Institutional betrayal following military sexual trauma is associated with more severe depression and specific posttraumatic stress disorder symptom clusters

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Abstract
Objective: Preliminary research suggests that perceptions of institutional betrayal are associated with more severe symptoms of posttraumatic stress disorder (PTSD) and depression, as well as suicide attempts in military sexual trauma (MST) survivors. However, results have not been replicated. Additionally, associations of institutional betrayal with specific PTSD symptom clusters or sexual function are understudied.

Method: Female service members/veterans who reported experiencing MST (N = 679) completed self-report measures of PTSD and depression symptom severity, suicidal ideation, and sexual function. Institutional betrayal was assessed from free-text descriptions of self-reported index traumas.

Results: Institutional betrayal was significantly associated with more severe depression and PTSD symptoms, including avoidance, negative alterations in cognitions and mood, re-experiencing, and dysphoric arousal.

Conclusions: Targeting specific PTSD and depressive symptoms through evidence-based treatment may be important for managing institutional betrayal sequelae. Future research should identify specific strategies to help support survivors in their recovery following institutional betrayal.
1 | INTRODUCTION

According to the Department of Veterans Affairs (VA) projections, females comprise the fastest growing veteran cohort (Department of Veterans Affairs, 2017). Female service members represent approximately 15% of the 1.4 million active duty force and 18% of the 850,000 National Guard and Reserve forces (Murphy & Hans, 2014). Extant literature shows that females are at substantially greater risk of experiencing sexual violence during their military service compared with males (cf. Wilson, 2016). Sexual violence during military service can include actual or threatened sexual assault or repeated, unsolicited sexual harassment, which has been coined “military sexual trauma” (MST) by the VA (Department of Veterans Affairs, 2018). Of those exposed to MST, females are more likely than males to be diagnosed with a mental health disorder, particularly depression and posttraumatic stress disorder (PTSD; e.g., Kimerling, Gima, Smith, Street, & Frayne, 2007; Tannahill et al., 2018). For these reasons, a better understanding of posttrauma responses among female service members/veterans with MST histories could greatly inform screening and treatment recommendations as well as future research in this area.

Recent research suggests that the institutional response to MST may play an important role in survivors’ posttraumatic reactions (Monteith, Bahraini, Matarazzo, Soberay, & Smith, 2016; Smith & Freyd, 2013, 2014; Ullman & Filipas, 2001; Ullman, Filipas, Townsend, & Starzynski, 2007; Wright, Smith, & Freyd, 2017). Sexual assault or sexual harassment that occurred within the context of an institution (e.g., military) may engender the belief that the institution failed to protect the individual from being victimized or failed to respond in a supportive manner. The experience of a perceived failure by an institution to act or respond supportively to a traumatic event can result in a sense of betrayal by the institution, a concept referred to as institutional betrayal (Smith & Freyd, 2013, 2014). To date, the majority of research examining institutional betrayal following sexual trauma has been conducted in civilian samples, such as college students (Freyd, 1994, 1996; Freyd, DePrince, & Gleaves, 2007; Wright, Smith, & Freyd, 2017). Such research has generally found that women who report experiencing institutional betrayal following sexual assault exhibit more severe posttraumatic stress symptoms (e.g., Smith & Freyd, 2013).

Nonetheless, researchers have speculated that the military may be an environment in which perceptions of institutional betrayal may be particularly salient, as the military organization is built upon trust, loyalty, and camaraderie (Monteith, Bahraini, et al., 2016; Smith & Freyd, 2013). Upon enlisting into the military, service members are trained to rely on their fellow service members and the military institution for survival. This reliance may render experiences of MST, particularly when perpetrated by a fellow service member, all the more damaging. Survivors who believe that the military did not protect them from the sexual trauma or fostered an environment that was not supportive or safe may feel betrayed by the military institution.

In spite of this, only one study has examined institutional betrayal among survivors of MST. Monteith, Bahraini, et al. (2016) examined whether perceived institutional betrayal was associated with PTSD and depression symptom severity, as well as post-MST suicidal ideation and suicide attempts, among a small sample of 49 female and male veterans who reported a history of MST. Institutional betrayal was associated with higher PTSD symptom severity, higher depression symptom severity, and being more likely to report attempting suicide following MST. In contrast, the relationship between institutional betrayal with post-MST suicidal ideation only approached significance. To our knowledge, this study has yet to be replicated. In addition, though informative, this small pilot study had noted limitations, including a small sample of VA-enrolled veterans and the inability to include covariates (e.g., MST severity). A goal of the present study was to replicate Monteith, Bahraini and colleagues’ (2016) study by examining the associations of institutional betrayal with PTSD and depression severity, as well as suicidal ideation, after accounting for covariates in a sample of female service members/veterans who were not necessarily enrolled in VA care.
Moreover, although perceptions of institutional betrayal were associated with higher overall PTSD symptom severity (Monteith, Bahraini, et al., 2016), the Diagnostic and Statistical Manual for Mental Disorders-5 (DSM-5) considers PTSD to be a multifaceted disorder characterized by four symptom clusters: (a) re-experiencing, (b) avoidance, (c) negative alterations in cognitions and mood, and (d) hyperarousal (American Psychiatric Association [APA], 2013). Yet factor analyses of the PTSD Checklist-5 (PCL-5), a common self-report measure of DSM-5 PTSD symptoms, rarely conform to this four-factor structure (i.e., Armour, Contractor, Shea, Elhai, & Pietrzak, 2016; Blais, Geiser, & Cruz, 2018; Frankfurt, Armour, Contractor, & Elhai, 2016). Alternate factor structures exist, including the six-factor Anhedonia model (e.g., Blais, Geiser, et al., 2018). Indeed, extant research in female service members/veterans using this model suggests that MST and its sequelae are differentially associated with specific facets of PTSD (Blais, Geiser, et al., 2018). It is possible, then, that institutional betrayal following MST may also be differentially associated with specific symptom clusters of PTSD. As such, a secondary goal of the current study was to examine the association of institutional betrayal with the PTSD symptom clusters identified in the six-factor Anhedonia model.

