RAND CORPORATION

Research Report

JULIA ROLLISON, JOACHIM O. HERO, KATIE FEISTEL, ARMENDA BIALAS, OWEN HALL, ROSEMARY LI, SARAH WEILANT, JODY LARKIN, COREEN FARRIS, KRISTIE L. GORE

Psychological Harms and Treatment of Sexual Assault and Sexual Harassment in Adults

Systematic and Scoping Reviews to Inform Improved Care for Military Populations

For more information on this publication, visit **www.rand.org/t/RRA668-1**.

Published by the RAND Corporation, Santa Monica, Calif.

Library of Congress Cataloging-in-Publication Data is available for this publication.

ISBN: 978-1-9774-0805-1

Cover: Crowd: Leon Tura/Getty Images Military pattern: Courtesy of Wikipedia.

Cover image design: Rick Penn-Kraus

About This Report

The objective of this evidence review report is to better understand issues related to psychological sequelae following sexual assault and sexual harassment. The report covers three specific review topics: (1) psychological interventions for adult victims of sexual assault or sexual harassment in military settings, (2) information regarding barriers and facilitators to accessing and remaining in care for adults who have experienced sexual assault or sexual harassment in military settings, and (3) associations between adult victims of sexual assault and sexual harassment and three mental health conditions (i.e., posttraumatic stress disorder, depression, and substance use disorders).

The fiscal year 2019 National Defense Authorization Act required the U.S. Department of Defense (DoD) to conduct a pilot program to assess the feasibility and advisability of using intensive outpatient treatment programs to address the psychological sequelae of sexual trauma for service members. DoD's Psychological Health Center of Excellence (PHCoE) has been leading the response and identified areas of need beyond its internal work to complete its response. PHCoE commissioned the RAND National Defense Research Institute to conduct a systematic literature review and policy review to inform DoD's efforts in this area. The evidence reviews were conducted by staff from the RAND Southern California Evidence-Based Practice Center.

The research reported here was completed in June 2021 and underwent security review with the sponsor and the Defense Office of Prepublication and Security Review before public release.

RAND National Security Research Division

This research was sponsored by PHCoE and conducted within the Forces and Resources Policy Center of the RAND National Security Research Division (NSRD), which operates the National Defense Research Institute (NDRI), a federally funded research and development center sponsored by the Office of the Secretary of Defense, the Joint Staff, the Unified Combatant Commands, the Navy, the Marine Corps, the defense agencies, and the defense intelligence enterprise.

For more information on the RAND Forces and Resources Policy Center, see www.rand.org/nsrd/frp or contact the director (contact information is provided on the webpage).

Acknowledgments

We thank Holly O'Reilly and Daniel Evatt for overseeing the project and providing helpful input. We also thank Nigel Bush, Allison Greene, Aubrey Hilbert, and Shirley Raguindin. We thank Christine Gidycz, Lisa Jaycox, Margaret Maglione, and Molly McIntosh for helpful comments and suggestions and other team members including Olamigoke Akinniranye and Yael Katz for their data collection efforts.

Summary

This report documents the following three evidence reviews focused on sexual assault and sexual harassment:

- Review 1 is a systematic review focused on psychological interventions for adult victims of sexual assault or sexual harassment in military settings.
- Review 2 is a scoping review regarding barriers to and facilitators of accessing and remaining in care for adults who have experienced sexual assault or sexual harassment in military settings.
- Review 3 is a systematic review focused on associations between (1) adult victims of sexual assault and sexual harassment and (2) three mental health conditions (i.e., posttraumatic stress disorder [PTSD], depression, and substance use disorders).

Systematic reviews tend to focus on well-defined research questions with relevant study designs identified a priori, while scoping reviews tend to be broader and include a wider variety of study designs (Arksey and O'Malley, 2005). Furthermore, systematic reviews incorporate an assessment of study quality, which is not typically a component of scoping reviews. The intended outcomes of these reviews are to promote evidence-based clinical policies using the highest standards of evidence, facilitate the implementation of effective treatments to improve the care of service members, and continue to identify gaps in clinical knowledge and barriers to care.

