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Journal

SLEEP, 46(3)

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Publication Date

2023-03-09

DOI



10.1093/sleep/zsac313

Peer reviewed



Original Article

Contribution of post-trauma insomnia to depression and posttraumatic stress disorder in women service members: findings from the Millennium Cohort Study

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Abstract

Study Objectives: We examined whether women service members and veterans who reported recent combat and/or sexual trauma experiences had a greater risk of insomnia compared with women who did not report these recent experiences, and whether insomnia would be associated with a greater risk of mental health outcomes.

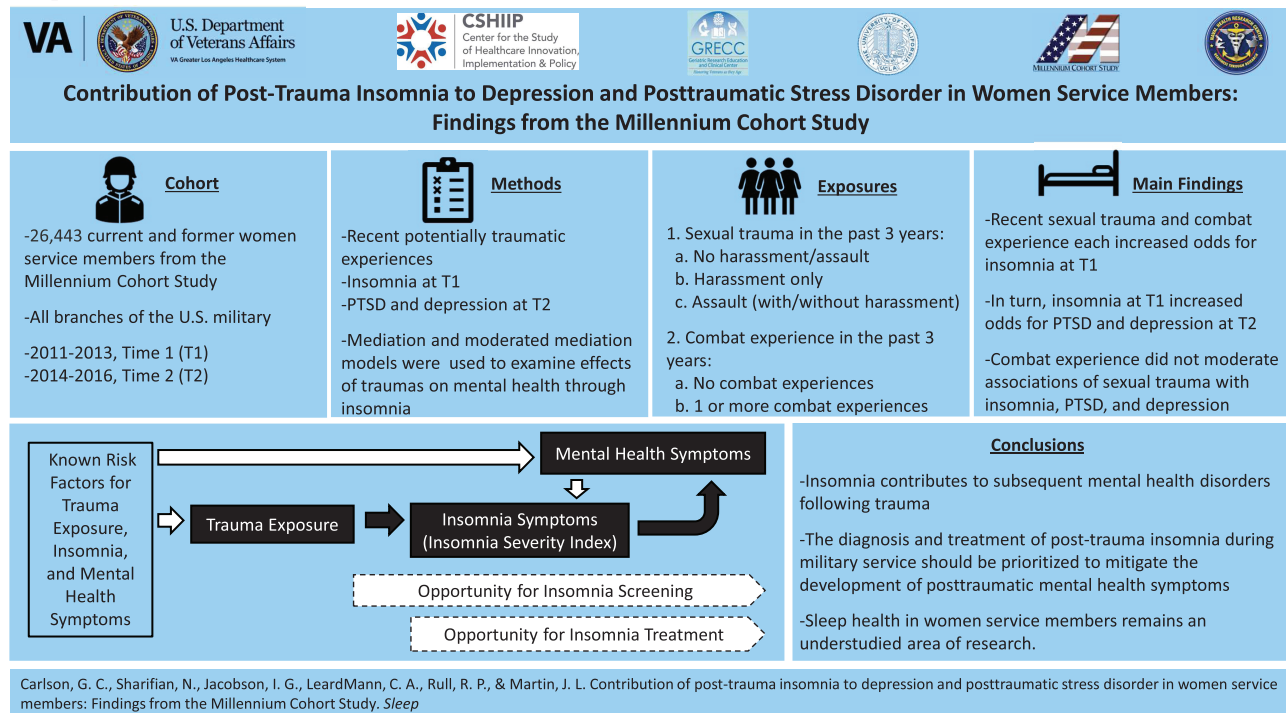
Methods: We analyzed two waves of survey data (2011–2013, Time 1 [T1] and 2014–2016, Time 2 [T2]) from 26443 current and former women service members from the Millennium Cohort Study. We assessed recent traumas in the past 3 years, and probable insomnia at T1 and probable post-traumatic stress disorder (PTSD) and depression at T2. A longitudinal mediation model was used to quantify separate indirect effects of recent traumas on mental health outcomes through probable insomnia.

Results: Women who had experienced recent sexual assault (odds ratio [OR] = 1.68; 95% CI = 1.24–2.10), sexual harassment (OR = 1.22; 95% CI = 1.05–1.41), and combat (OR = 1.34; 95% CI = 1.20–1.49) at T1 had a greater risk of probable insomnia at T1 compared with women who had not recently experienced these events. Probable insomnia at T1, in turn, was associated with probable depression (OR = 2.66; 95% CI = 2.31–3.06) and PTSD (OR = 2.57; 95% CI = 2.27–2.90) at T2. Recent combat experience did not moderate the associations of recent sexual trauma with insomnia or mental health outcomes.