Another limitation in knowledge regarding institutional betrayal concerns its association with sexual function. MST is an interpersonal trauma that encompasses sexual violence. Previous literature has demonstrated that MST is associated with poorer sexual functioning (Blais, Geiser, et al., 2018; Blais, Monteith, & Kugler, 2018; Blais, in press; Turchik et al., 2012). It is possible that engaging in sexual activity is a distressing reminder to survivors of MST and institutional betrayal, which may cause some individuals to be reticent about engaging in sexual relations or to experience less-than-fulfilling sexual experiences. Given that many service members and veterans strongly identify with the military institution (Meyer, 2015), and that sexual assault is already a traumatic experience for most survivors (Lofgreen, Carroll, Dugan, & Karnik, 2017), it is possible that the added component of institutional betrayal increases associated MST sequelae, such as poor sexual function. As such, examining whether institutional betrayal is associated with poorer sexual function in female service members and veterans may provide novel information that can be used to improve sexual function following MST.

To improve our understanding of institutional betrayal and its potential sequelae, we sought to conceptually replicate the findings of Monteith, Bahraini, et al. (2016) using a convenience sample of female service members and veterans who were not necessarily enrolled in VA care. Rather than investigate the validity of the original data by matching the experimental methodology, conceptual replication seeks to test the rigor of the overarching construct or underlying hypothesis (Schmidt, 2009). As such, successful replication through varying methodology and sampling procedures advances support for the underlying theory of institutional betrayal and its associated sequelae. Accordingly, a primary aim of the current manuscript was to determine whether institutional betrayal was associated with overall PTSD symptom severity, depression symptom severity, and suicidal ideation after accounting for covariates. Moreover, we sought to extend the literature on institutional betrayal following MST by examining whether institutional betrayal was associated with specific PTSD symptom clusters and poorer sexual function. Based, in part, on findings by Monteith, Bahraini, et al. (2016) and Smith and Freyd (2013), we hypothesized that perceived institutional betrayal would be associated with higher PTSD symptom severity and depression symptom severity. Given the null association between institutional betrayal and suicidal ideation in Monteith, Bahraini, et al. (2016), and the lack of studies examining the association of institutional betrayal with specific symptom clusters of PTSD and sexual function, no a priori hypotheses were developed regarding these constructs.

## Method

### 2.1 Participants

Participants for this secondary analysis were extracted from a parent data set (N = 833) that examined the associations between MST, intimate relationship satisfaction, sexual function, and sexual health among partnered female service members and veterans (Blais, in press). To be eligible for the parent study, participants had to report...
female sex, prior or current military service, and current involvement in a romantic relationship. While most participants identified as married (Table 1), those who were not married (divorced \( n = 12, 1.76\% \), “other” \( n = 12, 1.76\% \)) were also included in the present analyses, as partnered status was not an outcome of interest. Participants also had to report a history of MST (described below) to be included in the analytic sample for the current aims. Of the 833 participants in the parent study, 679 (81.11\%) reported a history of MST and comprised the analytic sample.

History of MST was assessed using a slightly modified version of the VA MST Screening Questionnaire (see Section 2.3 for more information). Participants were asked whether they had experienced unwanted touching, cornering, pressure for sexual favors, verbal sexual remarks, and sexual contact through force or threat of force during their military service. Participants were included in the present analyses if they endorsed any of these items. The average age of participants was 32.22 (standard deviation \( SD = 7.30 \)). The majority of participants self-identified as White \( n = 518, 76.29\% \), and a minority self-identified as Bi-racial \( n = 70, 10.31\% \), Latina \( n = 43, 6.33\% \), Black \( n = 30, 4.42\% \), or Native American \( n = 4, 0.59\% \). Participants reported service in the Army \( n = 373, 54.93\% \), Air Force \( n = 112, 16.49\% \), Navy \( n = 99, 14.58\% \), Marine Corps \( n = 78, 11.49\% \), or Coast Guard \( n = 7, 1.03\% \). Nine participants (1.33\%) served in multiple branches. Most participants were discharged from military service \( n = 515, 75.85\% \) and had completed at least some college \( n = 623, 91.75\% \).

### 2.2 Procedure

Recruitment primarily relied on Facebook advertisements and electronic listservs for female service members and veterans. Advertisements targeted women aged 18–65 who spoke English and identified as being in a romantic relationship. While most participants identified as married (Table 1), those who were not married (divorced \( n = 12, 1.76\% \), “other” \( n = 12, 1.76\% \)) were also included in the present analyses, as partnered status was not an outcome of interest. Participants also had to report a history of MST (described below) to be included in the analytic sample for the current aims. Of the 833 participants in the parent study, 679 (81.11\%) reported a history of MST and comprised the analytic sample.

