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The importance of distinguishing between harassment-only and assault military sexual trauma during screening
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ABSTRACT
Extant research demonstrates that a history of military sexual trauma (MST) is associated with PTSD and depression diagnoses as well as heightened risk for suicidal ideation and death by suicide. Past studies of MST and its sequelae typically collapse harassment-only and assault MST screening items into a single response, recorded as positive or negative for a history of MST. It is presently unclear whether assault is associated with poorer mental health outcomes relative to harassment-only MST. Female service members/Veterans (n = 656) completed an online survey assessing history (present, absent) and type (harassment-only, assault) of MST, PTSD, depression, sexual satisfaction and functions symptoms, as well as suicidal ideation. Findings revealed that those who reported a history of MST, and assault more specifically, were more likely to report higher PTSD symptoms and probable PTSD diagnosis, higher depression symptoms and probable depression diagnosis, worse sexual function and probable sexual function diagnosis, lower sexual satisfaction, and presence of suicidal ideation. Those who reported harassment-only MST also reported higher PTSD severity and probable PTSD diagnosis, but the magnitude of the association of harassment-only MST and PTSD severity relative to assault MST and PTSD severity was substantially lower. Findings suggest it is critical to distinguish between history and type of MST during screening as a combined screening item loses sensitivity to identify those at heightened risk for distress and dysfunction.

What is the public significance of this article?—Screening for military sexual trauma (MST) helps identify those who could benefit from outreach and clinical care. Most existing screening instruments do not distinguish between harassment-only MST and assault MST. The current study showed that those who reported assault MST reported significantly higher psychological distress and risk for suicide. Instruments that do not distinguish between MST type may lose sensitivity in identifying those at greatest risk for dysfunction.

According to the Department of Veterans Affairs (VA), military sexual trauma (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” (US Government, 2014, p. 285). Veterans are screened for MST upon initiating VA care using two trichotomously scored (i.e., yes, no, decline to answer) questions: “When you were in the military, (1) Did you receive uninvited and unwanted sexual attention, such as touching, cornering, pressure for sexual favors, or verbal remarks? (2) Did someone ever use force or threat of force to have sexual contact with you against your will?” The first and second screening items may be referred to as “harassment-only MST” and “assault MST,” respectively (e.g., Barth et al., 2016; Gibson, Gray, Katon, Simpson, & Lehavot, 2016). Veterans are considered to have a positive history of MST if they answer in the affirmative to either the harassment-only or assault MST questions. Within the VA medical record, harassment-only and assault MST screening items are combined to form a single response that is recorded as MST positive, negative, or declined screening. According to the VA, 28% of female Veterans report MST (VA, 2017), but a recent non-VA study showed that 25% of females do not report their MST during screening (Blais, Brignone, Fargo, Galbreath, & Gundlapalli, 2018), suggesting that MST is a much greater public health concern than current VA estimates suggest. Indeed, a recent review of the literature examining VA and non-VA...
data showed that MST is reported by approximately 40% of females (Wilson, 2018).

Veterans with a history of MST have increased risk for posttraumatic stress disorder (PTSD), depression, substance use disorders, eating disorders, and suicidal ideation (e.g., Blais et al., 2017; Kimerling, Gima, Smith, Street, & Frayne, 2007; Monteith, Menefee, Forster, Wanner, & Bahraini, 2015). Some of these studies (i.e., Blais et al., 2017; Kimerling et al., 2007) relied on the VA MST screening measure, and thus it remains unclear whether assault MST is associated with poorer psychological outcomes relative to harassment-only MST. To date, only a handful of studies have examined the differential association of assault and harassment-only MST with individual functioning and this literature has limitations. Limitations include restricting study enrollment to those reporting MST within the last 3 years (Millegan et al., 2015), examining this association in a predominantly male sample of VA-enrolled Veterans who were completing an inpatient psychiatric stay (Monteith, Menefee, Forster, & Bahraini, 2016), limiting measures of psychological distress to depression, PTSD, and somatic symptoms (Street, Stafford, Mahan, & Hendricks, 2008), or not directly comparing the sequelae of harassment-only versus assault MST (Gibson et al., 2016).

The current study was designed to address these limitations by examining the association of no MST, harassment-only MST, and assault MST with PTSD, depression, and suicidal ideation in female service members/Veterans (SM/Vs), the fastest growing demographic in this population (Patten & Parker, 2011). We also included measures of sexual satisfaction and function, given the interpersonal and sexual nature of MST.

Method

Participants

SM/Vs were recruited via Facebook or electronic listservs.