Conclusions: Insomnia contributes to the risk of subsequent mental health conditions following trauma. The diagnosis and treatment of post-trauma insomnia should be prioritized to mitigate the development of posttraumatic mental health conditions.

Key words: insomnia; service members; women's health; PTSD; depression; military; veterans; sexual assault; sexual harassment

Graphical Abstract



Statement of Significance

There is a gap in the literature regarding sleep health in women service members. This is the largest cohort of current and former service women evaluated for trauma exposure, insomnia symptoms, and mental health symptoms. Probable insomnia partially explained the association between both recent combat exposure and/or sexual trauma and increased risk of probable PTSD and depression. Diagnosis and treatment of insomnia following trauma may offer an earlier point of intervention and prevention in the development of posttraumatic distress.

Introduction

Insomnia rates increased from 6 to 272 (per 10000) among U.S. military servicemembers from 2005 to 2019 [1]. Other estimates of insomnia prevalence among service members range from 19.9% to 32.7% [2, 3]. The prevalence of insomnia in service members has been shown to vary across sociodemographic and military factors (e.g. race, ethnicity, sex, rank, and service branch). For instance, service members who identify as American Indian or Alaskan Native and Black/African American experience higher rates of insomnia compared with other groups [1, 2]. Regarding military factors, enlisted personnel are significantly more likely to experience insomnia than officers [2, 4]. Service members in the Army experience higher rates of insomnia, nightmare disorder, and obstructive sleep apnea compared to other branch members [1, 5].

The prevalence of insomnia symptoms among women service members and veterans may vary based on major life events. For example, life transitions, deployments, and traumas have been shown to contribute to insomnia in service members [2, 6]. It is well established that stress and trauma during military service can lead to mental health symptoms, including posttraumatic stress disorder (PTSD) and depression [7]. Historically, insomnia was viewed as a secondary condition to these mental health disorders [8, 9]. Some evidence suggests insomnia symptoms may contribute to the development and severity of PTSD and

depression [10–12]. However, the temporal precedence of trauma-related insomnia and mental health symptoms has not been fully established, since the majority of previous studies include cross sectional designs or rely on retrospective data [13–15]. Thus, many providers still treat insomnia symptoms as a consequence of other comorbid conditions [16, 17].

Less is known regarding the antecedents and consequences of insomnia among women service members, as the vast majority of studies examining sleep in service members and veterans consist of predominately male samples [2, 3, 5]. A recent scoping review of sleep health in women service members highlighted the scarcity of research in this area [18]. Furthermore, the scant research that has been conducted in women service members and veterans and has shown mixed findings. One study found that women service members experience lower rates of insomnia than expected [1]. However, this finding may be attributed to the underdiagnosis of sleep disorders in women service members. A study found women in the Army experienced higher rates of insomnia than their male counterparts (28.4% vs. 22.0%) [19], and another recent study found that women service members were significantly more likely to develop insomnia symptoms compared with men service members [20].

The associations among trauma, insomnia, and mental health symptoms are further complicated by the unique trauma experiences of women service members, who are more likely to

experience interpersonal trauma than men service members and who are being exposed to combat at increasing rates. It is estimated that 30–45% of women veterans have experienced sexual trauma and 4–31% have experienced combat [21, 22]. Among women service members who go on to utilize VA healthcare, 46% link their insomnia onset to their military experience and 26% to a traumatic event [23]. Insomnia linked to traumatic events is predictive of more severe insomnia and mental health symptoms, including depression and PTSD symptoms among these women. However, there is limited research regarding the onset and experience of insomnia symptoms among current and former service women and how traumatic events during military experience uniquely and cumulatively contribute to subsequent insomnia and mental health conditions.

Our primary objective was to examine whether insomnia mediates the association between recent traumas and mental health outcomes. We hypothesized that women service members who reported recent combat and/or sexual trauma experiences would have greater risks of probable insomnia compared with women who had not recently experienced these events, which, in turn, would be associated with a greater risk of mental health outcomes (i.e. probable depression and PTSD). A secondary objective was to examine if recent combat experience moderated the associations between recent sexual trauma experiences and insomnia or recent sexual trauma experiences and mental health outcomes. We hypothesized that the associations between recent sexual trauma experiences and both probable insomnia and mental health outcomes would be stronger in women who also reported recent combat experiences compared with those who did not.