### Table 1 Demographic characteristics and outcome differences between institutional betrayal groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>Institutional betrayal, M (SD)/n (%)</th>
<th>t Test/( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Negative ( n = 639 ) Positive ( n = 40 )</td>
<td></td>
</tr>
<tr>
<td>Sexual function(^a)</td>
<td>21.79 (9.68) 19.36 (9.97)</td>
<td>( t(670) = 1.52, p = 0.13 )</td>
</tr>
<tr>
<td>PTSD severity</td>
<td>26.87 (23.26) 40.53 (20.73)</td>
<td>( t(654) = -3.53, p &lt; 0.001 )</td>
</tr>
<tr>
<td>Re-experiencing</td>
<td>6.11 (6.13) 9.63 (5.67)</td>
<td>( t(674) = -3.54, p &lt; 0.001 )</td>
</tr>
<tr>
<td>Avoidance</td>
<td>3.03 (2.95) 5.40 (2.31)</td>
<td>( t(47.39) = -3.54, p &lt; 0.001 )</td>
</tr>
<tr>
<td>NACM</td>
<td>5.32 (5.16) 8.45 (4.70)</td>
<td>( t(671) = -3.74, p &lt; 0.001 )</td>
</tr>
<tr>
<td>Anhedonia</td>
<td>4.28 (4.15) 5.67 (4.19)</td>
<td>( t(671) = -2.03, p = 0.04 )</td>
</tr>
<tr>
<td>Dysphoric arousal</td>
<td>5.39 (4.65) 7.82 (4.63)</td>
<td>( t(671) = -3.18, p = 0.002 )</td>
</tr>
<tr>
<td>Anxious arousal</td>
<td>2.84 (2.84) 4.25 (2.76)</td>
<td>( t(674) = -3.05, p = 0.002 )</td>
</tr>
<tr>
<td>Depression severity</td>
<td>9.95 (7.24) 14.21 (6.31)</td>
<td>( t(609) = -3.54, p &lt; 0.001 )</td>
</tr>
<tr>
<td>Age</td>
<td>32.21 (7.29) 32.48 (7.58)</td>
<td>( t(672) = -0.23, p = 0.82 )</td>
</tr>
<tr>
<td>Suicidal ideation (% yes)</td>
<td>137 (23.50) 12 (31.58)</td>
<td>( \chi^2(1) = 1.28, p = 0.26 )</td>
</tr>
<tr>
<td>Assault MST (% yes)</td>
<td>259 (40.53) 24 (60.00)</td>
<td>( \chi^2(1) = 5.87, p = 0.02 )</td>
</tr>
<tr>
<td>Discharged (% yes)</td>
<td>479 (74.96) 36 (90.00)</td>
<td>( \chi^2(1) = 4.65, p = 0.03 )</td>
</tr>
<tr>
<td>White (% yes)</td>
<td>487 (77.67) 31 (81.58)</td>
<td>( \chi^2(1) = 0.32, p = 0.57 )</td>
</tr>
<tr>
<td>Army (% yes)</td>
<td>349 (54.70) 24 (60.00)</td>
<td>( \chi^2(1) = 0.43, p = 0.51 )</td>
</tr>
<tr>
<td>College degree (% yes)</td>
<td>370 (57.99) 27 (67.50)</td>
<td>( \chi^2(1) = 1.40, p = 0.24 )</td>
</tr>
</tbody>
</table>

Note. Higher scores indicate more severe symptoms for all constructs unless otherwise noted with a superscript. M: mean; MST: military sexual trauma; NACM: negative alterations in cognitions and mood; PTSD: posttraumatic stress disorder; SD: standard deviation.

\(^a\)Higher scores equal better functioning.
relationship. Advertisements also targeted those working in a government agency in order to capture individuals with prior or current military service. Interested participants were directed to an online, confidential survey platform hosted by Qualtrics. Participants responded to survey eligibility questions. Those who met screening criteria received a Letter of Information and advanced to the survey where they completed study measures. No identifying information was collected for study participation, but those electing to receive $15 compensation for their participation were directed to a separate Qualtrics page to enter their name and mailing address. This information could not be linked to the study data. This study was approved by the Utah State University Institutional Review Board.

### 2.3 Measures

#### 2.3.1 Independent variable

Institutional betrayal was assessed using a single self-report open-ended response that queried participants about “the stressful military experience” they referenced when completing the PTSD Checklist-5 for the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (PCL-5; see below for a full description of this measure). All self-reported responses were independently reviewed and coded by two licensed psychologists and study coauthors (R. K. B. and L. L. M.) using a binary code to indicate whether the participant’s stressful military experience included probable institutional betrayal (yes = 1, no = 0). Consensus was reached in each case. Examples of traumatic events considered to be representative of institutional betrayal included: (a) “I was raped and told my commander who said if I reported it, I would ruin my career,” (b) “Sexual harassment and repercussions of speaking up about it,” and (c) “Rape and subsequent cover up from my unit.”

#### 2.3.2 Outcomes

Depression symptom severity was assessed using the Patient Health Questionnaire-8 (PHQ-8; Kroenke et al., 2009). The PHQ-8 is an eight-item self-report questionnaire used to assess symptoms of depression experienced during the previous 2 weeks. A sample item includes “Over the last 2 weeks, how often have you been bothered by feeling down, depressed, or hopeless?” Respondents rate the frequency in which they were bothered by each symptom using a 4-point frequency scale, ranging from 0 (not at all) to 3 (nearly every day). Items are summed for a total score, which can range from 0 to 24. Higher scores indicate more severe depression symptoms. In the present sample, Cronbach’s $\alpha = 0.93$.

