

# Psychiatric and Interpersonal Correlates of Suicide Ideation in Military Sexual Trauma Survivors: The National Health and Resilience in Veterans Study

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## Abstract

**Background:** Veterans who experience military sexual trauma are at increased risk for experiencing suicidal ideation, suicide attempt, and suicide. Yet few studies have attempted to discern factors that relate to suicidal ideation and suicide attempts among survivors of military sexual trauma. The present study aimed to identify psychiatric and interpersonal correlates of suicidal ideation (primary aim) and suicide attempt (secondary aim) among survivors of military sexual trauma.

**Methods:** This cross-sectional analysis included 115 veterans (56 females; mean age = 53.24) who participated in the National Health and Resilience in Veterans Study and reported experiencing military sexual trauma. Self-report measures assessed psychological distress, hazardous alcohol use, social support, loneliness, social acknowledgment following one's worst trauma, suicidal ideation, and suicide attempts.

**Results:** Military sexual trauma survivors who reported more severe psychological distress (OR = 2.88), hazardous alcohol use (OR = 1.14), and perceived general disapproval from others (OR = 1.14) were significantly more likely to report experiencing suicidal ideation in the past two weeks. Hazardous alcohol use (OR = 1.19) and perceived general disapproval from others (OR = 1.36) were associated with being more likely to report attempting suicide in adulthood.

**Conclusions:** Addressing alcohol misuse, psychological distress, and perceived general disapproval from others in relation to one's worst traumatic event is recommended when assessing and managing suicide risk among veterans who have experienced military sexual trauma. Findings also contribute to a growing literature highlighting the importance of understanding perceptions of the interpersonal response to trauma. Considering the cross-sectional design, longitudinal research is needed to further elucidate the roles of these constructs in predicting suicidal ideation and suicide attempt following military sexual trauma.

## Keywords

military sexual trauma, suicidal ideation, suicide attempt, veterans, interpersonal, social acknowledgment

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## Introduction

Veterans with a history of military sexual trauma (MST), defined as sexual assault and sexual harassment during military service,<sup>1</sup> are at elevated risk for suicide.<sup>2</sup> In 2016, Kimerling et al. published the first population-based study of MST and suicide, analyzing data from over six million veterans receiving health care from the Department of Veterans Affairs (VA).<sup>2</sup> Veterans who screened positive for MST were significantly more likely to die by suicide (hazard ratio = 1.69 for males and 2.27

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for females), compared to veterans who screened negative for MST.<sup>2</sup> MST is also associated with elevated risk for experiencing both suicide attempts<sup>3–5</sup> and suicidal ideation.<sup>5,6</sup> These findings underscore the need to identify factors that are associated with suicidal ideation, suicide attempts, and suicide among this high-risk population of veterans, which is critical for developing targeted suicide prevention initiatives for survivors of MST.<sup>7</sup>

Efforts to identify factors associated with suicidal ideation and suicide attempts among veterans exposed to MST have been scarce. Gradus et al.<sup>8</sup> found that symptoms of posttraumatic stress disorder (PTSD), depression, and alcohol use mediated the association between sexual harassment during deployment and postdeployment suicidal ideation among 2,321 previously deployed post-9/11 veterans. However, this study did not report the number of individuals who experienced sexual harassment. In addition, psychiatric symptoms fully mediated the association between deployment sexual harassment and post-deployment suicidal ideation among men but not in women. Surís et al. examined whether psychiatric symptoms were associated with suicide-related cognitions, a potential proxy for suicidal ideation, among 128 veterans (89% female) entering treatment for PTSD related to MST.<sup>9</sup> When simultaneously examining PTSD and depressive symptoms, only depressive symptoms and PTSD-related hyperarousal symptoms were associated with suicide-related cognitions. More recently, Monteith et al. examined correlates of suicidal ideation among 92 female MST survivors in trauma-focused treatment. Perceived burdensomeness, fearlessness about death, and thwarted belongingness were associated with suicidal ideation, adjusting for prior suicide attempt and symptoms of depression and PTSD, although thwarted belongingness was not significant in the fully adjusted models.<sup>10</sup> Finally, in a recent study of 255 female veterans in monogamous relationships (153 of whom reported experiencing MST), sexual satisfaction mediated the association between MST and suicidal ideation; in addition, sexual function was associated with suicidal ideation only in female veterans who reported experiencing MST (as opposed to non-sexual trauma).<sup>11</sup> The authors attributed this to the potential impact of sexual trauma on both sexual functioning and romantic relationships.

These studies are important in beginning to identify correlates of suicidal ideation in veterans exposed to MST. However, considering gaps in the extant research, additional research is necessary to determine whether interpersonal outcomes are associated with suicidal ideation and suicide attempts in this population. Prior research has demonstrated that MST is associated with lower social support, decreased social functioning, familial dissatisfaction, and difficulties with intimate relationships and social readjustment.<sup>12–15</sup> Moreover, interpersonal processes have been implicated in suicidal

ideation in other samples—as both risk and protective factors. For example, loneliness is associated with suicidal ideation,<sup>16</sup> whereas social support is inversely associated with suicidal ideation.<sup>17</sup> Nonetheless, with rare exceptions,<sup>18,19</sup> studies on correlates of suicidal ideation and suicide attempt among veterans who have experienced MST have rarely focused on interpersonal outcomes. Consequently, the role of these interpersonal factors in relation to suicidal ideation and suicide attempt among survivors of MST remains largely unknown.