Procedure

Data for the current study (n = 656; 78.8%) were extracted from a larger dataset collected to examine the associations among MST, sexual health, and romantic relationship satisfaction among partnered female SM/Vs (N = 832; Blais, 2019). Eligibility criteria for the current study included female sex, history of service in the military, and complete data on MST screening items, our dependent variables (PTSD, depression, sexual satisfaction and function, suicidal ideation), and covariates. Participants were included in the study regardless of their relationship status (not a primary outcome of interest).

Individuals interested in participating were guided to a secure online website (i.e., Qualtrics), where they reviewed the Letter of Information and completed screening items and all study measures. The Institutional Review Board of Utah State University approved this study.

Measures

An inventory designed for the parent study assessed demographic covariates, which included marital status (married = 1, unmarried = 0), history of deployment (deployed = 1, not deployed = 0), White race (White = 1, other = 0), and service in the Army (served in the Army = 1, did not serve in the Army = 0). As the majority of the sample reported service in the Army and identified as White (see Table 1), participants were

Table 1. Demographic and study variable characteristics and difference tests between no MST, harassment MST, and assault MST groups.

<table>
<thead>
<tr>
<th>Variable</th>
<th>No MST (n = 115)</th>
<th>Harassment MST (n = 315)</th>
<th>Assault MS (n = 226)</th>
<th>F or chi-square test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n(%)(M(SD))</td>
<td>n(%)(M(SD))</td>
<td>n(%)(M(SD))</td>
<td></td>
</tr>
<tr>
<td>PTSD severity*</td>
<td>13.06* (18.73)</td>
<td>18.80* (19.77)</td>
<td>38.22* (23.60)</td>
<td>F(2, 653) = 76.49, p &lt; .001</td>
</tr>
<tr>
<td>Probable PTSD</td>
<td>21* (18.26%)</td>
<td>86* (27.30%)</td>
<td>136* (60.18%)</td>
<td>χ²(2, N = 656) = 82.08, p &lt; .001</td>
</tr>
<tr>
<td>Depression severity*</td>
<td>7.12* (6.36)</td>
<td>8.52* (6.93)</td>
<td>12.29* (7.26)</td>
<td>F(2, 653) = 27.98, p &lt; .001</td>
</tr>
<tr>
<td>Probable depression</td>
<td>35* (30.43%)</td>
<td>115* (36.51%)</td>
<td>139* (61.50%)</td>
<td>χ²(2, N = 656) = 43.86, p &lt; .001</td>
</tr>
<tr>
<td>Suicidal ideation (present = 1)</td>
<td>14* (12.17%)</td>
<td>53* (17.46%)</td>
<td>76* (33.63%)</td>
<td>χ²(2, N = 656) = 27.96, p &lt; .001</td>
</tr>
<tr>
<td>Sexual satisfaction</td>
<td>90.76* (22.25)</td>
<td>86.93* (22.03)</td>
<td>77.52* (23.69)</td>
<td>F(2, 653) = 16.91, p &lt; .001</td>
</tr>
<tr>
<td>Sexual function*</td>
<td>23.88* (10.25)</td>
<td>23.24* (9.40)</td>
<td>19.48* (9.87)</td>
<td>F(2, 653) = 13.22, p &lt; .001</td>
</tr>
<tr>
<td>Probable sexual dysfunction</td>
<td>55* (47.83%)</td>
<td>175* (55.56%)</td>
<td>163b (72.12%)</td>
<td>χ²(2, N = 656) = 23.52, p &lt; .001</td>
</tr>
<tr>
<td>Married (yes = 1)</td>
<td>78 (67.83%)</td>
<td>233 (73.97%)</td>
<td>166 (73.45%)</td>
<td>χ²(2, N = 656) = 1.70, p = .43</td>
</tr>
<tr>
<td>Deployed (yes = 1)</td>
<td>56 (48.70%)</td>
<td>165 (52.38%)</td>
<td>114 (50.44%)</td>
<td>χ²(2, N = 656) = 0.51, p = .77</td>
</tr>
<tr>
<td>Army (yes = 1)</td>
<td>61 (53.04%)</td>
<td>166 (52.70%)</td>
<td>123 (54.42%)</td>
<td>χ²(2, N = 656) = 0.16, p = .92</td>
</tr>
<tr>
<td>White (yes = 1)</td>
<td>96 (83.48%)</td>
<td>248 (78.73%)</td>
<td>169 (74.78%)</td>
<td>χ²(2, N = 656) = 3.48, p = .18</td>
</tr>
</tbody>
</table>

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

Means in the same row that do not share a superscript are statistically different at p ≤ .05.