PTSD symptom severity was assessed with the PCL-5 (Weathers et al., 2013), a 20-item self-report measure of the severity of PTSD symptoms experienced during the past month. Items correspond to the DSM-5 symptom criteria for PTSD. A sample item is: “In the past month, how often were you bothered by repeated, disturbing and unwanted memories of the stressful experience?” Respondents rate each item on a Likert-type scale ranging from 0 (not at all) to 4 (extremely). Items are summed for a total score, which can range from 0 to 80. Higher scores indicate more severe PTSD symptoms. In the present sample, Cronbach’s $\alpha = 0.97$. In addition to overall symptom severity, symptom cluster severity can be calculated. Prior research conducted in the parent sample from which this sample was derived examined several factor structures of the PCL-5 (Blais, Geiser, & Cruz, 2018). Results revealed that the six-factor Anhedonia model (re-experiencing [items 1–5; score range: 0–20], avoidance [items 6–7; score range: 0–8], negative alterations in cognitions or mood [items 8–11; score range: 0–16], anhedonia [items 12–14; score range: 0–12], dysphoric arousal [items 15–16, 19–20; score range: 0–16], and anxious arousal [items 17–18; score range: 0–8]) had an adequate fit to the data and showed superior fit relative to competing models (Blais, Geiser, et al., 2018). As such, the six-factor Anhedonia model was used to examine associations between institutional betrayal and specific PTSD symptom clusters. The PCL-5 has demonstrated good internal reliability, with Cronbach’s $\alpha = 0.95$ in a sample of veterans (Wortmann et al., 2016). Cronbach’s $\alpha$ in the present study was adequate for the full scale ($\alpha = 0.97$) and for the re-experiencing, avoidance, negative alterations in cognitions or mood, anhedonia, dysphoric arousal, and anxious arousal subscales (subscale $\alpha$ ranges = 0.84–0.94).
Suicidal ideation was assessed using Item 9 of the Patient Health Questionnaire-9 (PHQ-9; Kroenke & Spitzer, 2002). Item 9 asks, “During the past two weeks, how often have you been bothered by thoughts that you would be better off dead or of hurting yourself in some way?” Respondents choose their level of agreement with this question using a frequency scale that ranges from 0 (not at all) to 3 (nearly every day). Higher scores on the PHQ-9 Item 9 are associated with an increased risk for suicide attempt or mortality among both civilians and military service members (Louzon, Bossarte, McCarthy, & Katz, 2016; Simon et al., 2013; Uebelacker, German, Gaudiano, & Miller, 2011; Walker et al., 2010). Due to the low frequency of endorsement of suicidal ideation in the current sample (n = 149; 21.94%), this variable was transformed into a dichotomous variable that examined the presence/absence of suicidal ideation.

Sexual function was assessed using the Female Sexual Function Index (FSFI; Rosen et al., 2000). The FSFI is a 19-item self-report measure that assesses multiple facets of sexual function over the previous 4 weeks. A sample item is “Over the past four weeks, how would you rate your level (degree) of sexual desire or interest?” Participants respond using an item-anchored Likert-type response scale ranging from 0 to 5. Items are summed for a total score, which ranges from 2 to 36. Higher scores indicate better sexual functioning. The FSFI demonstrated acceptable internal reliability in the normative sample (Rosen et al., 2000). In the current sample, Cronbach’s α = 0.97.

2.3.3 | Covariates

Covariates were identified based on research demonstrating an association with the independent and/or dependent variables. Covariates included age (Kimerling et al., 2007), race (i.e., White vs. not; Kimerling et al., 2007), education level (Steenkamp et al., 2017), discharge status (Morral, Gore, & Schell, 2014), service in the Army (Morral et al., 2014), and MST severity (Blais, Geiser, et al., 2018; Monteith, Meneffe, Forster, & Bahraini, 2016). Given the documented associations of depression and PTSD with suicidal ideation and/or sexual function (e.g., Blais, Geiser, et al., 2018; Blais, in press; Cohen et al., 2012; Jakupcak et al., 2009), depression and PTSD symptom severity (measures described above) were also included as covariates when examining suicidal ideation and sexual function as outcomes. A demographic inventory designed for the parent study assessed covariates of age, race (White [yes = 1, no = 0]), education level (obtained at least a 2-year degree [yes = 1, no = 0]), military branch (Army [yes = 1, no = 0]), and discharge status (discharged from service [yes = 1, no = 0]). As the majority of the current sample identified as White (n = 518, 76.29%) and reported service in the Army (n = 373, 54.93%), White race and Army service were used as reference categories for these variables.

Finally, MST severity was assessed using a slightly modified version of the VA MST Screening Questionnaire. MST involving sexual harassment was assessed with a list of possible experiences, including unwanted touching, cornering, pressure for sexual favors, or verbal remarks. Endorsement of any of these items resulted in a positive screen for harassment MST. MST involving sexual assault was assessed with the following question: “When you were in the military, did someone ever use force or threat of force to have sexual contact with you against your will?” Affirmative responses resulted in a positive screen for assault MST. To covary for type of MST, we created a dummy code (harassment MST = 0, assault MST = 1).

2.4 | Data analysis

Descriptive statistics were used to calculate sample characteristics. Bivariate differences in institutional betrayal status (present/absent) by outcomes and covariates were calculated using analyses of variance or χ² tests where appropriate. Three adjusted linear regressions were then conducted to determine whether institutional betrayal was associated with PTSD symptoms, depression symptoms, and poorer sexual function after accounting for covariates. A binary logistic regression was conducted to determine whether institutional betrayal was associated with the presence of suicidal ideation after accounting for covariates. Finally, to determine whether specific symptom clusters of PTSD were differentially associated with institutional betrayal, each symptom cluster of PTSD
(i.e., re-experiencing, avoidance, negative alterations in cognitions and mood, anhedonia, dysphoric arousal, and anxious arousal) was regressed on institutional betrayal and covariates using six linear regressions, one for each symptom cluster. Final models are reported as unstandardized regression estimates ($b$) and their standard errors (SE) or adjusted odds ratios (AOR) and their 95% confidence intervals (CI; Tables 2 and 3). Given the number of statistical tests conducted in the six secondary regression equations, we addressed the familywise error rate using the Benjamini–Hochberg false discovery rate (FDR) procedure (Benjamini & Hochberg, 1995). The FDR strategy avoids issues with the traditional Bonferroni's correction, which has been characterized as overly conservative (e.g., Benjamini & Hochberg, 1995). This approach adjusts $p$-values to maintain a single, overall Type I error rate ($Q < 0.05$) for all tests in a set of models. $p$-values are ranked in ascending order and these values are corrected according to the overall number of tests. In the results for the PTSD symptom clusters, we present the FDR adjusted $p$-values. Missing data were excluded from analyses using listwise deletion. All statistical analyses were performed using SPSS Version 24 (IBM Corporation, 2016).