In addition to examining general interpersonal processes that are not necessarily specific to a traumatic event, examining trauma-specific interpersonal processes which may occur after experiencing a traumatic event is warranted. Many service members and veterans report experiencing negative interpersonal responses, such as blaming, ostracism, or retaliation, from individuals and institutions after experiencing sexual trauma.<sup>20–23</sup> In a recent pilot study with 49 survivors of MST, perceptions of an unsupportive institutional response to MST were associated with increased odds of attempting suicide.<sup>19</sup> Although based on a small sample, such results suggest that perceptions of the social response to trauma may be important for understanding subsequent suicide attempts. Indeed, in research with female sexual assault survivors, those who received support and information were less likely to report experiencing suicidal ideation.<sup>23</sup> Moreover, social processes following trauma exposure—specifically, social acknowledgment, general disapproval, and family disapproval—have been found to be associated with PTSD symptoms.<sup>24</sup> Of note, perceptions of social acknowledgment following a traumatic event explained additional variance in posttraumatic outcomes above and beyond a traditional measure of social support.<sup>24</sup> This underscores the utility of examining trauma-specific interpersonal processes, such as social acknowledgment, in suicidal ideation and suicide attempt—an area yet to be examined.

Finally, knowledge of factors that are associated with suicidal ideation and suicide attempts among MST survivors remains limited due to the fact that such research has tended to focus on suicidal ideation (rather than suicide attempts) while also examining samples of previously deployed veterans who served post-9/11<sup>8</sup> or veterans initiating VA mental health treatment.<sup>9,10</sup> Research on correlates of suicide attempt among MST survivors has been virtually non-existent, with few exceptions.<sup>18,19</sup> This is an important gap in knowledge, as suicidal ideation and suicide attempts are conceptually and theoretically distinct,<sup>25–30</sup> and only a minority of individuals with suicidal ideation subsequently attempt suicide.<sup>31</sup> In addition, the focus of prior research on MST survivors who are treatment-seeking or who previously deployed limits understanding of the extent to which findings apply to other veteran cohorts, such as veterans who served in a

broader range of service eras. Many MST survivors do not seek VA mental health treatment,<sup>32</sup> and suicide rates have increased particularly rapidly among veterans who are not using VA health care.<sup>33</sup> As such, identifying correlates of suicidal ideation and suicide attempt in a non-treatment seeking sample of MST survivors is critical.

The present study sought to identify psychiatric and interpersonal correlates of suicidal ideation (primary aim) and suicide attempt (secondary aim) among veterans with a history of MST drawn from a nationally representative sample of veterans. We hypothesized that psychiatric variables (i.e., psychological distress and alcohol use) and interpersonal variables (i.e., social support, loneliness, and different types of social acknowledgment of trauma) would be associated with suicidal ideation and suicide attempt. Specifically, we hypothesized that psychological distress, alcohol use, loneliness, family disapproval, and general disapproval would be positively associated with suicidal ideation and suicide attempt, whereas social support and recognition as a victim following trauma would be negatively associated with suicidal ideation and suicide attempt.

## Methods

### Participants

The present study was a secondary analysis of data obtained from the National Health and Resilience in Veterans Study (NHRVS).<sup>5</sup> Our sample included 115 veterans (56 females and 59 males) who screened positive for MST when participating in the NHRVS in 2013. Consistent with screening procedures for MST within VA health care settings, participants were asked two questions regarding their history of MST, which have demonstrated specificity and sensitivity<sup>34</sup> previously: “While you were in the military... (1) did you receive uninvited and unwanted sexual attention, such as touching, cornering, pressure for sexual favors, or sexual remarks? and (2) did anyone ever use force or threat of force to have sexual contact with you against your will?” A positive screen was operationalized as an affirmative response to either question. All participants provided informed consent to participate in the NHRVS, which was approved by the Human Subjects Subcommittee of the VA Connecticut Healthcare System.

### Measures

**Medical Outcomes Study (MOS) Modified Social Support Survey-5 Item Version (MSSS-5).** The MOS MSSS-5 is a five-item measure of perceived social support.<sup>35,36</sup> Respondents indicated how often each type of support was available to them if they needed it (e.g., “someone to confide in or talk to about your problems”). Each item is rated on a 5-

point scale, ranging from 1 (“none of the time”) to 5 (“all of the time”). Total scores can range from 5 to 25, with higher scores indicating more perceived social support. This measure had high internal reliability within our sample ( $\alpha = .87$ ).

**Three-Item Loneliness Scale.** This measure,<sup>37</sup> adapted from the Revised University of California, Los Angeles Loneliness Scale,<sup>38</sup> assesses loneliness with three items (e.g., “How often do you feel left out?”). Items are rated on a 3-point scale, with responses ranging from 0 (“hardly ever”) to 3 (“often”). Higher scores indicate more loneliness, with a possible total score ranging from 0 to 9. This measure has demonstrated adequate internal reliability and convergent and discriminant validity,<sup>37</sup> with acceptable internal reliability in our sample ( $\alpha = .84$ ).

**Social Acknowledgment Questionnaire.** The Social Acknowledgment Questionnaire (SAQ)<sup>24</sup> assesses perceived social acknowledgment as a victim of trauma, with three scales that assess perceptions of different types of social acknowledgment following a traumatic experience. These include recognition as a victim (six items; e.g., “Many people offered their help in the first few days after the incident”); general disapproval (five items; e.g., “Most people cannot understand what I went through,” “There is not enough sympathy for what happened to me”); and family disapproval (five items; e.g., “My family finds my reaction to the incident to be exaggerated”). Participants were instructed to think about their worst stressful experience (not necessarily MST) and then rate the extent to which they agreed with 16 different statements, using a scale ranging from 0 (strongly disagree) to 5 (strongly agree). High scores indicate higher perceptions of social acknowledgment, general disapproval, and family disapproval. The SAQ has demonstrated acceptable internal reliability, convergent validity, and a three-factor structure.<sup>24</sup> The SAQ scales had adequate internal reliability in our sample:  $\alpha = .79$  (recognition as a victim),  $\alpha = .88$  (general disapproval), and  $\alpha = .66$  (family disapproval).