Higher scores equal more severe symptoms. Lower scores equal worse functioning.
categorized as having membership (dummy code = 1) or nonmembership (dummy code = 0) in these specific groups.

History and type of MST were assessed using a modified version of the VA MST screening questionnaire. Harassment-only MST was assessed using a checklist of possible experiences including touching, cornering, pressure for sexual favors, or verbal remarks. Endorsement of any experience was coded to indicate a positive history of harassment MST. Assault MST was determined via an affirmative response to the question: “Did someone ever use force or threat of force to have sexual contact with you against your will?” Those who did not endorse any harassment experiences or responded “no” to the assault MST question were categorized as having no MST. Those in the harassment-only group did not endorse a history of force or threat of force to have sexual contact against their will. Dummy codes were then applied to the three groups to compare the associations of no MST, harassment-only MST, and assault MST.

PTSD was assessed using the PTSD Checklist for DSM-5 (Weathers et al., 2013). Participants rated their level of agreement with each of the 20 statements using a five-point Likert scale ranging from 0 (not at all) to 4 (extremely). Items are summed for a total score ranging from 0 to 80, and scores ≥ 31 suggest probable PTSD diagnosis (Bovin et al., 2016). Participants who screened positive for probable PTSD diagnosis (n = 243, 37.04%) were dummy coded 1 and those who screened negative (n = 413, 62.96%) were dummy coded 0. In the current sample, the internal reliability was high (Cronbach’s α = .97).

Depression severity was assessed using the Patient Health Questionnaire-8 (Kroenke et al., 2009). The Patient Health Questionnaire-8 excludes Question 9, which asks about suicidal ideation. Participants rated their agreement with the 19 items using an item-anchored Likert type response scale ranging from 0 to 3 (nearly every day). A minority (n = 145; 22.10%) reported any frequency of suicidal ideation. Of the 145 who endorsed suicidal ideation, 76 (52.41%), 38 (26.21%), and 31 (21.38%) indicated they were bothered by suicidal ideation some of the days, more than half the days, or nearly every day, respectively. Given the low frequency of suicidal ideation observed in the current sample, scores were dichotomized into suicidal ideation positive (dummy code = 1) or negative (dummy code = 0).

Sexual functioning was measured using the Female Sexual Function Index (Rosen et al., 2000). Participants rated their agreement with the 19 items using an item-anchored Likert type response scale ranging from 0 to 5 or 1 to 5. Total scores were calculated using a computational formula created by the scale authors and scores range from 2 to 36 (Rosen et al., 2000). Higher scores indicate greater sexual functioning and scores <26.55 suggest probable sexual dysfunction (Weigel, Meston, & Rosen, 2005). Participants who screened positive for probable sexual dysfunction diagnosis (n = 393, 59.91%) were dummy coded 1 and those who screened negative (n = 263, 40.09%) were dummy coded 0. In the current sample, the internal reliability was high (Cronbach’s α = .96).

Sexual satisfaction was measured using the Sexual Satisfaction Scale for Women (Meston & Trapnell, 2005). Participants rated their agreement with the 30 items using an item-anchored Likert type response scale that ranged from 1 to 5. Total scores were calculated using a computational formula created by the scale authors and possible scores range from 27.5 to 135 (Meston & Trapnell, 2005), with higher scores indicative of greater sexual satisfaction. No cut-off score is suggested for probable sexual dissatisfaction. In the current sample, the internal consistency reliability was high (Cronbach’s α = .96).

**Analytic plan**

Differences in the associations of outcomes and covariates as a function of MST type were initially assessed at the bivariate level. Group differences with continuous outcomes (i.e., PTSD and depression severity, sexual satisfaction, sexual function) were assessed using analyses of variance with Tukey’s post-hoc tests. Group differences with binary outcomes (i.e., probable PTSD, depression, and sexual dysfunction, suicidal ideation) and covariates were assessed using 3 (no MST, harassment-only MST, assault MST) × 2 (no probable diagnosis, probable diagnosis) chi-square tests. Posthoc tests exploring significant chi-squares were then rerun as a 2 (e.g., no MST vs harassment-only) × 2 (no probable diagnosis, probable diagnosis) analysis to isolate group differences. Specific post-hoc chi-square statistics are available by request to Rebecca K. Blais.
Hierarchical linear and logistic multiple regression analyses were used to determine the association of MST type with mental health outcomes after accounting for covariates. In these analyses, demographic covariates were entered into Step 1 and MST type (harassment versus all others, assault versus all others) were entered in Step 2. \( R^2 \) and \( R^2 \) change statistics were computed. All analyses were conducted with SPSS version 25.

