The 2015-2016 Military Women's Health Study: Advances in Sexual Health and Trauma, Suicide, and Mental Health Outcomes Research

Rebecca K. Blais, Bingyu Xu, & Rishika Shah

Psychology Department, Arizona State University

Women are one of the fastest growing demographics within the U.S. military (Patten & Parker, 2011), and face many job-related trauma exposures that place them at risk for heightened psychological distress and dysfunction as well as suicide risk relative to their male counterparts. Job-related traumas include any traumatic event that is experienced during military service. Among military service members, this can include combat exposure and military sexual trauma (MST). Indeed, job-related trauma exposures are associated with increased risk for posttraumatic stress disorder (PTSD; Kimerling et al., 2010), depression (Kimerling et al., 2010), romantic relationship strain (Creech et al., 2016; Blais, 2021), and suicide risk (Blais & Monteith, 2019; Kimerling et al., 2016). Moreover, women are at heightened baseline risk for most of these mental health concerns relative to men (Kessler et al., 2012), making them a particularly important group in which to focus scientific inquiry. Despite this, the majority of the mental health and suicide literature within military samples is largely circumscribed to male service members/veterans (e.g., Monteith et al., 2022), likely due to their relative population size within the military (Department of Defense [DoD], 2022) and correspondingly, their long-standing exposure to job-related traumas. That is, men's ability to serve in combat has not been historically restricted, whereas it was not until 2017 when women could serve in all combat positions previously restricted to them (DoD, 2015).

One of the notable ways job-related traumas can impact mental health and well-being is through its effects on interpersonal and romantic function. Nearly half of all service members are married (DoD, 2022), making interventions to improve romantic relationships an important area of health care. Both the DoD and Department of Veterans Affairs (VA) offer a number of couple-based interventions, including Cognitive Behavioral Couple Therapy, Integrative Behavioral Couple Therapy, and Behavioral Couple Therapy (VA, 2022), yet few of these interventions are designed to address sexual functioning and satisfaction. Additionally, many providers do not feel adequately poised to address sexual health concerns and therefore do not ask patients about this relationship domain (e.g., Bergman et al., 2019). Anecdotally, patients, too, express reticence broaching the topic of sexual health, and when queried by their providers, they communicate discomfort, suggesting a lack of socialization to openly discussing sexual health matters among patients and provider (Blais, personal communication, July 5, 2022). This may be particularly problematic among female military samples, who report disproportionately higher risk for MST (Allard et al., 2011; Blais et al., 2023; Schultz et al., 2006).

The DoD defines MST as any instance of unwanted sexual attention, sexual assault, rape, or the threat or attempt of these offenses (DoD Sexual Assault Prevention and Response, 2012). Relative to non-sexual traumatic exposures, traumas that are sexual in nature confer greater risk for individual and interpersonal distress (Blais & Monteith, 2019; DiMauro et al., 2018; Sexton et a., 2017), suggesting exposure to MST may be an important topic within couples' interventions. Unfortunately, the sexual impact of MST on female Service women and Veterans sexual and relationship functioning is understudied, resulting in a dearth of knowledge that limits the effectiveness of both individual and interpersonal interventions. To address this knowledge gap, the *Women's Health Study* was conceptualized in 2014. Conducted by the *Military Social Science Laboratory* (MiSSiLe; Utah State University, 2014-2021; Arizona State University, 2021 – present), this study specifically sought to understand the association of exposure to MST, sexual function and satisfaction, and relationship satisfaction among women service members/veterans. The *Women's Health Study* also assessed several covariates thought to be associated with these experiences, including premilitary sexual trauma exposure (Tannahill et al., 2023), PTSD, depression, alcohol use severity (Kimerling et al., 2007), stigma and disclosure of MST (Holland et al., 2016), and suicide risk (Kimerling et al., 2016).

Upon receipt of the *Women's Health Study* data, it was clear there were many additional gaps in knowledge about women's mental and sexual health, both inside and outside the context of MST, that this dataset could address beyond the associations posed in the parent study. The current review sought to further explore these associations by reviewing studies that had used *Women's Health Study* data. To date, 22 studies have been published or submitted for publication using this dataset. Thematic analysis was used to thematically code study outcomes with the goal of augmenting couples' therapy protocols to include the assessment and treatment of related sexual health issues following exposure to MST.