Across the three review topics, the research team searched the following databases: PubMed/MEDLINE, PsycINFO, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Campbell Collaboration Library of Systematic Reviews, Cochrane Database of Systematic Reviews (CDSR), Cochrane Central Register of Controlled Trials (CENTRAL), ClinicalTrials.gov, and the World Health Organization's International Clinical Trials Registry Platform (ICTRP). The research team also searched gray literature to identify relevant studies from January 1, 1980, through November 2020. We screened more than 10,500 citations in the title and abstract stage, followed by a full-text screening of more than 1,050 articles against the inclusion and exclusion criteria for each review topic. Sixty-seven studies met the inclusion and exclusion criteria. For the systematic reviews, we performed an in-depth critical appraisal to assess key sources of bias in prognostic studies and the quality of evidence using the Cochrane Risk of Bias in Non-Randomized Studies–of Interventions (ROBINS-I) tool (Sterne et al., 2016) for nonrandomized studies of interventions for Review 1 and the Newcastle-Ottawa Scale (NOS) for cohort and case-control studies (Wells et al., 2013) for Review 3.

This report presents our methodology, results, and conclusions (along with evidence tables) across all three reviews. For Review 1, findings showed medium to strong effects of psychotherapy interventions in reducing PTSD and depression symptoms among adult victims of

sexual assault in military settings, with low to very low ranges for the quality of evidence. In Review 2, individuals who have experienced sexual assault and sexual harassment in military settings identified barriers and facilitators that affect their ability to access and remain engaged in care. These barriers include the double stigma of the experience of sexual assault and the receipt of mental health care in the military, victims' concerns about not being believed or feeling that their experiences were not serious enough to warrant receipt of care, and victims' worries about how they might be viewed by coworkers. For Review 3, there were significant associations between sexual assault and the presence of PTSD, depression, and substance use disorders, emphasizing a link between specific mental health conditions (particularly PTSD among those in military settings) and experiences of sexual assault and/or sexual harassment. However, as in Review 1, the quality of the body of evidence varies from low to very low.

In addition to these findings, this series of reviews highlights the need for higher-quality evidence (e.g., more randomized controlled trials with a "no treatment" comparator to separate the effects of studied interventions from the effects of time in the absence of treatment; more prospective longitudinal designs that follow victims both before and after the point when trauma occurs) and identifies other critical research gaps—primarily, the need to more precisely measure and capture the setting of the sexual assault or harassment, the timing of the experience in relation to symptoms and treatment seeking and outcomes, and the need for more-diverse samples.

Contents

Figures and Tables

Figures

Tables

1. Introduction

Military victims of sexual assault and sexual harassment often experience a variety of negative outcomes. In terms of physical health, research has found that female service members who experienced sexual trauma were more likely to develop reproductive, urological, neurological, gastrointestinal, and pulmonary ailments compared with those who did not experience sexual trauma (Frayne et al., 1999). Sexual assault victimization has been linked to a variety of psychological outcomes and mental health symptoms related to posttraumatic stress disorder (PTSD), depression, anxiety, substance use, suicidal ideation, and self-harm (Psychological Health Center of Excellence [PHCoE], undated). There are also occupation-related outcomes; consistent with past studies, a recent RAND Corporation report found that a service member is two times more likely to leave the military if they were sexually assaulted (Morral et al., 2021).

Despite U.S. Department of Defense (DoD) efforts, sexual assault and sexual harassment rates in the military have not declined consistently over time. Estimates of the number of service members who experienced sexual assault in the past year from the Workplace and Gender Relations Survey of Active Duty Members (WGRA) have declined from approximately 34,000 in 2006, but have stalled in recent years, with estimates fluctuating between roughly 15,000 and 26,000 since 2010 (DoD, 2021b). Data from the 2018 WGRA revealed that 6.2 percent of women and 0.7 percent of men were categorized as having been sexually assaulted in the past year. The same survey found that 24.2 percent of active-duty women and 6.3 percent of active-duty men experienced sexual harassment. (Breslin et al., 2019). Evidence from other surveys has given estimates that are consistent with those of the WGRA. According to the 2014 RAND Military Workplace Study survey, approximately 10,600 servicemen (1.0 percent) and 9,600 servicewomen (4.9 percent) had been sexually assaulted in the past year. Furthermore, of active-duty service members, about 116,600 were sexually harassed in the past year. Women were categorized as experiencing sexual harassment more than men, at 22 percent compared with 7 percent, respectively (Morral et al., 2015).