**Patient Health Questionnaire-4.** The Patient Health Questionnaire-4 (PHQ-4)<sup>39</sup> was originally developed to assess for symptoms of depression and generalized anxiety within the past two weeks, with four items (two for depression; two for generalized anxiety) rated on a 0 (Not at all) to 3 (Nearly every day) scale and summed. Both scales have acceptable sensitivity and specificity.<sup>40,41</sup> The PHQ-4 can also be used to assess recent psychological distress,<sup>42</sup> which reflected its use in the present study. The PHQ-4 psychological distress factor demonstrated high internal reliability as a composite score of psychological distress ( $\alpha = .85$ ).

**Alcohol Use Disorders Identification Test.** The Alcohol Use Disorders Identification Test (AUDIT)<sup>43</sup> assesses hazardous alcohol use with 10 items, with a total score ranging from 0 to 40. The AUDIT has demonstrated acceptable sensitivity and specificity for detecting alcohol use disorders<sup>43</sup> and had high internal reliability in the current sample ( $\alpha = .90$ ).

**Trauma History Screen.** The Trauma History Screen (THS)<sup>44</sup> assesses lifetime trauma exposure with 15 items (yes/no). Respondents indicate whether they have been exposed to any potentially traumatic events during their lifetime. Those who endorsed one or more events indicated which event was the “worst” for them (i.e., their most distressing event). The THS was used to assess degree of lifetime trauma exposure (sum of number of traumatic events experienced). The THS has demonstrated acceptable reliability and validity.<sup>44</sup>

**Patient Health Questionnaire-9 Suicidal Ideation Items.** Suicidal ideation was assessed using a slightly revised version of the Patient Health Questionnaire-9 (PHQ-9) suicidal ideation question.<sup>45</sup> Participants were asked if, in the past two weeks, they had been bothered by: (1) thoughts that they would be better off dead (2) or thoughts of hurting themselves in some way. Suicidal ideation was operationalized as scores of 1 (“several days”) or higher (“more than half the days”; “nearly every day”) on either question and was analyzed as a dichotomous variable (presence/absence of suicidal ideation). Despite the brevity of this method, the PHQ-9 suicidal ideation item is associated with suicide attempt and death by suicide.<sup>46,47</sup>

**Suicide Attempt Item.** Participants were also asked “Have you ever tried to kill yourself?” (yes/no). Those who reported a prior suicide attempt were asked how many times they had attempted suicide and their age at their last suicide attempt. For the present study, we were interested in examining suicide attempts that occurred in adulthood (age 18 or later). Thus, analyses with suicide attempts examined the presence/absence of suicide attempts occurring in adulthood.

### Analysis Plan

Analyses were conducted with IBM SPSS Statistics 23. Means and standard deviations, in addition to each  $n$  and percentage, were calculated to characterize the sample. Post-stratification weights based on demographic distributions from the most contemporaneous U.S. Census Bureau Current Population Survey<sup>48</sup> were applied to facilitate generalizability of results to the U.S. veteran population; results reflect each unweighted  $n$  and weighted statistical analyses and percentages. Multiple imputation was used to handle item-level missing data, with 20

imputed datasets. Missing data were minimal for most variables; two participants did not complete any SAQ items and therefore their SAQ data were not imputed. When possible, analyses are reported for the full sample of 115 veterans with a history of MST. Analyses regarding suicide attempt excluded three participants who did not provide sufficient information to determine whether they had experienced a suicide attempt, and an additional four participants were excluded from the suicide attempt analyses because their most recent suicide attempt occurred prior to their military service (i.e., before age 18).

The sample size required limiting the number of variables in each model. To determine inclusion of covariates and variables of interest in the regression models, only variables that were significantly associated with suicidal ideation and suicide attempt in bivariate analyses ( $p \leq .05$ ) were included. Potential covariates included age, sex, race/ethnicity (0 = White; 1 = other), branch of the military (1 = Navy; 0 = other), and lifetime trauma exposure. Psychiatric variables included psychological distress and alcohol use. Interpersonal variables included social support, loneliness, family disapproval, general disapproval, and recognition as a victim. To examine our primary aim of identifying psychiatric and interpersonal variables that were associated with suicidal ideation, we conducted a binary logistic regression with suicidal ideation as our outcome. To examine our secondary aim, a binary logistic regression included suicide attempt in adulthood as the outcome.

## Results

### Sample Characteristics

As described in Table 1, participants tended to identify as middle aged. Weighted percentages and unweighted frequencies are reported. Participants identified as White ( $n = 82$ ; 63.4%), Black ( $n = 9$ ; 10.2%), Hispanic ( $n = 13$ ; 14.1%), or Other ( $n = 11$ ; 12.3%). Branch of service included the Army ( $n = 37$ ; 25.8%), Navy ( $n = 35$ ; 39.9%),<sup>a</sup> Air Force ( $n = 26$ ; 23.1%), Marines ( $n = 10$ ; 5.9%), or other ( $n = 7$ ; 5.3%). In total, 30.2% ( $n = 25$ ) of participants reported experiencing recent suicidal ideation, and 20.7% reported making a suicide attempt at age 18 or later ( $n = 17$ ). For participants reporting a suicide attempt in adulthood, the mean age for their most recent suicide attempt was 39.2 years ( $SD = 10.2$ ; median = 40). Nearly all participants reported experiencing military sexual harassment ( $n = 112$ ; 97.2%). A smaller proportion reported a history of military sexual assault ( $n = 34$ ; 31.9%).