Method

To conduct this study, pilot grant funding was obtained by the P.I. (R.K.B.) from the *Society for Military Psychology* (Division 19, American Psychological Association). The parent study from which the *Women's Health Study* data were originally collected was approved by the Institutional Review Board at Utah State University and Arizona State University. Data were collected in 2015-2016 over a period of roughly seven months. Women service members/veterans were recruited to participate in this study using approved advertisements that were posted on social media and to listservs. Listservs were focused on women's military service groups and advertisements were sent to those whose social media profiles indicated that they worked for the military. The wording for the recruitment fliers/emails can be found in Appendix B. To be eligible for participation, individuals had to identify as a woman, report past or current service in the military, be of consenting age, and report being in a relationship at the time of the study. Those who wished to participate were provided with a study link to Qualtrics, Inc (Qualtrics, Inc, 2020). Individuals read the Letter of Information and provided their consent to participate using a radio button. Those who agreed to participate advanced in the survey to complete all measures via self-report. Individuals who did not wish to participate simply left the survey website. Monetary compensation of $15 was offered for participation.

Thematic analysis for the current review began with the creation of a master list of all papers that have been published or submitted for publication using *Women's Health Survey* data. This list was created using a database maintained by the *Women's Health Survey's* Principal Investigator (RKB). All studies published or submitted for publication using this dataset were subjected to an initial independent review by the study team to determine overarching topics/themes as they related to the outcome of interest (e.g., sexual function, sexual satisfaction, suicide). To date, 22 studies have been published or submitted for publication using this dataset. Following the creation of the master list, ream members coded all studies prior to meeting as a group to discuss and collate coding themes. Categorization of outcomes was then discussed among all team members to identify discrepancies in categorizations. When there was a discrepancy based on how any paper was categorized (e.g., sexual satisfaction vs relationship satisfaction), the paper was reviewed by the group for content and further discussed until consensus was reached. Consensus was reached in each case. In addition to thematic analysis, researchers summarized the findings from the 22 studies (Appendix A) to provide a review of challenges experienced by these women, and suggest future areas of study.

Results

Sample Demographics

Sample characteristics are reported in Table 1. The sample included 833 women, the majority of whom identified as partnered or married at the time of participation (n = 817); 98.08%; see full demographic information in Table 1). The majority (n= 680; 81.63%) endorsed exposure to MST, 34.09% (n=284) of which reported that their MST included threat of sexual assault or sexual assault. This estimate is notably higher than previous reports suggest (e.g., Kimerling et al., 2007), including a meta-analysis, which revealed that the average rate of reporting MST was 38.4% among women (Wilson, 2018). The anonymous nature of our data collection is thought to be the reason for this heightened rate of reporting. A list of measures included in the survey is included in Table 2.

The average score of 10.13 (SD = 7.64) on the PHQ-9 is consistent with a moderate level of depression (Kroenke et al., 2001). Notably, 19.82% (n = 165) endorsed at least some suicidal ideation on item 9 of the PHQ-9. The average score on the PCL-5 was 25.31 (SD = 23.29) and 38.20% (n = 307) fell above the suggested cut-off of 31+ for a positive screen for PTSD (Bovin et al., 2016). However, the sample was not fully comprised of those who have experienced trauma, so concluding that roughly 40% of this sample has probable PTSD should be cautiously considered. Indeed, we did not have a standardized measure of lifetime trauma exposure, nor a measure of combat exposure, which was a limitation of this data collection. However, each participant was asked about exposure to MST that included assault, and when completing the PCL-5, participants were asked to describe what event they responded to. All responses were coded by two licensed psychologists, and based on these responses, it was estimated that 426 51.14%) experienced a probable criterion A event. The average score on sexual function of 22.05 (SD = 9.78) suggested that participants were experiencing some level of dysfunction. The average score on couples' relationship satisfaction was 14.25 (SD = 5.13), suggesting that the sample was not relationally distressed.