Methods

Study participants and procedure

Participants for this analysis were from the Millennium Cohort Study, the largest longitudinal study of U.S. military personnel, with approximately 260,000 enrolled participants [24–26]. In brief, participants were recruited from five separate panels between 2001 and 2021, with paper or web-based follow-up surveys occurring every 3–5 years since baseline. Participants were randomly selected from personnel files, with oversampling of several underrepresented subgroups, such as women [25, 26]. The current study primarily used survey data collected during the 2011–2013 (Time 1 [T1]) and 2014–2016 (Time 2 [T2]) survey cycles as T1 was the first survey assessment at which the Insomnia Severity Index was added to the study measures.

The eligible sample for this analysis consisted of women enrolled in the Millennium Cohort Study who completed a T1 follow-up survey (i.e. panels 1–4). Among 201,619 Millennium Cohort Study participants enrolled in the first four panels, 61,794 were identified as women (30.65%). Of these women, a total of 34,217 were excluded from analyses for the following reasons: 20,496 from panels 1–3 did not provide a T1 survey, and 13,721 from panel 4 were ineligible because the T1 survey cycle was their baseline Millennium Cohort evaluation, which only assessed lifetime history of trauma and did not include an assessment of recent trauma. Of the 27,577 eligible women, 995 were excluded due to missing recent sexual trauma and recent combat experience data at T1, and 139 were excluded due to missing T1 demographic and/or mental health data, resulting in a final analytic sample of 26,443 women. This study was approved by the Naval Health Research Center Institutional Review Board (protocol # NHRC.2000.0007). Participants provided informed consent.

Independent variable measures

Recent sexual trauma was assessed at T1 with two yes/no items: one sexual harassment item that asked if they had “experienced sexual harassment” and one sexual assault item that asked if they had “suffered force sexual relations or sexual assault” in the past 3 years. Consistent with previous research [27], responses were categorized as (1) no sexual harassment or sexual assault (reference group), (2) only sexual harassment (endorsing sexual harassment but not sexual assault), or (3) sexual assault (endorsing sexual assault with or without endorsing sexual harassment).

Recent combat experience was assessed at T1 with a 13-item combat measure that captured experiences (e.g. being attacked or ambushed) during deployment in support of the operations in Iraq and Afghanistan. Deployments may have been to Iraq, Afghanistan, or other countries where missions supported these operations. Combat experience was categorized as those who had at least one combat experience in the past 3 years versus those who had not (reference group). Specifically, those who did not deploy (i.e. no deployment experience in the past three years) and those who deployed and answered “never” to all 13 items (i.e. no combat experience in the last 3 years) were assigned a score of “0”.

Mediator variable measure

Probable insomnia was assessed using the 7-item Insomnia Severity Index (ISI) [28] at T1. Participants were asked to rate their sleep patterns and related satisfaction over the past 2 weeks using a 5-point Likert-type scale. Consistent with prior research [28, 29], items were summed for a total ISI score (range 0–28) and dichotomized where 15 or greater represented a positive screen for probable insomnia.

Dependent variable measures

Probable PTSD was assessed using the 17-item PTSD Patient Checklist–Civilian Version (PCL-C) [30] at T2. Participants reported how often they had experienced PTSD symptoms in the past month on a 5-point Likert-type scale (from not at all = 1 to extremely = 5). Consistent with prior research examining associations between insomnia and mental health [11, 31–33], the item related to sleep quality (“trouble falling asleep or staying asleep”) was excluded. Participants were considered to screen positive based on *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* criteria (i.e. ≥ 3 avoidance, ≥ 2 hyperarousal, and ≥ 1 intrusion symptoms were reported as “moderately” or higher) [34].

Probable depression was assessed at T2 using the eight items of the Patient Health Questionnaire (PHQ-8) [35–37], a validated screening instrument based on *DSM-IV* diagnostic criteria. Participants reported how often they were bothered by depressive symptoms over the last 2 weeks on a 4-point Likert-type scale (from not at all = 1 to nearly every day = 4). Consistent with prior research [11, 32, 33], the sleep item (“Trouble falling or staying asleep or sleeping too much”) was excluded. Participants screened positive if they responded “more than half the days” or “nearly every day” to ≥ 5 of the seven depressive symptoms, of which one item was depressed mood or anhedonia.