The percentage of victims who officially report sexual assault and sexual harassment to the military has consistently risen over the past decade, but official complaints of such incidents continue to be underreported relative to the estimated number of all incidents. The most recent record of official sexual assault reports and sexual harassment complaints in the military is 6,290 and 1,781, respectively, as of fiscal year 2020 (DoD, 2021a). Women who are sexually assaulted are more likely to report than men (DoD, 2021a), often to stop the perpetrators from hurting them again or others or because of others' encouragement to report (Breslin et al., 2019). The desire to forget and move on from the incident is the most common reason cited that deters reporting; other concerns include fearing that reports might negatively affect the victim's

performance reviews and career, facing a perception of being weak, not wanting others to know, thinking that the incident was not serious enough to report, and feeling ashamed (Breslin et al., 2019).

Connecting to health care or mental health care services following sexual assault or sexual harassment can be challenging. For example, among the service members who chose to report sexual assault, less than half described leadership providing the flexibility to attend sexual assault–related appointments (48 percent), leadership being concerned for their health and welfare (41 percent), or leadership support (38 percent) (Breslin et al., 2019).

Evidence Review

Over the past two decades, DoD has invested unparalleled resources into developing effective treatments for military-related mental health conditions. Synthesizing the results of that research helps determine whether treatments are effective enough to recommend for routine clinical practice. That is, evidence reviews that carefully document and synthesize published literature can translate the available research into evidence-based health care guidelines that promote optimal clinical care. DoD's PHCoE has an evidence synthesis team that focuses exclusively on psychological health issues and publishes internally conducted systematic reviews.

PHCoE identified an urgent need to better understand research that is pertinent to military sexual assault and sexual harassment for service members to improve the health care response (PHCoE, undated). The selected topics for this review are based on the RAND research team's topic refinement work with PHCoE. Taking into account feasibility, availability, and accessibility of data, we conducted searches to identify existing systematic reviews. We also considered the incremental validity of addressing the different topics related to sexual assault and sexual harassment as a more formal evidence review. Topics considered were (1) prevalence, (2) the association between mental health conditions and sexual assault or sexual harassment, (3) treatment for the psychological sequelae of sexual violence, (4) prevention of sexual assault and sexual harassment, (5) service utilization, and (6) barriers to care. We determined that examining prevalence and service utilization through a systematic review approach likely would not be beneficial at this time.[1]

In this report, we contribute to the evidence base regarding sexual assault and sexual harassment victimization among adults, related psychological outcomes and mental health conditions, and barriers and facilitators to accessing and staying in care for current and former military service members. We rely on systematic review approaches for two of the reviews (Reviews 1 and 3) and a scoping review approach for one of the reviews (Review 2). Systematic

[1] DoD administers a biennial survey to estimate the prevalence of sexual assault and sexual harassment in the U.S. military (e.g., Morral et al., 2015). For service utilization, we determined that statistics should be estimated directly from health system administrative records as opposed to indirectly through an evidence review.

reviews tend to focus on well-defined research questions with relevant study designs identified a priori, while scoping reviews tend to be broader and include a wider variety of study designs (Arksey and O'Malley, 2005). Furthermore, systematic reviews incorporate an assessment of study quality that is not typically included in scoping reviews.

This report focuses specifically on three topic areas:

1. psychological interventions for adult victims of sexual assault or sexual harassment in military settings
2. barriers and facilitators to accessing and remaining in care for adults who have experienced sexual assault or sexual harassment in military settings
3. associations between adult sexual assault or sexual harassment victimization and mental health conditions (i.e., PTSD, depression, and substance use disorders).

There are several terms used to describe sexual assault and sexual harassment.[2] For the purposes of this review, we used the definitions in Table 1.1 to help identify search terms.