Thematic Review of Findings

Of the 22 studies published or submitted for publication, 5 (22.72%) focused on suicidal ideation, 7 (31.18%) on sexual function and satisfaction, 4 (18.18%) on romantic relationship satisfaction, 2 (9.09%) disclosure of military sexual violence, 4 (18.18%) on multiple or other outcomes.

Relationship satisfaction

As noted above, the primary aim of The *Women's Health Study* was to examine correlates of relationship satisfaction among partnered women service members/veterans, particularly the association between MST exposure and sexual health. Overall, the dataset produced four studies of romantic relationship satisfaction, which was operationalized as the overall degree of happiness that one has in their romantic relationship (Funk & Rogge, 2007). To be included in these analyses, participants had to identify as partnered or married at the time of study participation (n = 817; 98.08%).

The first study, often referred to as our "parent" study or *The Women's Health Study*, observed that women who

reported a history of MST that included assault reported lower sexual satisfaction and function relative to those reporting no history of MST during the military or a history of harassment-only. Lower sexual satisfaction and function, in turn, were associated with lower relationship satisfaction (Blais, 2020c). In a subsample of those that reported exposure to probable criterion A events (e.g., assault MST, combat; *n* = 477), certain symptom clusters of PTSD were differentially associated with relationship satisfaction, including higher anhedonia and dysphoric arousal. Another study utilizing the same subsample demonstrated that intrusions, avoidance, and anxious arousal were unrelated to relationship satisfaction (Blais, 2020a).

The *Women's Health Study* also produced findings on the associations between alcohol use, eating disorders, and relationship satisfaction. Using a subsample that had data on eating disordered behavior (*n* = 479, 57.50%), higher eating disordered behavior was associated with lower relationship satisfaction through the effects of higher sexual dysfunction and lower sexual satisfaction (Blais, Monson, et al., 2019). Another subsample of 584 (70.11%) women with data on drinking behavior, also found that the negative effects of PTSD and depression on hazardous drinking, were buffered by higher romantic relationship satisfaction (Blais et al., 2021).

Suicidal Ideation

Suicidal ideation is defined as thinking about and/or planning ending one's life (Center for Disease Control and Prevention, 2015). The *Women's Health Study* produced five studies that focused on identifying correlates of suicidal ideation. Two of these studies focused on the association of MST with suicidal ideation. Findings revealed that the association between MST that involved assault and suicidal ideation was indirect, through the effects of higher depression severity and PTSD-related anhedonia (Blais & Geiser, 2019). Moreover, when women identified their most stressful trauma as MST, they were at least three times more likely to report current suicidal ideation compared to those who reported their most stressful traumas was combat-/deployment-related (Blais & Monteith, 2019).

Two additional studies examined the association of suicidal ideation with interpersonal experiences, including sexual function and relationship satisfaction. The first study (*n* = 710; 85.23%) observed that after accounting for established mental health, military, and demographic characteristics, higher sexual dysfunction, particularly lower sexual arousal and poorer sexual satisfaction, were associated with higher suicidal ideation (Blais, Monteith, & Kugler, 2018). The second study observed that regardless of mental health symptom severity, such as PTSD and depression severity, lower relationship satisfaction was associated with higher suicidal ideation (Blais, 2020b).

Sexual Function

The *Women's Health Study* produced seven studies relating to women's sexual function and satisfaction as primary outcome variables. In the initial study used for data collection, results from a subsample of 697 women (83.67%), revealed that the association of MST exposure and worse sexual function was indirect, through the effects of higher depression severity, particularly among those reporting that their MST included assault (Blais, Livingston & Fargo, 2020). Similarly, another study observed that anhedonia and dysphoric arousal, which represent the depressive components of PTSD, were the mechanism of the association of MST that involved assault and lower sexual satisfaction (Blais, Geiser & Cruz, 2018). A third study which was conducted in a subsample of partnered women (*n*=818; 98.20%), revealed that higher depression severity and more negative sexual self-schemas were the mechanisms of the association between MST exposure and sexual dysfunction (Blais & Livingston, 2021).