Covariates were assessed at T1 and consisted of demographics, military characteristics, and baseline mental health status (i.e. PTSD and depression were assessed at T1 using the same methods described above at T2). Demographics, including age, sex, race, and ethnicity were obtained from the Defense Manpower Data Center (DMDC). Military characteristics were also obtained from DMDC and included component status (active duty, Reserve/

National Guard), service branch (Army, Navy/Coast Guard, Air Force, Marine Corps), pay grade (enlisted, officer), and military separation (yes/no). Marital status and education level were self-reported on the T1 survey; the enrollment panel was based on when participants enrolled in the Millennium Cohort Study.

Analytic strategy

To address our objectives, longitudinal mediation modeling was conducted using a path analysis approach. All analyses used maximum likelihood estimation, and missing data were managed with full information maximum likelihood. Specifically, mental health outcome variables (probable PTSD and depression at T2) were regressed onto the mediator (probable insomnia at T1), exposure variables (recent combat experience, recent sexual assault, recent sexual harassment at T1), and covariates. The mediator variable (probable insomnia) was regressed onto exposure variables (recent combat experience, recent sexual assault, recent sexual harassment at T1) and all covariates. Lastly, the exposure variables were regressed onto all covariates. Because recent trauma, probable insomnia, and mental health outcomes were operationalized as binary variables, odds ratios (ORs) and 95% CIs were reported.

Indirect effects refer to the products of the association between each exposure variable and the mediator and the association between the mediator and outcome variable, independent of all covariates. Direct effects refer to the association between each exposure and outcome variable, independent of mediators and covariates. Total effects refer to the sum of direct and indirect effects, corresponding to the association between an exposure and outcome variable, independent of all covariates.

In order to address our secondary objective, interactions were subsequently added to the model to assess whether recent combat experience moderated the associations between recent sexual trauma experiences and probable insomnia or between recent sexual trauma experiences and mental health outcomes.

To test the robustness of our observed associations, we conducted the following sensitivity analyses: (1) additional adjustment for prior history of trauma, (2) examination of insomnia symptoms measured continuously rather than the use of a clinical cut-off (3) examination of persistent insomnia rather than probable insomnia, (4) exclusion of women who reported being currently pregnant, and (5) examination of new-onset mental health outcomes among those with no PTSD or depression at T1.

Data management and descriptive analyses were performed using SAS software, version 9.4 (SAS Institute Inc., Cary, NC). All mediation models were conducted in Mplus, Version 8 (Muthén & Muthén, Los Angeles, CA).

Results

Descriptive statistics on sample characteristics and all variables of interest are listed in Table 1. Of the 26 443 participants, the mean age of women was 37.5 years old ($SD = 10.1$), and a majority of the sample identified as non-Hispanic White ($n = 18\,262$; 69.1%). In the past 3 years, 547 (2.1%) had experienced sexual assault, 1460 (5.5%) had experienced sexual harassment, and 3816 (14.4%) had experienced combat.

Mediation

Significant total effects of recent combat experience, sexual assault, and sexual harassment were found for probable PTSD (Table 2). When examining the mediating role of probable

Table 1. Descriptive statistics of current and former women service members

Characteristic	N = 26 443	%
Age at baseline, mean (SD), years	37.53	10.12
Race and ethnicity		
Asian/Pacific Islander/ American Indian/ multiracial	1906	7.21
Hispanic	1949	7.37
Non-Hispanic Black	4326	16.36
Non-Hispanic White	18 262	69.06
Marital status		
Not married (separated, divorced, widowed, single)	12 064	45.62
Married	14 379	54.38
Education		
High school or less	1017	3.85
Some college	7321	27.69
Associate or bachelor's degree	11 962	45.24
Master's, doctorate, or professional degree	6143	23.23
Enrollment		
Panel 1	13 065	49.41
Panel 2	5591	21.14
Panel 3	7787	29.45
Service branch		
Army	12 013	45.43
Navy/Coast Guard	5080	19.21
Marine Corps	800	3.03
Air Force	8550	32.33
Pay grade		
Enlisted	19 508	73.77
Officer	6935	26.23
Service component		
Reserve/National Guard	14 403	54.47
Active duty	12 040	45.53
Separated at baseline		
No	12 314	46.57
Yes	14 129	53.43
Prior history sexual trauma experiences (ever-2007) ^a		
Sexual assault	5588	21.24
Sexual harassment only	4457	16.94
Neither	16 258	61.81
Recent sexual trauma experiences (2011) ^a		
Sexual assault	547	2.07
Sexual harassment only	1460	5.52
Neither	24 436	92.41
Prior history of combat experience (2001–2007) ^a		
No	17 003	73.24
Yes	6212	26.76