### Between-Group Differences

**Suicidal Ideation.** Table 1 depicts means, standard deviations, and between-group differences for measures of

**Table 1.** Sample characteristics and between-group differences based on suicidal ideation and suicide attempt.

	Mean (SD) or n (%)	Group differences for SI	Group differences for SA <sup>a</sup>
Age	53.24 (15.11)	$t = 5.32; p < .001$	$t = 1.50; p = .13$
Sex (% male)	59 (57.1%)	$\chi^2(1) = .03; p = .87$	$\chi^2(1) = 1.22; p = .27$
Race/ethnicity (% White)	82 (63.4%)	$\chi^2(1) = 11.97; p < .001$	$\chi^2(1) = 7.55; p = .056$
Branch (% Navy)	35 (39.9%)	$\chi^2(1) = 9.16; p = .02$	$\chi^2(1) = 2.09; p = .72$
Lifetime trauma exposure (THS)	5.23 (3.71)	$t = 2.72; p < .01$	$t = -4.07; p < .001$
Psychological distress factor (PHQ-4)	00 (1.00)	$t = -6.06; p < .001$	$t = -5.01; p < .001$
Hazardous alcohol use (AUDIT)	4.28 (6.56)	$t = -2.59; p = .01$	$t = -3.20; p = .001$
Social support (MSSS)	16.61 (5.88)	$t = 3.43; p = .001$	$t = 2.84; p = .005$
Loneliness (Three-item Loneliness Scale)	5.52 (2.37)	$t = -2.79; p < .01$	$t = -4.00; p < .001$
General disapproval (SAQ)	11.17 (7.70)	$t = -6.04; p < .001$	$t = -7.77; p < .001$
Recognition as victim (SAQ)	11.24 (6.87)	$t = .28; p = .78$	$t = 0.95; p = .35$
Family disapproval (SAQ)	11.77 (5.53)	$t = -1.09; p = .28$	$t = -1.52; p = .13$

Note: Means and standard deviations are reported, unless otherwise noted. Percentages were weighted, and frequencies were unweighted. Results are from pooled analyses; t-scores based on pooled analyses and results shown are not assuming equal variances. SI: suicidal ideation; SA: suicide attempt; THS: Trauma History Screen; PHQ-4: Patient Health Questionnaire-4; AUDIT: Alcohol Use Disorders Identification Test; MSSS: Three-Item Loneliness Scale; SAQ: Social Acknowledgement Questionnaire.

<sup>a</sup>Analyses involving suicide attempt (i.e., those occurring at  $\geq 18$  years of age) were conducted with 108 participants due to missing data and exclusion of individuals with childhood suicide attempts only.

**Table 2.** Examining psychiatric and interpersonal predictors of suicidal ideation among survivors of military sexual trauma.

	B	SE	OR	95% CI	p
<b>Age</b>	<b>-0.94</b>	<b>0.03</b>	<b>0.91</b>	<b>[0.86, 0.96]</b>	<b>.001</b>
Race/ethnicity <sup>a</sup>	-0.80	0.75	0.45	[0.10, 1.93]	.28
Military branch <sup>b</sup>	1.15	0.68	3.16	[0.83, 12.06]	.09
Lifetime trauma exposure (THS)	-0.05	0.12	0.95	[0.74, 1.21]	.67
<b>Psychological distress (PHQ-4)</b>	<b>1.06</b>	<b>0.50</b>	<b>2.88</b>	<b>[1.08, 7.70]</b>	<b>.04</b>
<b>Alcohol use (AUDIT)</b>	<b>0.13</b>	<b>0.06</b>	<b>1.14</b>	<b>[1.01, 1.29]</b>	<b>.03</b>
Social support (MSSS)	0.01	0.12	1.01	[0.88, 1.18]	.85
Loneliness (Three-item Loneliness Scale)	-0.32	0.22	0.73	[0.48, 1.11]	.14
<b>General Disapproval (SAQ)</b>	<b>0.14</b>	<b>0.07</b>	<b>1.14</b>	<b>[1.00, 1.31]</b>	<b>.050</b>

Note: Significant variables are indicated in bold. OR: odds ratio; CI: confidence interval; THS: Trauma History Screen; PHQ-4: Patient Health Questionnaire-4; AUDIT: Alcohol Use Disorders Identification Test; MSSS: Medical Outcomes Study Modified Social Support Survey-5 item version; Three-Item Loneliness Scale; SAQ: Social Acknowledgement Questionnaire.

<sup>a</sup>Analyzed as White vs. other.

<sup>b</sup>Analyzed as Navy vs. other.

interest. There were significant between-group differences for suicidal ideation regarding age, race/ethnicity, branch, lifetime trauma exposure, psychological distress, hazardous alcohol use, social support, loneliness, and general disapproval. There were no significant between-group differences in suicidal ideation based on sex, perceived recognition as a victim, or perceived family disapproval.

**Suicide Attempt.** Significant between-group differences were observed for MST survivors with and without a suicide attempt regarding lifetime trauma exposure, psychological

distress, hazardous alcohol use, social support, loneliness, and general disapproval (Table 1). There were no significant between-group differences for sex, age, race/ethnicity, branch, recognition as a victim, or family disapproval, based on the presence/absence of suicide attempt.

**Examining Factors Associated With Suicidal Ideation (Primary Aim)**

The logistic regression (Table 2) examining predictors of suicidal ideation was significant,  $\chi^2(9) = 61.92, p < .001$ .

Psychological distress, alcohol use, general disapproval, and age were significantly associated with suicidal ideation. In contrast, neither social support nor loneliness were significantly associated with suicidal ideation.

### Examining Factors Associated With Suicide Attempt (Secondary Aim)

The logistic regression (Table 3) examining predictors of suicide attempt was significant,  $\chi^2(6) = 45.57$ ,  $p < .001$ . Only alcohol use and general disapproval were significantly associated with suicide attempt. Social support, loneliness, and psychological distress were not significantly associated with suicide attempt.