**Results**

The majority of the sample reported a history of MST \( (n = 541, 82.5\%) \). Of those, the majority reported harassment-only MST \( (n = 315; 58.2\%) \) and a minority reported MST that included assault \( (n = 226, 41.7\%) \). Of note, 95.6% \( (n = 216) \) of those who reported assault MST also endorsed harassment MST. At the bivariate level, harassment-only MST was associated with higher PTSD and depressive symptoms as well as a probable PTSD diagnosis, but not a probable depression or sexual dysfunction diagnoses, suicidal ideation, sexual satisfaction, or sexual function relative to no MST. Assault MST was associated with higher PTSD and depressive symptoms, probable PTSD, depression, and sexual function diagnoses, lower sexual satisfaction and function, as well as presence of suicidal ideation (see Table 1) relative to no MST. No demographic differences were observed between those reporting no MST, harassment-only MST, or assault MST (see Table 1).

The covariates included in Step 1 of the linear regression models, which included married status, deployment history, service in the Army, and White race, accounted for little of the variance in PTSD and depression severity or sexual function and satisfaction (adjusted \( R^2 \)’s range: .002–.04). Being married was associated with lower sexual function and satisfaction (see Table 2). The addition of harassment-only and assault MST in Step 2 accounted for 5–19% of the variance, which were significant increases from Step 1 models. In each instance, assault MST was associated with higher PTSD and depression severity as well as lower sexual function and satisfaction. Harassment-only MST was also associated with higher PTSD severity, but the magnitude of the association between harassment-only MST and PTSD severity was substantially lower than the magnitude of the association between assault MST and PTSD severity (see Table 2).

Similarly, Step 1 in the logistic regressions, which included covariates of married status, deployment history, service in the Army, and White race, accounted for little variance in probable PTSD and depression diagnoses as well as suicidal ideation and probable sexual dysfunction (Nagelkerke \( R^2 \)’s range: .007–.05).

### Table 1. Hierarchical linear regressions of mental health outcomes on MST type and covariates.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 1</th>
<th>Step 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTSD Severity</td>
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<td></td>
</tr>
<tr>
<td>Harassment (yes = 1)</td>
<td>-1.46(2.05)</td>
<td>-1.61(2.05)</td>
<td>-1.48(1.83)</td>
<td>-1.48(1.83)</td>
<td>-1.48(1.83)</td>
<td>-1.48(1.83)</td>
<td>-1.48(1.83)</td>
<td>-1.48(1.83)</td>
</tr>
<tr>
<td>Assault (yes = 1)</td>
<td>6.29(1.46)</td>
<td>5.81(1.57)</td>
<td>5.73(1.57)</td>
<td>5.67(1.57)</td>
<td>5.67(1.57)</td>
<td>5.67(1.57)</td>
<td>5.67(1.57)</td>
<td>5.67(1.57)</td>
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<tr>
<td>Sexual Function</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Harassment (yes = 1)</td>
<td>-2.67(1.76)</td>
<td>-2.26(1.76)</td>
<td>-2.67(1.76)</td>
<td>-2.19(1.76)</td>
<td>-2.19(1.76)</td>
<td>-2.19(1.76)</td>
<td>-2.19(1.76)</td>
<td>-2.19(1.76)</td>
</tr>
<tr>
<td>Assault (yes = 1)</td>
<td>3.09(2.15)</td>
<td>2.76(2.15)</td>
<td>3.09(2.15)</td>
<td>2.76(2.15)</td>
<td>2.76(2.15)</td>
<td>2.76(2.15)</td>
<td>2.76(2.15)</td>
<td>2.76(2.15)</td>
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<tr>
<td>Sexual Satisfaction</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harassment (yes = 1)</td>
<td>-14.49(4.03)</td>
<td>-14.49(4.03)</td>
<td>-14.49(4.03)</td>
<td>-14.49(4.03)</td>
<td>-14.49(4.03)</td>
<td>-14.49(4.03)</td>
<td>-14.49(4.03)</td>
<td>-14.49(4.03)</td>
</tr>
<tr>
<td>Assault (yes = 1)</td>
<td>10.69(4.03)</td>
<td>10.69(4.03)</td>
<td>10.69(4.03)</td>
<td>10.69(4.03)</td>
<td>10.69(4.03)</td>
<td>10.69(4.03)</td>
<td>10.69(4.03)</td>
<td>10.69(4.03)</td>
</tr>
</tbody>
</table>