Using a pilot sample of data (*n* = 255; 30.61%) collected in 2015, DiMauro et al. (2018) observed that those reporting exposure to sexual trauma (vs other trauma exposures) reported lower sexual satisfaction. Similarly, a study using a separate subsample of participants reporting exposure to a potential criterion A stressor (e.g., combat, MST that involved assault; *n*= 426), revealed that exposure to MST that involved assault was related to more severe depression and PTSD symptoms relative to other types of trauma exposure (e.g., combat). Moreover, higher PTSD and depression symptoms, in turn, related to poorer sexual function (Blais, Zalta & Livingston, 2020). Another study which also used a subsample of participants reporting probable Criterion A exposures (*n* = 426; 51.14%), found that regardless of trauma type, higher PTSD severity was associated with greater complaints of problems with lubrication and poor sexual arousal (Blais et al., 2022). Finally, results from a recent 2022 study observed that sexual dysfunction was highest among those reporting higher disordered eating behaviors, and the mechanism of this was higher depression severity (Livingston et al., 2022).

Disclosure of MST

Two studies investigated disclosure of MST during screening. The first study examined whether self-stigma and anticipated enacted stigma from various sources for seeking help for MST-related concerns correlated with disclosure of MST during screening. Participants in these studies included only those that reported MST and a history of previous screening for MST. The first study was qualitative in nature and examined rates of disclosure in a pilot sample who provided free text responses related to their reasons for non-disclosure (*n* = 143). Nondisclosure of MST was the highest among women who were assaulted by a fellow unit member as compared to a non-unit member assailant. Moreover, the primary reasons for nondisclosure included stigma, discomfort with the screening setting, and experiential avoidance (Blais et al., 2018). A second study used validated measures of stigma to determine if stigma remained a correlate of disclosure. In unadjusted analyses, participants who did not disclose MST reported higher self-

stigma and anticipated enacted stigma from unit leader/command and romantic partner. However, after adjusting for covariates, the effects of anticipated enacted stigma were non-significant, whereas the association of higher self-stigma remained significantly associated with MST nondisclosure (Andresen & Blais, 2019). Notably, in a subsample that responded affirmatively to the suicidal ideation item of the PHQ-9 (n = 756; 90.76%), Blais and colleagues observed that anticipated enacted stigma from leaders was associated with higher suicidal ideation through the effects of higher self-stigma (Blais et al., 2023).

Mental Health and Suicide Outcomes

Three studies examined multiple outcomes relevant to exposure to MST. To understand whether MST that involved assault was associated with poorer mental health outcomes relative to harassment-only MST (n=656; 78.15%), one study revealed that those who reported assault MST, relative to harassment-only, were more likely to report probable PTSD, depression, and sexual function diagnoses. Moreover, they were more likely to report higher PTSD, depression, and worse sexual function symptoms, as well as the presence of suicidal ideation (Blais, Brignone, et al., 2019). Moreover, Tannahill et al. (2021) observed that PTSD symptoms were higher among women reporting MST that involved assault, particularly the presence of intrusive, avoidance, negative affect, and anhedonia symptoms, and higher risk for more severe negative affect symptoms, but assault MST did not necessarily increase the risk of a probable PTSD diagnosis. Similarly, when participants reported either MST or multiple exposures of sexual violence (e.g., MST and premilitary sexual traumas), participants reported higher depression, and suicidal ideation relative to pre-military sexual violence and no sexual violence exposure (Blais et al., 2022).

The final study explored how institutional betrayal, which is the experience of a perceived failure by an institution to act or respond supportively to a traumatic event (Smith & Freyd, 2013) related to PTSD and depression symptoms as well as suicidal ideation. A study of 679 (81.51%) participants observed that institutional betrayal was associated with higher depression and PTSD symptom severity, most notably higher avoidance, negative alteration in cognitions and mood, re-experiencing, and dysphoric arousal. No significant associations were found with sexual function or suicide variables (Andresen et al., 2019).