## Discussion

MST is associated with numerous deleterious psychiatric and interpersonal outcomes.<sup>3,5,12-15</sup> Determining the extent to which such experiences relate to suicidal ideation and suicide attempts is essential for developing targeted suicide prevention efforts for veterans who have experienced MST. Within the current sample, only current psychological distress, hazardous alcohol use, and perceptions of general disapproval from others following one's worst traumatic event were associated with suicidal ideation when accounting for age, branch, race/ethnicity, and lifetime trauma exposure. However, an important caveat to consider is that participants' responses to the SAQ were in response to their worst traumatic experience, which may not have been MST. When examining factors associated with suicide attempt, perceived general disapproval from others and hazardous alcohol use were the only variables that were significantly associated with suicide attempt. As such, efforts to understand factors that are associated with suicidal ideation and suicide attempt among MST survivors may be strengthened by considering both psychiatric variables (e.g., hazardous alcohol use) as well as perceptions and experiences of

the social response to trauma (i.e., general disapproval from others).

The present study examined general interpersonal processes associated with suicidal ideation in other samples (i.e., loneliness and social support),<sup>16,17</sup> in addition to perceptions of trauma-specific interpersonal processes previously unexamined in relation to suicidal ideation or suicide attempts (i.e., social acknowledgment, general disapproval, and family disapproval). In the present sample, loneliness and social support were associated with suicidal ideation and suicide attempts in unadjusted analyses but were not associated with suicidal ideation or suicide attempts in the adjusted analyses. The only interpersonal variable that was associated with suicidal ideation or suicide attempts in the adjusted analyses was perceived general disapproval from others following trauma exposure: MST survivors who reported more perceived general disapproval from others in response to their worst trauma were significantly more likely to report experiencing recent suicidal ideation, in addition to a suicide attempt in adulthood. This suggests that perceptions of trauma-specific interpersonal processes (i.e., general disapproval from others) may be more closely related to recent suicidal ideation and suicide attempts in adulthood among survivors of MST, compared to general interpersonal processes that are not necessarily specific to a traumatic event (e.g., loneliness and social support). However, as mentioned previously, participants' responses to the SAQ were in relation to their worst traumatic experience, which may not have been MST. Thus, additional research is needed to further elucidate the role of the social response to MST specifically in relation to subsequent suicidal ideation and suicide attempts.

The other trauma-specific interpersonal processes that were examined—perceived recognition as a victim and family disapproval—were not associated with suicidal ideation or suicide attempt in unadjusted or adjusted analyses. This is somewhat consistent with research

**Table 3.** Examining psychiatric and interpersonal predictors of suicide attempt among survivors of military sexual trauma.

	B	SE	OR	95% CI	<i>p</i>
Lifetime trauma exposure (THS)	−0.25	0.16	0.78	[0.57, 1.07]	.12
Psychological distress (PHQ-4)	0.53	0.46	1.70	[0.69, 4.18]	.25
<b>Alcohol use (AUDIT)</b>	<b>0.17</b>	<b>0.07</b>	<b>1.19</b>	<b>[1.03, 1.37]</b>	<b>.02</b>
Social support (MSSS)	0.04	0.08	1.04	[0.89, 1.20]	.65
Loneliness (Three-Item Loneliness Scale)	−0.07	0.21	0.93	[0.62, 1.40]	.74
<b>General disapproval (SAQ)</b>	<b>0.31</b>	<b>0.11</b>	<b>1.36</b>	<b>[1.09, 1.71]</b>	<b>.007</b>

Note: Significant variables are indicated in bold. OR: odds ratio; CI: Confidence interval; THS: Trauma History Screen; PHQ-4: Patient Health Questionnaire-4; AUDIT: Alcohol Use Disorders Identification Test; MSSS: Medical Outcomes Study Modified Social Support Survey-5 item version; Three-Item Loneliness Scale; SAQ: Social Acknowledgement Questionnaire.

conducted with other trauma-exposed samples, in which general disapproval from others was the only type of social acknowledgment that predicted posttraumatic outcomes.<sup>49,50</sup> Together, these findings provide preliminary support that perceived general disapproval from others following one's worst traumatic event may be particularly deleterious and extends such findings to understanding suicidal ideation and suicide attempt among veterans who have experienced MST. One potential explanation for our finding regarding general disapproval from others is that veterans who feel misunderstood and disapproved of by others in the aftermath of a traumatic event feel such a strong sense of alienation and burdensomeness that they contemplate suicide.<sup>27</sup> The impact of this may be exacerbated within the military culture context, where unit cohesion is particularly important.<sup>51</sup> A recent study with female MST survivors in trauma-focused treatment found that perceived burdensomeness, thwarted belongingness, and fearlessness about death were associated with suicidal ideation.<sup>10</sup> Research examining the association between social responses to trauma with perceived burdensomeness and thwarted belongingness is thus recommended. Furthermore, exploring the source of the perceived general disapproval (e.g., other service members, unit leaders, and civilians) would be valuable. Another possibility that could be tested in subsequent research is that MST survivors who feel unsupported after their worst traumatic experience may be less likely to seek mental health care, which in turn may decrease prospects for addressing drivers of their suicidal ideation or to engage in interventions to cope with suicidal thoughts.

In addition to underscoring the necessity of discerning interpersonal responses to trauma, our findings also extend prior research on the role of psychiatric variables in suicidal ideation and suicide attempts.<sup>8,9</sup> Psychological distress (a composite consisting of depressive symptoms and generalized anxiety) was associated with recent suicidal ideation, while hazardous alcohol use was associated with both suicidal ideation and suicide attempts. Indeed, prior research has reported that alcohol use disorder is associated with elevated risk for suicidal ideation and suicide attempts;<sup>52</sup> our findings suggest that this also applies to veterans who have experienced MST. These results are particularly important when considering that MST is associated with a two-fold increase in being diagnosed with an alcohol use disorder.<sup>3</sup> Assessment and treatment of psychological distress and hazardous drinking among veterans who have experienced MST may have important implications for managing suicide risk.