Table 1. Continued

Characteristic	N = 26 443	%
Recent combat experience (2011)		
No	22 627	85.57
Yes	3 816	14.43
Probable insomnia (2011)		
No	21 055	81.37
Yes	4 821	18.63
Probable insomnia (2014) ^a		
No	14 865	79.01
Yes	3 950	20.99
Persistent insomnia (2011/2014) ^a		
No	16 398	89.03
Yes	2 020	10.97
Probable PTSD (2011) ^a		
No	23 756	89.84
Yes	2 687	10.16
Probable PTSD (2014) ^a		
No	18 066	89.50
Yes	2 119	10.50
Probable depression (2011) ^a		
No	24 966	94.41
Yes	1 477	5.59
Probable depression (2014) ^a		
No	17 692	91.94
Yes	1 551	8.06

PTSD, posttraumatic stress disorder; SD, standard deviation.
^aItem was assessed at the survey data year(s) indicated.

insomnia, significant indirect effects of recent combat, sexual assault, and sexual harassment on probable PTSD through probable insomnia were found. Specifically, as shown in [Figure 1](#), individuals who had experienced recent combat (OR = 1.34; 95% CI = 1.20–1.49), recent sexual assault (OR = 1.68; 95% CI = 1.34–2.10), or recent sexual harassment (OR = 1.22; 95% CI = 1.05–1.41) had elevated risks of probable insomnia compared with those who had not experienced recent trauma. In turn, individuals who screened positive for probable insomnia at T1 were approximately 2.5 times as likely to screen positive for probable PTSD at T2 than those without probable insomnia (OR = 2.57; 95% CI = 2.27–2.90), adjusting for T1 mental health. After accounting for indirect effects and covariates, direct effects remained significant for all three traumas on probable PTSD. Women who had experienced recent combat (OR = 1.36; 95% CI = 1.17–1.58), recent sexual assault (OR = 2.15; 95% CI = 1.65–2.81), or recent sexual harassment (OR = 1.73; 95% CI = 1.45–2.07) had greater risks of probable PTSD than those without recent trauma.

Significant total effects of recent combat, sexual assault, and sexual harassment were also found for probable depression ([Table 2](#)). When examining the mediating role of probable insomnia, significant indirect effects of recent combat, sexual assault, and sexual harassment on probable depression through probable insomnia were found. Specifically, all three distinct traumas were associated with greater odds of probable insomnia (effect estimates listed above). In turn, individuals with probable insomnia

at T1 were more likely to experience probable depression at T2 than those without probable insomnia (OR = 2.66; 95% CI = 2.31–3.06), after adjusting for T1 mental health. After accounting for indirect effects and covariates, direct effects remained significant for all three traumas on probable depression. Women who had experienced recent combat (OR = 1.23; 95% CI = 1.03–1.46), recent sexual assault (OR = 2.00; 95% CI = 1.48–2.68), and recent sexual harassment (OR = 1.55; 95% CI = 1.27–1.90) had elevated odds of probable depression compared with those who did not report recent traumas. All covariate effect estimates are listed in [Supplementary Table S1](#).

Moderated mediation

Recent combat did not moderate the effect of sexual assault (OR = .62, 95% CI = .33, 1.15) or sexual harassment (OR = .82; 95% CI = .55–1.22) on probable PTSD. No significant interactions were found between recent combat and sexual assault (OR = .65; 95% CI = .32–1.34) or recent combat and sexual harassment (OR = 1.08; 95% CI = .69–1.70) for probable depression. Lastly, recent combat did not moderate the effect of sexual assault (OR = .95; 95% CI = .57–1.60) or sexual harassment (OR = 1.01; 95% CI = .73–1.40) for probable insomnia.

Sensitivity analyses

Overall, the pattern of findings was consistent with our primary models. Detailed descriptions of the sensitivity analyses are reported in the [Supplementary Materials](#).