Discussion

The *Women's Health Study* was carried out to develop the area of literature examining the association of MST, sexual health, and relationship satisfaction among women reporting past or current service in the U.S. military. Notably, much of the research on trauma within the military is focused on men or framed within a gender-neutral lens (e.g., Kugler et al., 2019; Monteith et al., 2022), necessitating advances in our understanding of how these experiences uniquely impact women. Findings from these cross-sectional studies revealed that when women reported MST that involved assault (relative to harassment-only), they reported poorer sexual function and sexual satisfaction, and these latter two variables, in turn, were associated with poorer relationship satisfaction (Blais, 2020c). In addition to collecting data on these primary variables of interest, we included several measures as covariates and quickly realized that these covariates could fill key gaps in the literature. What has resulted is an additional 22 papers that have been published in peer-reviewed outlets. The overarching outcomes of these papers, in addition to relationship satisfaction, included sexual function, sexual satisfaction, suicidal ideation, disclosure of MST, and mental health.

Clinical Implications

Our findings suggest that MST is associated with poorer sexual function, most notably through higher depression, PTSD, and more negative self-schemas. These findings are consistent with other recently conducted studies demonstrating associations between sexual dysfunction and various mental health illness (e.g., Basson & Gilks, 2018), though the size of this literature is still comparatively small relative to other interpersonal outcomes. As a first step toward improved care, we recommend clinicians consider screening for sexual health concerns. It is possible that the lack of screening is due to relative few clinical training opportunities on sexual health. As such, we urge doctoral programs in clinical psychology to consider offering training through didactics and practicum opportunities, and supporting students attending conferences that focus on sexual health. Medical training includes helpful training tips that may shape approaches to asking about sexual health concerns (e.g., Savoy et al., 2020). For example, clinicians may consider the "5-P" approach, which queries about sexual practices, plans, protection, partners, and past history. Our findings further highlight the utility differentiating between severities of MST when providing clinical care. Whereas all instances of MST were associated with aversive outcomes, our findings consistently revealed that MST that involved assault was related to the most severe outcomes. Finally, our research observed barriers to reporting MST. It would behoove clinicians (and clients/patients) to consider rescreening for MST after some level of care has been provided. It is possible that some service members/veterans may feel more comfortable disclosing their sexual traumas after a therapeutic relationship has been established. As noted by others (e.g., Inoue et al., 2022), distress can appear at any time point making repeat screenings a potential tool in improving care across the life span.

Research Implications

When the *Women's Health Study* was conceptualized, we had not anticipated conducting analyses distinguishing between harassment and assault MST. Historically, the VA MST Screening Questionnaire is used to indicate the presence or absence of *any* exposure to MST through two

screening questions that are collapsed into a single item in the VA medical record. Our team recognized early on that one of the advantages of our data collection was that we had the ability to look at these two questions as separate predictors, and indeed, our results showed that MST that included assault was associated with worse outcomes relative to harassment-only exposures in all of our studies (Blais, Brignone, et al., 2019; Tannahill et al., 2021). We hope that our studies encourage other researchers to examine the spectrum of MST exposures, and future studies would strengthen the literature by looking at different conceptualizations of severity, including frequency of MST, the number of assailants, or whether injury was sustained. As noted elsewhere, when conducting trauma-informed care and research, it is critical to continually refine screening methods to be effective (e.g., Raja et al., 2021).

Colleagues have noted the limitations of extant literature on military samples such that the majority of these studies and findings are drawn from male-only or male-dominated samples (e.g., Kugler et al., 2019; Monteith et al., 2022). Many journals now mandate a diversity and inclusion statement within papers and we argue that gender/sex should be discussed each time. Given that women in the military are an under-represented group, coupled with the relative dearth of research on women in the military, the field would benefit from a gender sensitive view (e.g., Monteith et al., 2022), which may be partially achieved by addressing gender/sex more routinely in diversity and inclusion sections. Researchers have well highlighted gender differences in posttraumatic responses between men and women (e.g., Hourani et al., 2015; Tannahill et al., 2020; Tannahill et al., 2021; Tannahill et al., 2023), and to advance this literature meaningfully, effortful attempts to describe gender/sex differences and similarities are paramount.