[2] Sexual harassment was included in this review based on stakeholder input noting the potential for traumatic experiences from more-severe forms of harassment. To capture experiences along the continuum of potential harm, we included studies across all the reviews that focused on a variety of traumatic sexual experiences and reported the terminology used in each study (e.g., sexual harassment, sexual assault, sexual trauma). Certain terms, such as *military sexual trauma*, did not allow a separate examination of sexual assault and sexual harassment.

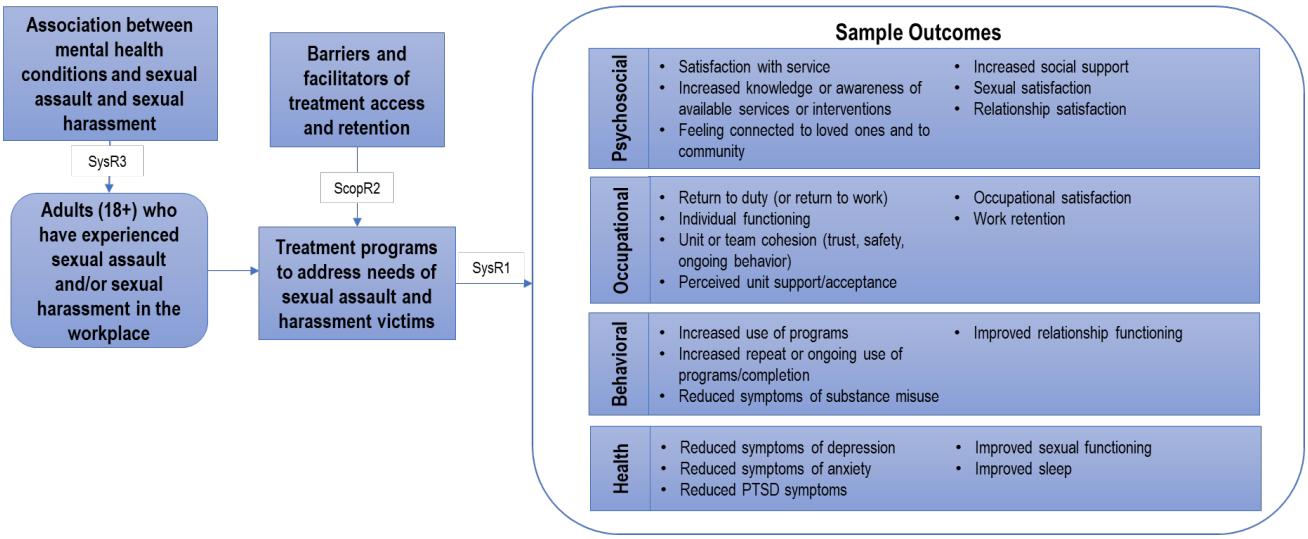
Table 1.1. Definitions

Term	Definition	Source
Sexual assault	"Intentional sexual contact characterized by use of force, threats, intimidation, or abuse of authority or when the victim does not or cannot consent. The term includes a broad category of sexual offenses consisting of the following specific [Uniform Code of Military Justice] offenses: rape, sexual assault, aggravated sexual contact, abusive sexual contact, forcible sodomy (forced oral or anal sex), or attempts to commit these acts."	DoD Directive 6495.01, 2021, p. 19; consistent with Articles 80 and 120 of the Uniform Code of Military Justice
Sexual harassment	"A form of sex discrimination that involves unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature when: • Submission to such conduct is made either explicitly or implicitly a term or condition of a person's job, pay, or career, or • Submission to or rejection of such conduct by a person is used as a basis for career or employment decisions affecting that person, or • Such conduct has the purpose or effect of unreasonably interfering with an individual's work performance or creates an intimidating, hostile, or offensive working environment." *Sexual harassment* includes a sexually hostile work environment and sexual quid pro quo, whereas *gender discrimination* is an equal opportunity violation but is not considered to be sexual harassment.	DoD Directive 1350.2, 2003, pp. 19–20.
Military sexual trauma (MST)	The U.S. Department of Veterans Affairs conducts mandatory MST screening[a] that captures experiences of severe sexual harassment and sexual assault. MST includes "physical assault of a sexual nature, battery of a sexual nature, or sexual harassment" [i.e., repeated, "unsolicited verbal or physical contact of a sexual nature which is threatening in character"] that occurred while a veteran was serving on active duty or active duty for training. MST refers to all types of sexual harassment or assault, to include severe or threatening forms of sexual harassment or sexual assault that occurred during military service. Because it also includes the experience of sexual harassment, the term is not interchangeable with sexual assault, despite some researchers using it in that way in the literature.	38 U.S. Code, § 1720D, (a)(1); (f).