### *Clinical Implications*

These findings suggest that in-depth suicide risk assessment among veterans who have experienced MST may be enhanced by querying both psychiatric and interpersonal

factors. Specific recommendations include assessing alcohol use, beliefs regarding how others have viewed them since their worst traumatic experience, and current psychological distress. Providing screening and intervention for hazardous alcohol use may be particularly important for addressing suicidal ideation among veterans who have experienced MST. In addition, although helping clients to reduce and manage current psychological distress is often prioritized in clinical care, our results suggest that addressing perceptions of general disapproval from others may also be an important component of addressing suicidal ideation among survivors of MST. Many individuals who disclose their experiences of MST to others have experienced secondary victimization, such as being blamed, misdiagnosed, discouraged from pursuing legal or criminal action, or suffering severe career repercussions.<sup>20,22,53</sup> As a result, individuals may be hesitant to disclose their experiences of MST or to seek treatment related to such experiences. Fostering a safe, non-judgmental environment for sexual trauma survivors to discuss such experiences is essential. In addition, helping survivors of MST to obtain the understanding and support they need from others to cope with what they have experienced is highly recommended.

### *Limitations*

Although this sample was drawn from a large sample exceeding 2,000 veterans, the number of veterans who reported experiencing MST was much smaller, resulting in small cell sizes for some analyses and precluding sex-stratified analyses. The overall sample size for current analyses was likely low due to low overall base rates of MST, suicidal ideation, and suicide attempt, and it is possible that regression models were consequently underpowered. Therefore, further examination of these findings in a larger sample may be warranted to determine if other variables examined herein (e.g., loneliness, social support, family disapproval, and recognition as a victim) are associated with suicidal ideation and suicide attempt among MST survivors. Our cross-sectional analysis also precludes statements regarding causality or temporal precedence. Although our measurement of suicide attempt was specific to suicide attempts occurring in adulthood, it is possible that some participants' suicide attempts preceded their experiences of MST. We examined our secondary aim regarding suicide attempts bearing in mind the absence of such research previously and the urgent need to begin to address this. Further research is needed to understand if suicidal ideation and suicide attempts precede the experience of MST (e.g., occurring in adulthood but prior to military service) and may be related to other stressful or traumatic experiences. Alternately, for suicidal ideation and attempts that occur following MST, understanding more about the times in which individuals

are most vulnerable to experiencing suicidal ideation and attempts is essential for determining periods of elevated risk and intervening appropriately.

Another limitation is that we relied upon self-reports, rather than interviews or other data sources (e.g., historical records) as a means of augmenting our data. Participants' self-reports regarding the interpersonal response to their most distressing experience were based on their recollection and perceptions of such experiences. Retrospective reports may be subject to recall bias and may differ from data obtained through alternate means (e.g., historical records, live observation, or interviewing others). In addition, participants were instructed to consider their "worst stressful experience" when completing the SAQ; consequently, their responses were not necessarily specific to MST, as many participants reported other types of events as their most distressing event. Relatedly, PTSD symptoms were not examined in our analyses, since the VA definition of MST encompasses both sexual harassment and sexual assault. Thus, not all types of MST necessarily meet diagnostic criteria for trauma according to Criterion A.<sup>54</sup> However, in a prior study of veterans with MST-related PTSD, overall PTSD symptoms were not associated with suicidal ideation when accounting for depressive symptoms.<sup>9</sup>

### Future Research

Given the paucity of research examining correlates of suicidal ideation or suicide attempt among survivors of MST, additional research with larger samples is needed to identify determinants of suicidal ideation and suicide attempts among veterans with MST histories. We examined psychiatric and interpersonal correlates of suicidal ideation and suicide attempts; however, identifying additional processes which relate to MST survivors' experiences of suicidal ideation and suicide attempts is critical. Such efforts would be further strengthened by utilizing a prospective design and conducting analyses stratified by gender. Furthermore, MST has been relatively understudied in men, and prior research has obtained evidence of gender differences in the association between MST and suicidal ideation.<sup>6</sup> In addition, recent findings suggest that MST survivors who identify as a sexual and/or gender minority are more likely to report a history of suicide attempt than non-gender/sexual minority MST survivors.<sup>55</sup> As such, it will be important for future research to extrapolate the role of gender and to consider a non-gender binary lens, as well as sexual orientation, in these associations. Moreover, understanding more about veterans' experiences disclosing their worst traumatic events and the actual responses to such disclosures is essential. Future studies could examine social acknowledgment in relation to MST specifically while also examining whether general disapproval from others is uniquely

associated with suicidal ideation for survivors of MST or if it also extends to veterans who have experienced other types of trauma. Finally, although social support was not associated with current suicidal ideation or suicide attempts in adulthood when accounting for other variables, social support that is more proximal to the MST itself may be important to examine in relation to veterans' experiences of suicidal ideation or suicide attempts following MST.

### Conclusion

Both interpersonal and psychiatric variables appear to be relevant to understanding MST survivors' experiences of suicidal ideation and suicide attempts, underscoring the importance of assessing both of these domains when assessing and managing suicide risk among survivors of MST. Considering that MST survivors who felt more misunderstood and unsupported by others following their worst trauma were more likely to report suicidal ideation and suicide attempts in the current sample, determining effective ways to help trauma survivors feel understood and supported is essential. Such efforts may require broader societal change in terms of understanding trauma and its sequelae. Preventing and treating hazardous alcohol use is also recommended for survivors of MST. Our results suggest that efforts to increase support and understanding for survivors of MST, while also addressing alcohol misuse, may be relevant to strengthening suicide prevention efforts among Veterans who have experienced MST.