3 | RESULTS

Of the 679 participants in the current sample, 41.68% ($n = 283$) reported assault MST and 58.32% ($n = 396$) reported harassment-only MST. Table 1 presents demographic characteristics and differences for participants who described an experience consistent with institutional betrayal ($n = 40$; 5.89%) compared with those who did not ($n = 639$, 94.11%). Participants who reported experiences consistent with institutional betrayal reported significantly more severe PTSD symptoms, across all symptom clusters, higher depression symptom severity, were more likely to have experienced assault (vs. harassment-only) MST, and were more likely to have been

| TABLE 2 Regression of mental health outcomes on institutional betrayal and covariates |
|-----------------------------------------------|-----------------|-----------------|-----------------|-----------------|
| Variables                                      | $b$ ($SE$) PTSD severity | $b$ ($SE$) Depression severity | $b$ ($SE$) Sexual function | AOR [95% CI] Suicide ideation* |
| Institutional betrayal                         | 10.29 (3.62)**    | 3.38 (1.18)**    | -0.37 (1.57)     | 0.81 [0.35, 1.88] |
| Assault MST (yes = 1)                          | 17.41 (1.72)***   | 3.58 (0.57)***   | -0.99 (0.82)     | 1.33 [0.81, 2.18] |
| Discharged (yes = 1)                           | 7.00 (2.02)***    | 3.33 (0.68)***   | 0.53 (0.91)      | 2.16 [1.11, 4.18]* |
| White (yes = 1)                                | -3.55 (2.02)      | -0.79 (0.67)     | -0.70 (0.89)     | 0.70 [0.42, 1.19] |
| Army (yes = 1)                                 | -0.02 (1.69)      | -0.06 (0.56)     | 0.19 (0.75)      | 0.77 [0.49, 1.22] |
| College degree (yes = 1)                       | -3.01 (1.78)      | -0.03 (0.60)     | 0.55 (0.79)      | 1.04 [0.64, 1.70] |
| Age                                           | -0.07 (0.12)      | -0.02 (0.04)     | -0.19 (0.06)***  | 0.98 [0.94, 1.01] |
| PTSD severity                                  | -                | -                | -0.06 (0.02)**   | 1.01 [1.00, 1.02] |
| Depression severity                            | -                | -                | -0.40 (0.07)***  | 1.18 [1.13, 1.24]*** |
| $F$ $(df/\chi^2(df)$                          | $F(7,629) = 20.40$*** | $F(7,583) = 11.87$*** | $F(9,558) = 16.25$*** | $\chi^2(9) = 168.52$ |
| $R^2$                                          | 0.18             | 0.11             | 0.20             | - |

Note. Independent variable of interest is noted in bold. Outcome variables are continuous unless otherwise noted. AOR: adjusted odds ratio; $b$: unstandardized regression estimate; CI: confidence interval; df: degrees of freedom; $F$: model $F$-statistic; MST: military sexual trauma; PTSD: posttraumatic stress disorder; $R^2$: adjusted $R^2$ value; SE: standard error of estimate; $\chi^2$: model $\chi^2$.

*Dichotomous variable.

*p ≤ 0.05.

**p ≤ 0.01.

***p ≤ 0.001.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Avoidance</th>
<th>NACM</th>
<th>Re-experiencing</th>
<th>Dysphoric arousal</th>
<th>Anxious arousal</th>
<th>Anhedonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional betrayal</td>
<td>1.82 (0.45)***</td>
<td>2.21 (0.80)*</td>
<td>2.53 (0.94)*</td>
<td>1.94 (0.75)*</td>
<td>0.95 (0.45)</td>
<td>0.96 (0.67)</td>
</tr>
<tr>
<td>Assault MST (yes = 1)</td>
<td>2.34 (0.21)***</td>
<td>3.85 (0.38)***</td>
<td>4.61 (0.45)***</td>
<td>2.87 (0.35)***</td>
<td>1.87 (0.21)***</td>
<td>2.42 (0.32)***</td>
</tr>
<tr>
<td>Discharged (yes = 1)</td>
<td>0.85 (0.25)**</td>
<td>1.23 (0.45)*</td>
<td>1.55 (0.53)*</td>
<td>1.39 (0.41)**</td>
<td>0.78 (0.25)**</td>
<td>1.02 (0.37)*</td>
</tr>
<tr>
<td>White (yes = 1)</td>
<td>−0.73 (0.25)*</td>
<td>−0.85 (0.45)</td>
<td>−1.06 (0.52)</td>
<td>−0.42 (0.41)</td>
<td>−0.26 (0.25)</td>
<td>−0.49 (0.37)</td>
</tr>
<tr>
<td>Army (yes = 1)</td>
<td>0.01 (0.21)</td>
<td>−0.29 (0.37)</td>
<td>−0.04 (0.44)</td>
<td>0.12 (0.35)</td>
<td>0.11 (0.21)</td>
<td>0.04 (0.31)</td>
</tr>
<tr>
<td>College degree (yes = 1)</td>
<td>−0.37 (0.22)</td>
<td>−0.25 (0.39)</td>
<td>−1.23 (0.46)*</td>
<td>−0.42 (0.36)</td>
<td>−0.17 (0.22)</td>
<td>−0.27 (0.33)</td>
</tr>
<tr>
<td>Age</td>
<td>−0.01 (0.02)</td>
<td>−0.02 (0.03)</td>
<td>−0.01 (0.03)</td>
<td>−0.02 (0.03)</td>
<td>−0.01 (0.02)</td>
<td>−0.001 (0.02)</td>
</tr>
<tr>
<td>F (df)</td>
<td>F(7,649) = 26.13***</td>
<td>F(7,645) = 19.38***</td>
<td>F(7,647) = 21.15***</td>
<td>F(7,644) = 13.97***</td>
<td>F(7,647) = 14.45***</td>
<td>F(7,645) = 11.20***</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.21</td>
<td>0.17</td>
<td>0.18</td>
<td>0.12</td>
<td>0.13</td>
<td>0.10</td>
</tr>
</tbody>
</table>