Participants from the *Women's Health Study* were largely recruited via social media, which precluded us from verifying military service using official documentation. Several reviewers expressed concern about this approach. This is a reasonable concern and challenges with collecting sound data using similar methodology has been mentioned elsewhere (Pedersen et al., 2017). At present, when our laboratory is conducting research using similar recruitment strategies, we do a series of quality checks to ensure that the participant engaging with our surveys is a probable service member/veteran (Tannahill & Blais, 2022). These checks include answering a series of military-related questions that would be familiar information to any service member, but would not necessarily be known to a civilian. To pass the checks, participants must respond correctly to several questions, and any incorrect answers result in study termination. Indeed, the chances of answering all questions correctly by guessing is estimated to be 0.16%. As the use of social media to recruit participants continues, we hope other researchers will share their strategies to ensure gathering quality data so that methods may become more standardized in the absence of face-to-face data collection.

Our dataset also provides the opportunity to compare differences in posttraumatic reactions to those actively serving and those who have separated from military service, or when more optimal, to covary for discharge status in analyses. Notably, most studies in both men and women as well as gender neutral military samples include either those who are discharged from service (of which findings come primarily from the VA) or those who are actively serving. Given that we recruited both concurrently, we were able to look for possible differences across groups, which has been noted as a gap our in our understanding of distress in this population (e.g., Hoffmire et al., 2021). It is established that there are differences in rates of reported traumas based on whether individuals have separated from military service (e.g., Blais et al., 2018; Morral et al., 2015), which may account for differences in reported rates of disorders, such as PTSD (National Academies Press, 2014; VA, 2022). Our studies were able to adjust for this demographic characteristic in analyses.

Limitations and Future Directions

As all of our data came from a single dataset, our findings have inherent bias, particularly given the self-report nature of our methods. Whereas we asked about current or past military service prior to administering any study questions, we were not able to verify military service with official documentation. All of our data were cross-sectional and a number of papers examined mechanistic models of distress. Future research in this area should consider longitudinal designs to better assess these dynamic relationships. As noted above, the parent study did not contain a measure of overall trauma exposure, which further prevented any causal explanations from being made. It is possible that participants' mental health outcomes and overall wellbeing were complicated by trauma exposures other than MST, especially other experiences of sexual or gender-based violence. Future studies should consider assessing or covarying for other types of traumatic events. Though the parent study's purpose was to examine relationship satisfaction, limited information about the relationship was gathered, including sexual orientation/identity of both partners and length of relationship. Future studies should take care to standardize assessments of relationship satisfaction. As noted above, future studies would also strengthen the literature by broadening the definition of severity of MST, for example, to include multiple exposures or multiple perpetrators (e.g., Tannahill et al., 2023). To further reduce bias, measures or assessments of trauma history and symptom severity other than self-report could strengthen the validity of these findings. Such methods would increase the complexity of the study design, but the field would make notable gains with the soundness of the data.

Conclusions

The *Women's Health Study* addressed literature gaps on mental health in women who have served in the U.S. military and has provided key insights into how to measure

MST more effectively and areas of intervention following MST. The ability to publish over 20 studies in peer-reviewed outlets lends support for the utility of collecting quality data using social media. It is our hope that researchers use these studies to conduct additional research that can be used to improve the quality of care offered to women service members and veterans.

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Table 1.

Sample descriptive statistics

Variables	N	*M*(*SD*)/%
Age	828	32.10 (7.44)
Race	833	
Caucasian/White	640	76.83%
African American/Black	39	4.68%
American Indian/Alaska Native	4	0.48%
Latino-a/Hispanic	50	6.00%
Bi-racial/multi-racial	80	9.60%
Marital Status	833	
Partnered/married	818	98.20%
VA care	262	31.49%
Service branch	832	
Army	457	54.93%
Marines	86	10.34%
Navy	122	14.66%
Air Force	148	17.79%
Coast guard	8	0.96%
Multiple	11	1.32%

Table 2.

Study Measures.