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## Note

- a. Navy was selected as the reference category due to having the highest weighted percentage in our sample.

## References

1. *Veterans' Benefits: Counseling and Treatment for Sexual Trauma*, 38 USC §1720D. <https://www.gpo.gov/fdsys/pkg/USCODE-2014-title38/pdf/USCODE-2014-title38-partII-chap17-subchapII-sec1720D.pdf>. Published 2014. Accessed September 12, 2018.
2. Kimerling R, Makin-Byrd K, Louzon S, et al. Military sexual trauma and suicide mortality. *Am J Prev Med* 2016; 50: 684–691.
3. Kimerling R, Gima K, Smith MW, et al. The Veterans Health Administration and military sexual trauma. *Am J Public Health* 2007; 97: 2160–2166.
4. Pavao J, Turchik JA, Hyun JH, et al. Military sexual trauma among homeless veterans. *J Gen Intern Med* 2013; 28: 536–541.
5. Klingensmith K, Tsai J, Mota N, et al. Military sexual trauma in US veterans: results from the National Health and Resilience in Veterans Study. *J Clin Psychiatry* 2014; 75: e1133–e1139.
6. Monteith LL, Bahraini NH, Matarazzo BB, et al. The influence of gender on suicidal ideation following military sexual trauma among veterans in the Veterans Health Administration. *Psychiatry Res* 2016; 244: 257–265.
7. World Health Organization. Public health action for the prevention of suicide: a framework. [http://apps.who.int/iris/bitstream/10665/75166/1/9789241503570\\_eng.pdf?ua%EF%BC%9D1](http://apps.who.int/iris/bitstream/10665/75166/1/9789241503570_eng.pdf?ua%EF%BC%9D1). Published 2012. Accessed September 12, 2018.
8. Gradus JL, Street AE, Suvak MK, et al. Predictors of suicidal ideation in a gender-stratified sample of OEF/OIF Veterans. *Suicide Life Threat Behav* 2013; 43: 574–588.
9. Suris A, Link-Malcolm J, North CS. Predictors of suicidal ideation in veterans with PTSD related to military sexual trauma. *J Trauma Stress* 2011; 24: 605–608.
10. Monteith LL, Bahraini NH, Menefee DS. Perceived burdensomeness, thwarted belongingness, and fearlessness about death: Associations with suicidal ideation among female veterans exposed to military sexual trauma. *J Clin Psychol* 2017; 73: 1655–1669.
11. DiMauro J, Renshaw KD, Blais RK. Sexual vs. Non-sexual trauma, sexual satisfaction and function, and mental health in female veterans. *J Trauma Dissociation* 2018; 19: 403–416.
12. Katz LS, Cojucar G, Beheshti S, et al. Military sexual trauma during deployment to Iraq and Afghanistan: Prevalence, readjustment, and gender differences. *Violence Vict* 2012; 27: 487–499.
13. Mondragon SA, Wang D, Pritchett L, et al. The influence of military sexual trauma on returning OEF/OIF male veterans. *Psychol Serv* 2015; 12: 402–411.
14. Sadler AG, Booth BM, Nielson D, et al. Health-related consequences of physical and sexual violence: Women in the military. *Obstet Gynecol* 2000; 96: 473–480.
15. Suris A, Lind L, Kashner TM, et al. Mental health, quality of life, and health functioning in women veterans: Differential outcomes associated with military and civilian sexual assault. *J Interpers Violence* 2007; 22: 179–197.
16. Lamis DA, Ballard ED, Patel AB. Loneliness and suicidal ideation in drug-using college students. *Suicide Life Threat Behav* 2014; 44: 629–640.
17. Pietrzak RH, Goldstein MB, Malley JC, et al. Risk and protective factors associated with suicidal ideation in veterans of Operations Enduring Freedom and Iraqi Freedom. *J Affect Disord* 2010; 123: 102–107.
18. Griffith J. The sexual harassment–suicide connection in the US military: Contextual effects of hostile work environment and trusted unit leaders [published online ahead of print October 3, 2017]. *Suicide Life Threat Behav*, doi:10.1111/sltb.12401.
19. Monteith LL, Bahraini NB, Matarazzo BB, et al. Perceptions of institutional betrayal predict suicidal self-directed violence among veterans exposed to military sexual trauma. *J Clin Psychol* 2016; 72: 743–755.
20. Burns B, Grindlay K, Holt K, et al. Military sexual trauma among US servicewomen during deployment: A qualitative study. *Am J Public Health* 2014; 104: 345–349.
21. Monteith LL, Gerber HR, Brownstone LM, et al. The phenomenology of military sexual trauma among male veterans [published online ahead of print April 23, 2018]. *Psychol Men Masc*, doi:10.1037/men0000153.
22. Campbell R, Raja S. The sexual assault and secondary victimization of female veterans: help-seeking experiences with military and civilian social systems. *Psychol Women Q* 2005; 29: 97–106.
23. Ullman SE, Najdowski CJ. Correlates of serious suicidal ideation and attempts in female adult sexual assault survivors. *Suicide Life Threat Behav* 2009; 39: 47–57.
24. Maercker A, Müller J. Social acknowledgment as a victim or survivor: A scale to measure a recovery factor of PTSD. *J Trauma Stress* 2004; 17: 345–351.
25. May AM, Klonsky ED. What distinguishes suicide attempters from suicide ideators? A meta-analysis of potential factors. *Clin Psychol Sci Pract* 2016; 23: 5–20.
26. Klonsky ED, May AM, Saffer BY. Suicide, suicide attempts, and suicidal ideation. *Annu Rev Clin Psychol* 2016; 12: 307–330.
27. Joiner T. *Why People Die by Suicide*, 1st ed. Cambridge, MA: Harvard University Press, 2007.
28. May AM, Klonsky ED. What distinguishes suicide attempters from suicide ideators? A meta-analysis of potential factors. *Clin Psychol Sci Pract* 2016; 23: 5–20.
29. Klonsky ED, May AM, Saffer BY. Suicide, suicide attempts, and suicidal ideation. *Annu Rev Clin Psychol* 2016; 12: 307–330.
30. Klonsky ED, May AM. The three-step theory (3ST): A new theory of suicide rooted in the “ideation-to-action” framework. *Int J Cogn Ther* 2015; 8: 114–129.
31. Glenn CR, Nock MK. Improving the short-term prediction of suicidal behavior. *Am J Prev Med* 2014; 47: S176–S180.