Note. Independent variable of interest is noted in bold. The $p$-value for each estimate was adjusted with the Benjamini and Hochberg (1995) modified Bonferroni correction. $b$: unstandardized regression estimate; df: degrees of freedom; F: model F-statistic; MST: military sexual trauma; NACM: negative alterations in cognitions and mood; PTSD: posttraumatic stress disorder; $R^2$: adjusted $R^2$ value; SE: standard error of estimate.

*p ≤ 0.05.

**p ≤ 0.01.

***p ≤ 0.001.
discharged from military service (rather than still serving in the military at the time of study participation; \( p < 0.05 \)) compared with those who did not describe experiences consistent with institutional betrayal. There were no significant differences observed between participants who did versus did not describe experiences of institutional betrayal with regard to sexual function, suicidal ideation, race, branch of service, education level, or age (\( p > 0.05 \)).

Table 2 presents analyses examining the association of PTSD symptom severity, depression symptom severity, sexual function, and suicidal ideation with institutional betrayal after accounting for covariates. The overall regressions of PTSD symptom severity (\( R^2 = 0.18 \)) and depression symptom severity (\( R^2 = 0.11 \)) were significant. After adjusting for covariates, institutional betrayal was significantly associated with higher PTSD symptom severity (\( b = 10.29, SE = 3.62, p = 0.005 \)) and depression severity (\( b = 3.38, SE = 1.18, p = 0.004 \)). The overall regression of sexual function (\( R^2 = 0.20 \)) was significant, but the association between institutional betrayal with sexual function (\( b = -0.37, SE = 1.57, p = 0.81 \)) was nonsignificant after adjusting for covariates.\(^1\) The overall model examining suicidal ideation explained 80.4% of variability in suicide ideation likelihood; however, the association between institutional betrayal with suicidal ideation (AOR = 0.81, 95% CI = 0.35–1.88) was not significant after adjusting for covariates (see Table 2).

Table 3 presents analyses examining whether institutional betrayal was associated with specific PTSD symptom clusters after accounting for covariates. Overall regressions of avoidance (\( R^2 = 0.21 \)), negative alterations in cognitions and mood (\( R^2 = 0.17 \)), re-experiencing (\( R^2 = 0.18 \)), and dysphoric arousal (\( R^2 = 0.12 \)) were significant. After adjusting for covariates, institutional betrayal was significantly associated with higher avoidance (\( b = 1.82, SE = 0.45, p < 0.001 \)), negative alterations in cognitions and mood (\( b = 2.21, SE = 0.80, p = 0.02 \)), re-experiencing (\( b = 2.53, SE = 0.94, p = 0.02 \)), and dysphoric arousal (\( b = 1.94, SE = 0.75, p = 0.02 \)) symptom clusters. The overall regression of anxious arousal was also significant (\( R^2 = 0.13 \)); however, following the Benjamini and Hochberg (1995) \( p \)-value correction, the association between institutional betrayal and the anxious arousal PTSD symptom cluster was nonsignificant after adjusting for covariates (\( b = 0.95, SE = 0.45, p = 0.08 \)). Similarly, although the overall regression of anhedonia on institutional betrayal and covariates was significant (\( R^2 = 0.10 \)), institutional betrayal was not significantly associated with anhedonia after adjusting for covariates (\( b = 0.96, SE = 0.67, p = 0.27 \); see Table 3).

### 4 | DISCUSSION

A primary aim of the current study was to conceptually replicate findings by Monteith, Bahraini, et al. (2016). Specifically, we sought to examine the association between institutional betrayal with overall PTSD symptom severity and depression symptom severity, as well as re-examine the association between institutional betrayal and suicidal ideation. We also sought to extend existing literature by examining the association of institutional betrayal with sexual function and specific facets of PTSD. Consistent with findings by Monteith, Bahraini, et al. (2016), institutional betrayal was associated with higher PTSD and depression symptom severity and unrelated to suicidal ideation. Findings further revealed that participants who described experiencing institutional betrayal also endorsed higher levels of avoidance, re-experiencing, negative alterations in cognitions and mood, and dysphoric arousal. Institutional betrayal was unrelated to sexual function and PTSD symptom clusters of anxious arousal and anhedonia.