Variable	Measure	Score Range	Diagnostic Information
Romantic relationship satisfaction	Couple's Satisfaction Index (CSI-4)	0-21	Distressed relationship: 13.5+
Sexual satisfaction	Sexual Satisfaction Scale for Women (SSS-W)	24-120	None
PTSD symptoms	PTSD Checklist (PCL-5)	0-80	Provisional diagnosis: 31+
Sexual function	Female Sexual Function Index (FSFI)	2.0-36.0	Sexual dysfunction: <=26.55
MST Exposure	VA MST Screening	0 (no), 1 (yes)	N/A
Depression symptoms	Patient Health Questionnaire (PHQ-9)	0-27	Mild: 5-9 Moderate: 10-14 Moderately severe: 15-19 Severe: 20-27
Disordered eating	Eating Disorder Examination Questionnaire (EDE-Q)	0-6	Clinical significance: 4+
Alcohol consumption	Alcohol Use Disorder Identification Test-Concise (Audit-C)	0-12	Problematic drinking for men: 4+ Problematic drinking for women: 3+
Substance use	Drug Abuse Screen Test (DAST)	0-10	Substantial level of problems related to drug misuse: 6+

Appendix A

Article Summaries

Citation	Title	Sample Size	Outcome	Independent Variables	Findings
Blais, 2020	Lower intimate relationship satisfaction among partnered female service members/veterans is associated with the presence of suicidal ideation.	818	Suicide ideation	Relationship satisfaction, depression and PTSD severity	Regardless of mental health symptom severity, lower relationship satisfaction was associated with higher SI
Blais & Geiser, 2019	Depression and PTSD-related anhedonia mediate the association of military sexual trauma and suicidal ideation in female service members/veterans.	833	Suicide ideation	MST, depression, and PTSD-related anhedonia	Depression severity and PTSD-related anhedonia mediated the association between MST and SI
Blais & Monteith, 2019	Suicide ideation in female survivors of military sexual trauma: The trauma source matters.	311	Suicide ideation	Index trauma	MST was associated with higher risk for current SI compared to combat-/deployment-related trauma
Blais et al., 2018	Sexual dysfunction is associated with suicidal ideation in female service members and veterans.	710	Suicide ideation	Sexual dysfunction	Lower sexual arousal and poorer sexual satisfaction were associated with higher SI, after accounting for mental health, military, and demographic characteristics
Blais et al., 2023	Stigma for seeking psychological help for military sexual trauma is associated with more frequent suicidal ideation among women service members and veterans.	756	Suicide ideation	Enacted stigma, self-stigma	Self-stigma mediated the association of anticipated enacted stigma and SI
Andresen & Blais, 2018	Higher self-stigma is related to lower likelihood of disclosing military sexual trauma during screening in female veterans.	209	Disclosure	Self-stigma, and anticipated enacted stigma	Participants who did not disclose MST reported higher self-stigma and anticipated enacted stigma from unit leaders/commanders and from romantic partners

Citation	Title	Sample Size	Outcome	Independent Variables	Findings
Blais et al., 2018	Assailant identity and self-reported nondisclosure of military sexual trauma in partnered women veterans.	143	Disclosure of MST	[quantitative survey]	Women who were assaulted by a fellow unit member were more likely not to disclose, with the primary reasons being stigma, discomfort with the screening setting, and experiential avoidance
Blais et al., 2019	The importance of distinguishing between harassment-only and assault military sexual trauma during screening.	656	Multiple outcomes	MSA and MSH	MSA, compared to MSH, was associated with higher risk for probable PTSD, depression, and sexual function diagnoses, as well as higher PTSD, depression, sexual function symptom severity, and SI
Andresen et al., 2019	Institutional betrayal following military sexual trauma is associated with more severe depression and specific posttraumatic stress disorder symptom clusters.	679	Multiple outcomes	Institutional betrayal	Institutional betrayal was associated with higher depression and PTSD symptom severity, higher avoidance, negative alteration in cognitions and mood, re-experiencing, and dysphoric arousal
Tannahill et al., 2021	Gender as a moderator of the association of military sexual trauma and posttraumatic stress symptoms.	833	Other	Assault MST and harassment MST	PTSD presentations differ on gender and type of MST, such that men report higher PTSD in the context of harassment-only MST and women report higher PTSD in the context of MST that involved assault
Blais et al., 2021	The buffering role of higher romantic relationship satisfaction on the association of hazardous drinking with PTSD and depression symptoms among female military service members/veterans.	584	Hazardous drinking	Depression and PTSD symptom severity, and relationship satisfaction	Higher relationship satisfaction buffered the negative effects of PTSD and depression on hazardous drinking