Discussion

Findings from this longitudinal study suggest that probable insomnia partially mediated the relationship between traumas and subsequent mental health outcomes. Probable insomnia appeared to be a precursor to mental health symptoms, contributing to the development of probable depression and PTSD following trauma. Supplemental analyses indicated that women with persistent insomnia symptoms were approximately five times as likely to screen positive for probable PTSD or depression. Current findings build on previous studies, which suggest insomnia symptoms linked to trauma precede and contribute to the severity of other posttraumatic mental health symptoms in service members [10, 11, 15].

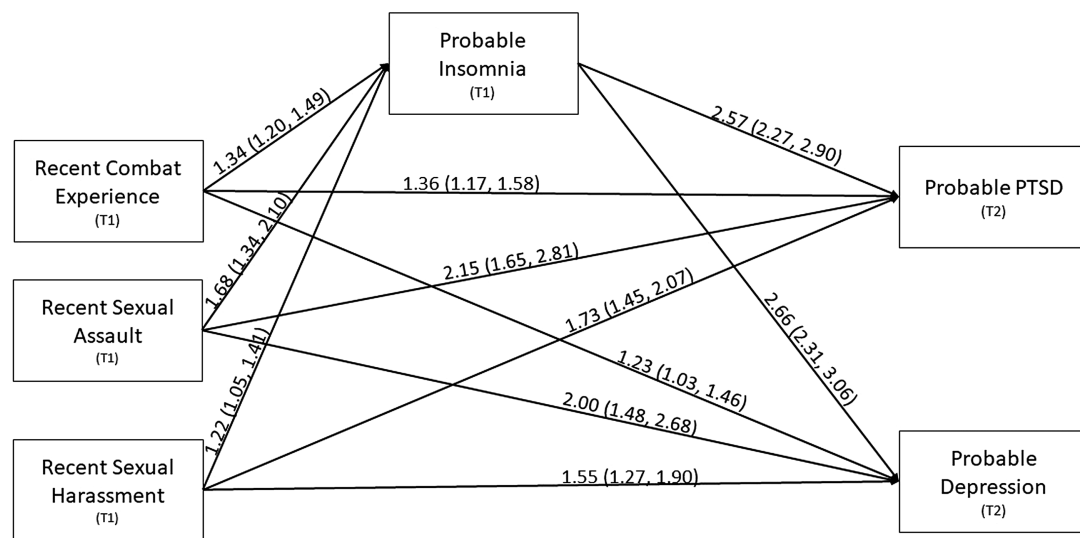
Additionally, we expected exposure to multiple types of events to amplify the associations between traumas and insomnia, and mental health outcomes. However, current findings showed that the estimates for those experiencing both recent sexual trauma and combat experiences were similar to those experiencing recent sexual trauma experiences without combat. One explanation for the absence of a moderating effect may be a ceiling effect for sexual trauma experiences. The baseline distress associated with sexual trauma experiences among women service members may be very high, and the incremental contribution of combat-related distress may be less apparent. Additional research is needed to explore the unique impacts of specific types of traumas and frequency of exposure on insomnia and mental health outcomes.

Prior research suggests that differences in race, ethnicity, pay grade, and service branch play a role in the development of insomnia and mental health symptoms [1–5] and therefore, were included as control variables in the current analyses. Previous studies have found rates of sleep and mental health conditions to be higher in enlisted personnel and service members in the Army [1, 2, 4, 5, 38], with women in the Army having higher odds

Table 2. Unstandardized total, indirect and direct effects of traumas on mental health outcomes

	Recent combat experience		Recent sexual assault		Recent sexual harassment	
	Effect	95% CI ^a	Effect	95% CI ^a	Effect	95% CI ^a
Probable posttraumatic stress disorder						
Total effect	.58	.40–.76	1.25	.91–1.60	.74	.51–.96
Indirect effect through probable insomnia	.27	.17–.38	.49	.26–.71	.19	.05–.33
Direct effect	.31	.16–.46	.77	.50–1.03	.55	.37–.73
Probable depression						
Total effect	.49	.28–.69	1.20	.82–1.57	.63	.38–.88
Indirect effect through probable insomnia	.28	.17–.40	.51	.27–.74	.20	.05–.34
Direct effect	.20	.03–.38	.69	.39–.99	.44	.24–.64