32. Zinzow HM, Grubaugh AL, Frueh BC, et al. Sexual assault, mental health, and service use among male and female veterans seen in Veterans Affairs primary care clinics: a multi-site study. *Psychiatry Res* 2008; 159: 226–236.
33. Department of Veterans Affairs. VA National Suicide Data Report: 2005–2015. [https://www.mentalhealth.va.gov/docs/data-sheets/OMHSP\\_National\\_Suicide\\_Data\\_Report\\_2005-2015\\_06-14-18\\_508-compliant.pdf](https://www.mentalhealth.va.gov/docs/data-sheets/OMHSP_National_Suicide_Data_Report_2005-2015_06-14-18_508-compliant.pdf). Published 2018. Accessed September 12, 2018.
34. McIntyre LM, Butterfield MI, Nanda K, et al. Validation of a trauma questionnaire in veteran women. *J Gen Intern Med* 1999; 14: 186–189.
35. Ren XS, Skinner K, Lee A, et al. Social support, social selection and self-assessed health status: results from the Veterans Health Study in the United States. *Soc Sci Med* 1999; 48: 1721–1734.
36. Sherbourne CD, Stewart AL. The MOS social support survey. *Soc Sci Med* 1991; 32: 705–714.
37. Hughes ME, Waite LJ, Hawkey LC, et al. A short scale for measuring loneliness in large surveys: Results from two population-based studies. *Res Aging* 2004; 26: 655–672.
38. Russell D, Peplau LA, Cutrona CE. The Revised UCLA Loneliness Scale: concurrent and discriminant validity evidence. *J Pers Soc Psychol* 1980; 39: 472–480.
39. Kroenke K, Spitzer RL, Williams JB, et al. An ultra-brief screening scale for anxiety and depression: The PHQ-4. *Psychosomatics* 2009; 50: 613–621.
40. Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: validity of a two-item depression screener. *Med Care* 2003; 41: 1284–1292.
41. Kroenke K, Spitzer RL, Williams JB, et al. Anxiety disorders in primary care: Prevalence, impairment, comorbidity, and detection. *Ann Intern Med* 2007; 146: 317–325.
42. Pietrzak RH, Cook JM. Psychological resilience in older US veterans: results from the National Health and Resilience in Veterans Study. *Depress Anxiety* 2013; 30: 432–443.
43. Saunders JB, Aasland OG, Babor TF, et al. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction* 1993; 88: 791–804.
44. Carlson EB, Smith SR, Palmieri PA, et al. Development and validation of a brief self-report measure of trauma exposure: the trauma history screen. *Psychol Assess* 2011; 23: 463–477.
45. Kroenke K, Spitzer RL. The PHQ-9: A new depression diagnostic and severity measure. *Psychiatr Ann* 2002; 32: 509–515.
46. Louzon SA, Bossarte R, McCarthy JF, et al. Does suicidal ideation as measured by the PHQ-9 predict suicide among VA patients? *Psychiatr Serv* 2016; 67: 517–522.
47. Simon GE, Rutter CM, Peterson D, et al. Does response on the PHQ-9 Depression Questionnaire predict subsequent suicide attempt or suicide death? *Psychiatr Serv* 2013; 64: 1195–1202.
48. U.S. Census Bureau. American Community Survey. American Community survey 1-year estimates: sex by age by veteran status for the civilian population 18 years and older. Table B21001. Generated using American FactFinder 2012. <http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>. Published 2014. Accessed September 27, 2014.
49. Mueller J, Moergeli H, Maercker A. Disclosure and social acknowledgement as predictors of recovery from posttraumatic stress: A longitudinal study in crime victims. *Can J Psychiatry* 2008; 53: 160–168.
50. Wagner B, Keller V, Knaevelsrud C, et al. Social acknowledgement as a predictor of post-traumatic stress and complicated grief after witnessing assisted suicide. *Int J Soc Psychiatry* 2012; 58: 381–385.
51. Mitchell MM, Gallaway MS, Millikan AM, et al. Interaction of combat exposure and unit cohesion in predicting suicide-related ideation among post-deployment soldiers. *Suicide Life Threat Behav* 2012; 42: 486–494.
52. Darvishi N, Farhadi M, Haghtalab T, et al. Alcohol-related risk of suicidal ideation, suicide attempt, and completed suicide: A meta-analysis. *PLoS One* 2015; 10: e0126870.
53. Castro CA, Kintzle S, Schuyler AC, et al. Sexual assault in the military. *Curr Psychiatry Rep* 2015; 17: 1–13.
54. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*, 5th ed. Washington, DC: American Psychiatric Association, 2013.
55. Sexton MB, Davis MT, Anderson RE, et al. Relation between sexual and gender minority status and suicide attempts among veterans seeking treatment for military sexual trauma. *Psychol Serv* 2018; 15: 357–362.