Note: \( b = \) unstandardized regression estimate; \( SE = \) standard error of estimate; \( \Delta ache \) = change in \( \Delta F \); \( F = \) model F-statistic; \( \Delta \) = change in \( R^2 \) value between steps. **\( p \leq .05 \) *** \( p \leq .001 \) **. Lower scores equal worse functioning.
Hierarchical logistic regressions of mental health outcomes on MST type and covariates.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Probable PTSD OR (CI)</th>
<th>Probable depression OR (CI)</th>
<th>Suicidal ideation OR (CI)</th>
<th>Probable sexual dysfunction OR (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married (yes = 1)</td>
<td>1.11 (.77–1.59)</td>
<td>1.11 (.78–1.57)</td>
<td>1.00 (.99–1.00)</td>
<td>2.29 (.16–3.25)***</td>
</tr>
<tr>
<td>Deployment history (yes = 1)</td>
<td>0.97 (.71–1.34)</td>
<td>1.01 (.73–1.36)</td>
<td>1.01 (.73–1.39)</td>
<td>1.07 (.78–1.47)</td>
</tr>
<tr>
<td>Army service (yes = 1)</td>
<td>0.86 (.63–1.19)</td>
<td>0.75 (.57–1.06)</td>
<td>0.74 (.52–1.10)</td>
<td>1.10 (.80–1.51)</td>
</tr>
<tr>
<td>White race (yes = 1)</td>
<td>0.71 (.49–1.03)</td>
<td>0.97 (.61–1.30)</td>
<td>0.91 (.64–1.43)</td>
<td>0.87 (.59–1.28)</td>
</tr>
<tr>
<td>Harassment (yes = 1)</td>
<td>1.66 (.97–2.83)</td>
<td>1.31 (.82–2.07)</td>
<td>1.52 (.81–2.86)</td>
<td>1.30 (.84–2.01)</td>
</tr>
<tr>
<td>Assault (yes = 1)</td>
<td>6.66 (.386–11.49)***</td>
<td>3.67 (.226–5.94)***</td>
<td>3.62 (.193–6.78)***</td>
<td>2.77 (.172–4.46)***</td>
</tr>
</tbody>
</table>

Nagelkerke’s \( R^2 \) = 0.09 (.36–11.49)***
\( \chi^2 \) = 4.24 (5.22)***
\( \Delta \chi^2 \) = 1.16
\( \Delta \chi^2 \) = 80.98

Note: OR = odds ratio; CI = confidence interval; \( R^2 \) = Nagelkerke’s \( R^2 \) value; \( \chi^2 \) = model chi-square value; \( \Delta \chi^2 \) = change in chi-square value between steps; OR = change in odds ratio between steps.

\*p < .05, **p < .01, ***p < .001.

Being married was associated with probable sexual dysfunction. The addition of harassment-only and assault MST in Step 2 accounted for 8–17% of the variance, which were significant increases from Step 1 models. In each instance, assault MST, but not harassment MST, was associated with probable PTSD and depression diagnoses, suicidal ideation, and probable sexual dysfunction (see Table 3).

**Discussion**

Much of what is known about MST and its sequelae comes from VA MST screening data, which does not distinguish between harassment-only and assault MST. This lack of distinction may weaken the sensitivity of this screening measure to detect those at heightened risk for psychological distress and dysfunction. Results from the current study showed that assault MST was associated with significantly worse PTSD, depression, sexual satisfaction and function, as well as the presence of suicidal ideation. Harassment-only MST was also associated with higher PTSD severity relative to no MST, but the magnitude of the association between harassment-only MST and PTSD relative to assault MST and PTSD was substantially lower.

Given the differences in psychological outcomes in those with harassment-only and assault MST, screenings conducted for the purposes of identifying those at risk for dysfunction may be most effective if they distinguish between harassment-only and assault MST. It is possible that those who experienced MST that did not involve assault do not require referrals to mental health services, but rather information about what services to access if their distress worsens. These results should be replicated as some research suggests that harassment-only and assault screening items have some overlap in identifying traumatic experiences (e.g., Barth et al., 2016). Future studies may also look at severity of MST across both harassment-only and assault.

The current study has limitations. Data were cross-sectional and based on self-report from a convenience sample of female SM/Vs. In sum, differentiating between harassment-only and assault MST during screening may provide critical information about specific mental health care needs of treatment-seeking SM/Vs. This information may be used to help facilitate more appropriate and targeted referrals to mental health care, thus increasing the likelihood of better post-deployment outcomes in this population.

**Disclosure statement**

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**References**

of Preventive Medicine, 50(1), 77–86. doi:10.1016/j.amepre.2015.06.012


