted statistical analyses.

Jamison D. Fargo, Supervised statistical analyses and data interpretation.

Emily Brignone, Organized data and created included variables.

Adi V. Gundlapalli, Provided data and resources for study.

Rebecca K. Blais, Primary academic advisor to first author, co-wrote key elements of the manuscript.

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Limitations

Data were limited to veterans seeking care through VHA; MST screen did not account for MST severity.

Declaration of Competing Interest

None.

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