Citation	Title	Sample Size	Outcome	Independent Variables	Findings
Blais, 2020	Higher anhedonia and dysphoric arousal relate to lower relationship satisfaction among trauma-exposed female service members/veterans.	477	Relationship satisfaction	PTSD symptom clusters	Higher anhedonia and dysphoric arousal were associated with lower relationship satisfaction
Blais, 2020	Lower sexual satisfaction and function mediate the association of assault military sexual trauma and relationship satisfaction in partnered female service members/veterans.	817	Relationship satisfaction	MSA, sexual function, and sexual satisfaction	Lower sexual function and satisfaction mediated the association between MST that involved assault and relationship satisfaction
Blais et al., 2019	The association of disordered eating and sexual health with relationship satisfaction in female service members/veterans.	479	Relationship satisfaction	Disordered eating, sexual dysfunction, and sexual satisfaction	Higher sexual dysfunction and lower sexual satisfaction mediated the association between disordered eating and lower relationship satisfaction
Blais & Livingston, 2021	The association of assault military sexual trauma and sexual function among partnered female service members and veterans: The mediating roles of depression and sexual self-schemas.	818	Sexual function/ satisfaction	MST, depression severity, and self-schema	Higher depression severity and more negative self-schemas mediated the association of MST and sexual dysfunction
Blais et al., 2020	Interpersonal trauma and sexual function and satisfaction: The mediating role of negative affect among survivors of military sexual trauma.	426	Sexual function/ satisfaction	MST, and depression and PTSD symptom severity	Compared to other trauma, MST was related to higher depression and PTSD symptom severity, which were related to poorer sexual function
Blais et al., 2020	Higher depression severity mediates the association of assault military sexual trauma and sexual function in partnered female service members/veterans.	697	Sexual function/ satisfaction	MST, depression severity	Higher depression severity mediated the association of MST and sexual function

Citation	Title	Sample Size	Outcome	Independent Variables	Findings
Blais et al., 2018	Specific PTSD symptom clusters mediate the association of military sexual trauma severity and sexual function and satisfaction in female service members/veterans.	1,189^	Sexual function/ satisfaction	MSA, and PTSD symptom clusters	Anhedonia and dysphoric arousal positively mediated the association of MST that involved assault and sexual satisfaction
DiMauro et al., 2018	Sexual vs. non-sexual trauma, sexual satisfaction and function, and mental health in female veterans.	255	Sexual function/ satisfaction	PTSD and depression symptom severity, and suicidal ideation	Experience of sexual assault was related to sexual satisfaction, which then is associated with a variety of poorer mental health outcomes; sexual assault history may increase the impact of sexual function on suicidal ideation
Blais et al., 2021	Mechanisms of the association between PTSD and sexual arousal and lubrication functioning among trauma-exposed female service members/veterans.	464	Sexual function/ satisfaction	PTSD and depression symptoms	PTSD symptom severity is associated with arousal and lubrication dysfunction via its contribution to higher depression severity and strained romantic relationships
Livingston et al., 2022	Depression mediates the association of disordered eating behaviors and sexual function in female service members and veterans.	511	Sexual function/ satisfaction	Disordered eating and depression severity	Higher depression severity mediated the association of sexual dysfunction and disordered eating
Blais et al., 2022	Sexual Violence in Military Service Members/Veterans Individual and Interpersonal Outcomes Associated with Single and Multiple Exposures to Civilian and Military Sexual Violence	833	Multiple outcomes	Sexual revictimization	Women who reported MST or revictimization experienced higher PTSD, depression, and suicidal ideation relative to women reporting pre-military sexual violence and no sexual violence exposure

Note. ^This study utilized full information maximum likelihood to include all participants who entered the survey, not just those that completed the survey.

Appendix B

Study Advertisement Example