Our finding of an association between institutional betrayal with specific symptom clusters of PTSD suggests that institutional betrayal and its sequelae may manifest itself in female service members/veterans in unique ways that may benefit from targeted PTSD interventions. For example, it is possible that MST survivors who experience

\(^1\)We also examined the sexual function and suicidal ideation models without the covariates of PTSD and depression symptom severity. The association of institutional betrayal with sexual function (\( R^2 = 0.04, b = -1.87, SE = 1.63, p = 0.23 \)) and suicidal ideation (AOR = 1.22, 95% CI = 0.58–2.59, \( p = 0.60 \)) remained nonsignificant.
institutional betrayal engage in avoidance as a way of escaping reminders of betrayal or contextual cues of the sexual assault or harassment that they experienced during their military service, as these may be particularly distressing. For those still actively serving who reported being sexually assaulted by a fellow unit member (the majority of our sample [80.41%; \( n = 546 \)], avoidance may be one way to mitigate continued contact with such individuals, as well as the broader institution. Individuals who must continue to be in situations or contexts with the perpetrator and/or institution may be particularly susceptible to betrayal blindness—the tendency to minimize or ignore information in order to preserve the relationship with the institution as a means of survival (Freyd, 1996, 1999); this may facilitate continuing to be identified with the institution. It is also possible that individuals who experienced institutional betrayal following MST felt compelled or opted to discharge from the military (Katz, Huffman, & Cojucar, 2017; Monteith, Gerber, Brownstone, Soberay, & Bahraini, 2018; Morral et al., 2014; Wolff & Mills, 2016), potentially due to perceptions that the military failed to protect them from the sexual trauma or did not promote a supportive and safe environment.

Along these lines, being discharged from military service was associated with experiencing institutional betrayal as well as each of our outcomes, with the exception of sexual function and suicidal ideation. These findings are noteworthy because they may be indicative of a more intricate model of MST, institutional betrayal, military service discharge, and posttrauma distress. For example, it is possible that those who experienced institutional betrayal or heightened distress post-MST opted to leave the service prematurely. Indeed, existing literature has demonstrated that premature separation from military service is associated with sexual trauma (e.g., Morral et al., 2014) and poor mental health (e.g., Larsson, Broman, & Harms-Ringdahl, 2009). Thus, future research is needed to examine the temporal associations of MST, institutional betrayal, and aspects of discharge, including the reason for and timing of discharge. Such information may provide a more holistic picture of MST and institutional betrayal.

Our findings revealed that females who described institutional betrayal also reported more severe PTSD symptoms of negative alterations in cognitions and mood, but not anhedonia. DSM-5 collapses PTSD symptoms of negative alterations in cognitions and mood and anhedonia into a single criterion, Criterion D. However, a previous study that conducted a factor analysis on the PCL-5 in the parent sample demonstrated that the six-factor Anhedonia model best fit the data, which disentangled DSM-5 Criterion D into negative alterations in cognitions and mood and anhedonia (see Blais, Geiser, et al., 2018). PTSD-related negative alterations in cognitions and mood include symptoms related to distorted or negative emotional states, beliefs, or cognitions. One example of a PTSD-related cognitive distortion is blaming oneself or others about the cause or effect of the traumatic event. Those who encounter institutional betrayal post-MST may blame themselves and believe that they engaged in behavior to instigate the sexual trauma (Bell & Reardon, 2011; Brownstone, Holliman, Gerber, & Monteith, 2018; Burns, Grindlay, Holt, Manski, & Grossman, 2014; Turchik et al., 2013). Indeed, a qualitative study examining MST showed that female veterans experienced victim-blaming within a military culture (Burns et al., 2014). Victim-blaming may lead to internalization of such beliefs (i.e., believing, in turn, that they caused the MST to occur). Given the association between institutional betrayal following MST with PTSD-related negative alterations in cognitions and mood observed in the present study, future researchers may consider the utility of examining the role of blame among MST survivors who perceived institutional betrayal. Clinically, our findings suggest that it might be particularly important for clinicians to target PTSD symptoms of maladaptive beliefs, cognitions, or emotional states, rather than symptoms related to loss of interest, detachment, or restricted range. Given that cognitive-behavioral interventions have demonstrated the benefit of altering negative cognitions (e.g., self-blame) in reducing stress (Beck, 1995), females who experience institutional betrayal and negative cognitions following MST may benefit from this type of intervention.

In addition, females who endorsed institutional betrayal post-MST also reported higher PTSD symptoms of dysphoric arousal, but not anxious arousal. Similar to negative alterations in cognition and mood and anhedonia, DSM-5 collapses dysphoric arousal and anxious arousal into a single criterion, Criterion E. Findings from the current study, however, support the utility of distinguishing between dysphoric and anxious arousal. The anxious arousal PTSD symptom cluster appears to be comprised of fear-based distress, to include hypervigilance and
exaggerated startle response. In contrast, the dysphoric arousal PTSD symptom cluster appears to encompass a theme of general affective distress, including PTSD-related recklessness, irritability, sleep, and concentration difficulties. Our findings suggest that those who perceived institutional betrayal post-MST may exhibit a PTSD phenotype where the most prominent clinical features are general affective distress rather than fear-based distress. Interventions targeting general affective distress rather than fear-based distress may be particularly warranted among female MST survivors who report institutional betrayal, although research is needed to test this hypothesis.

Perceptions of institutional betrayal were also associated with higher levels of re-experiencing symptoms. In both the DSM-5 (APA, 2013) and the six-factor Anhedonia model (see Liu et al., 2014), re-experiencing includes PTSD symptoms of intrusive thoughts/memories, nightmares, flashbacks, as well as emotional and physiological activity in response to internal or external cues. As the majority of our sample was no longer in the military (i.e., had been discharged from service), they may have less contact with external reminders of MST and institutional betrayal relative to those who are still serving in the military. However, it is possible that females who perceived institutional betrayal post-MST react to internal cues that resemble an aspect of the traumatic event. Our findings highlight the need to better understand the process by which survivors may be triggered by institutional betrayal following MST.