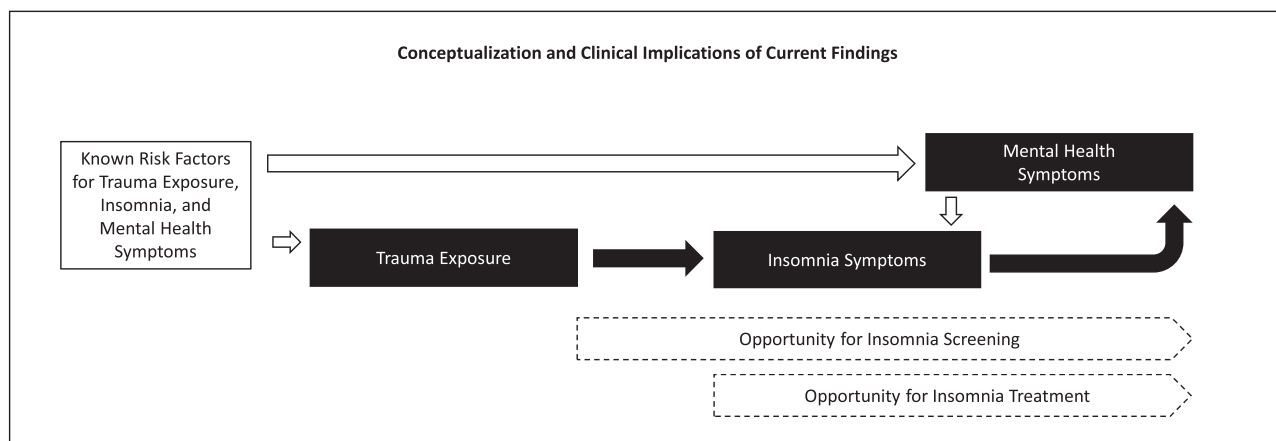
^a95% CIs that do not contain 0 represent significant effects at $p < .05$.

**Figure 1.** Impact of unique potentiality traumatic events on mental health outcomes through probable insomnia.

of symptoms for either PTSD, depression, or anxiety [20]. Enlisted personnel and service members in the Army may be exposed to insomnia-precipitating events, including trauma, at higher rates than officers or other service members, respectively. A previously published paper using data from women service members in the Millennium Cohort Study found that individuals who reported sexual harassment or assault were proportionally more likely to be enlisted versus officers and women in the Army reported more experiences of sexual harassment or assault [39]. There may also be a self-selection process, in that baseline rates of sleep and mental health conditions are higher among individuals who join the Army. Furthermore, rank and service branch likely interact with multiple other demographic variables and identity domains (i.e. age, sex, gender, race, and ethnicity). Previous research suggests intersecting identities (e.g. sex and race) may have cumulative/interactive effects on health outcomes [40–42]. Additional research is needed to examine how intersectional identities and corresponding experiences related to these identities contribute to insomnia.

There are some notable limitations to the current study. Insomnia and mental health outcomes were not evaluated by a

physician, and self-reported measures of probable insomnia (ISI), probable PTSD (PCL-C), and depression (PHQ-8) cannot confirm diagnoses. An ISI score of ≥ 15 is indicative of clinically significant insomnia, but the presence of all diagnostic criteria for insomnia disorder cannot be confirmed in this study. Nonetheless, these measures have been previously validated and have acceptable sensitivity and specificity compared to clinical diagnoses [28, 36, 37, 43]. Future studies should utilize more comprehensive diagnostic assessments. It should also be noted that we examined sexual assault and harassment in the past 3 years, which did not elucidate whether the events occurred during active military service. As such, these experiences may or may not be military sexual trauma experiences. For brevity, we referred to sexual harassment, sexual assault, and combat experiences as “traumas,” but we recognize these are potentially traumatic events given that the “traumatic” impact of these events could not be verified with current study measures. While we established temporal precedence for variables included in the current analyses, these associations remain prospective and intervention studies are needed to demonstrate causality. We acknowledge other demographic variables and risk factors may contribute to trauma



*Black boxes and arrows indicate variables and relationships examined in the current study; insomnia symptoms were evaluated using the Insomnia Severity Index (ISI) and mental health symptoms were evaluated using the Patient Health Questionnaire (PHQ-8) and the Posttraumatic Stress Disorder (PTSD) Patient Checklist-Civilian Version (PCL-C).

Figure 2. Conceptualization and clinical implications of current findings.

exposure, insomnia, and mental health symptoms and to the extent possible, we included potential confounds as covariates in current analyses. Despite these limitations, the study had multiple strengths. This is the largest cohort of current and former service women evaluated for trauma exposure, insomnia symptoms, and mental health symptoms. The prospective design enabled longitudinal examination of trauma, insomnia, and mental health outcomes. This study examined multiple types of traumas, which helped to clarify the unique impact of distinct traumas on sleep and mental health.

Current findings have important implications for clinical assessment and treatment. Screening for insomnia during military service would allow for earlier identification of insomnia and referral to treatment prior to the onset of more severe mental health symptoms; see Figure 2 for an illustration of the clinical implications of our findings. Consistent with the VA and DoD Clinical Practice Guidelines for the management of chronic insomnia and obstructive sleep apnea [44], women service members would benefit from insomnia assessment throughout their military service, but particularly following deployment or the experience of potentially traumatic events as this may be a particularly vulnerable time for insomnia symptom onset, even in the absence of mental health symptoms at that time.

The first-line treatment for insomnia disorder, Cognitive Behavioral Therapy for Insomnia (CBT-I) [45] is shorter than evidence-based psychotherapies for both PTSD and depression and is the preferred treatment option among men and women veterans with comorbid insomnia, PTSD, and depression [46]. While there is evidence CBT-I is effective and acceptable to women veterans [47, 48], only one study has examined the effect of CBT-I among service members (70.4% men and 29.6% women) [49]. While findings were not separately presented for men and women, service members who received an adequate dose of CBT-I (4+ sessions) showed significant insomnia symptom improvement, but only 58% of participants completed at least four sessions [49]. It appears CBT-I is effective when completed, but barriers to treatment engagement exist for service members.

Current findings suggest that insomnia symptoms after trauma predict subsequent mental health symptoms in current and former women service members, which addresses a notable gap in the sleep health literature for women service members. Future studies should examine how posttraumatic insomnia

impacts physical and mental health trajectories and healthcare utilization in both women and men service members. Only one study to date has examined CBT-I in a military cohort [49], and there is very limited literature regarding the implementation of CBT-I among active-duty military personnel. Additional research should examine the acceptability and feasibility of CBT-I delivery to service members to identify potential barriers to and facilitators of treatment adherence and completion. Diagnosis and treatment of insomnia following trauma may offer an earlier point of intervention and prevention in the development of posttraumatic distress.

Supplementary material

Supplementary material is available at *SLEEP* online.

Acknowledgments

In addition to the authors, the Millennium Cohort Study team includes Jenn Belding, PhD; Satbir Boparai, MBA; Felicia R. Carey, PhD; Sheila F. Castañeda, PhD; Javier Villalobos, MS; Toni Rose Geronimo-Hara, MPH; Claire Kolaja, MPH; Sandra Magallon, MPH; Anna Rivera, MPH; Scott Roesch, PhD; Julia Seay PhD; Beverly Sheppard; Daniel Trone, PhD; Jennifer Walstrom; Nikki Wooten, PhD; and Katie Zhu, MPH. The authors also appreciate contributions from the Deployment Health Research Department, Millennium Cohort Family Study, and the Birth and Infant Health Research Team. We thank the Millennium Cohort Study participants. We would like to acknowledge Elizabeth Yano, PhD, MSPH, for introducing the coauthors and encouraging this research collaboration. We would also like to thank Chloe Bird, PhD, for the feedback she provided in preparation for submission of this manuscript.

Funding

The Millennium Cohort Study is funded through the Military Operational Medicine Research Program, Defense Health Program, and Department of Veterans Affairs (VA). The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript. Dr. Martin's efforts were

supported by a VA Health Services Research and Development (HSR&D) Research Career Scientist Award (Project # RCS 20-191). Additional support was provided by the National Heart Lung and Blood Institute (Martin K24HL143055) of the National Institutes of Health. Dr. Carlson was supported by the VA Office of Academic Affiliations through the Advanced Fellowship in Women's Health. Support was also provided by the VA Greater Los Angeles Geriatric Research, Education and Clinical Center and VA HSR&D Center for the Study of Healthcare Innovation, Implementation and Policy. The funders had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Disclosure Statement

Conflict of Interest: none.

Financial disclosure: none.

Non-financial disclosure: none.

Data Availability

The data underlying this article are not currently publicly available due to institutional regulations protecting service member survey responses, but may be available from the corresponding author on reasonable request, pending the development of required data use agreements.

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