The DSM-5 (APA, 2013) provides diagnostic guidelines that summarize characteristic facets of PTSD. However, some of the targeted outcomes in the current study were associated with PTSD symptom cluster presentations not found within the DSM-5 four-factor structure, such as dysphoric arousal. Although the DSM-5 is an authoritative guide for determining a diagnosis of PTSD, clinicians may consider alternate structures once they move to the treatment phase, which does not require strict adherence to DSM-5 symptom clusters. Indeed, existing literature demonstrates that specific symptoms of PTSD are amendable to different treatments (see Bluett, Zoellner, & Feeny, 2014; Smith et al., 2017; Trachik et al., 2018).

Also consistent with findings by Monteith, Bahraini, et al. (2016), our results demonstrated that female service members and veterans who described institutional betrayal reported more severe symptoms of depression. In recent qualitative research with male MST survivors who had served in a variety of service eras, participants described feeling betrayed by the military, in part, due to the lack of institutional policies to protect them (Monteith, Bahraini, et al., 2018). MST survivors may feel hopeless, powerless, and unsupported if they believe that a military institution failed to protect them from being sexual assaulted or sexually harassed. It is plausible that such beliefs and feelings may result in depressive symptoms. It is also possible that sad mood, or hopelessness more specifically, might be associated with institutional betrayal. As such, future research might examine whether specific symptoms or aspects of depression are associated with institutional betrayal. Such studies could inform specific targets of treatment.

The lack of a significant association between institutional betrayal and suicidal ideation was consistent with findings by Monteith, Bahraini, et al. (2016) who examined post-MST suicidal ideation in a sample of female and male veterans. And, contrary to our hypothesis, sexual function was not associated with institutional betrayal. Although the cross-sectional design of research conducted to date on institutional betrayal is an important limitation, it is possible that the influence of institutional betrayal is limited to the individual’s relationship with the institution, rather than their relationship with their sexual partner, above and beyond the effects of MST type.

Our results suggest that it may be important for clinicians to assess perceptions of institutional betrayal with MST survivors. Such assessments should also assess for MST type, given that assault, but not harassment-only, MST was associated with most of our outcomes. Managing the potential sequelae of institutional betrayal may entail targeting depressive symptoms as well as specific PTSD symptoms, including avoidance, negative alterations in cognitions and mood, re-experiencing symptoms, and dysphoric arousal. Applying principles from evidence-based mental health treatments might help MST survivors who experienced institutional betrayal process their experiences, as well as the associated sense of betrayal. In addition, it may be important to explore trauma-related
reminders that trigger avoidance behaviors, such as specific sources of betrayal within the military. Finally, those who encountered institutional betrayal following MST may harbor negative perceptions toward the military organization and their time in service, which could negatively impact recovery and reintegration into civilian life among those separated from the military. Researchers have proposed that institutional betrayal following MST may deter help-seeking for MST-related sequelae from VHA or other institutions deemed to be affiliated with the institution in which sexual assault or sexual harassment occurred (Holliday & Monteith, 2019; Monteith, Bahraini, et al., 2018; Reinhardt, Smith, & Freyd, 2016), an important area of research warranting further investigation.

Several limitations of the current study should be acknowledged. First, this was a secondary analysis of data obtained from a project that originally sought to understand more about MST, but which did not initially seek to examine institutional betrayal specifically. As a result, institutional betrayal was coded from open-ended responses from self-reported index traumas, rather than from existing measures of institutional betrayal. Consequently, a small number of participants in the current sample endorsed institutional betrayal (n = 40), and it is likely that some participants experienced institutional betrayal but did not disclose this when describing their index trauma. This is an important limitation that precludes estimating the prevalence of institutional betrayal from this sample and also may have limited our ability to fully ascertain the potential impact of institutional betrayal. Future research is needed that systematically measures institutional betrayal, such as the Institutional Betrayal Questionnaire, Version 2 (IBQ.2; Smith & Freyd, 2017), which was developed to assess institutional betrayal. Second, our sample included those who reported harassment-only MST. Yet many experiences of harassment MST might not meet Criterion A for PTSD. Consequently, future studies should examine these associations (particularly with respect to PTSD symptoms) in a sample of female service members/veterans with a confirmed Criterion A MST-related event. Third, data were cross-sectional, which prevents causal inferences about the directionality of MST, institutional betrayal, and psychiatric outcomes of interest. Fourth, data were based on self-report and may be susceptible to recall bias (Hassan, 2006). Lastly, the majority of participants in the current investigation identified as partnered or married, White, and reported service in the Army. As such, our results may not generalize to males or unpartnered females with more diverse ethnicities or from other military branches.

Notwithstanding these limitations, the current study builds on the growing area of inquiry that is institutional betrayal. Institutional betrayal appears to be a novel construct that may help explain adverse posttraumatic responses among female service members and veterans who experience MST. Given the limitations noted above, as well as prior research (Monteith, Bahraini, et al., 2016), perceptions of institutional betrayal are likely more widespread than our data indicate. Nonetheless, our results offer additional support for the associations of institutional betrayal following MST with higher depression and PTSD symptom severity, including specific PTSD symptom clusters of avoidance, negative alterations in cognitions and mood, re-experiencing, and dysphoric arousal. Clinicians should consider assessing for experiences and beliefs regarding institutional betrayal when conceptualizing treatment recommendations for female MST survivors reporting symptoms of PTSD and depression.

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.
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