[a] Specifically, the MST screening asks the following questions: While you were in the military . . . (1) did you receive uninvited and unwanted sexual attention, such as touching, cornering, pressure for sexual favors, or verbal remarks? and (2) did someone ever use force or threat of force to have sexual contact with you against your will? (McCutcheon and Pavao, 2011, p. 8).

We relied on the analytic framework in Figure 1.1 to illustrate the relationships among the populations, interventions, and outcomes of interest and to guide the series of reviews. In general, the population of interest for this review is adults (people 18 years of age and older) who have been sexually assaulted or sexually harassed. The types of outcomes that treatment interventions might address include psychosocial, behavioral, health, and military factors.

Figure 1.1. Analytic Framework



NOTE: PTSD = posttraumatic stress disorder. SysR = systematic review. ScopR = scoping review.

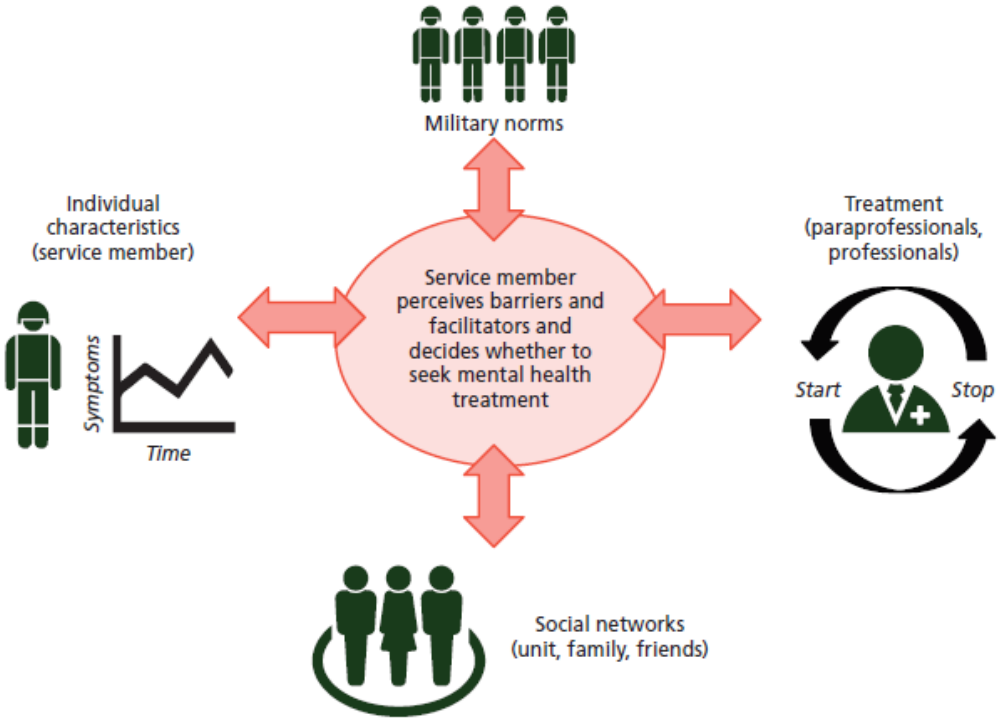
Psychological Interventions

This first review focused on treatment for the psychological sequelae of sexual assault and sexual harassment in a military setting. Several psychotherapy treatments have been found to be effective among both sexual and nonsexual trauma victims. However, sexual assault and harassment in a military setting have distinct qualities (e.g., a unique psychosocial and physical setting, greater severity in psychological sequelae, and distinct gender issues) that support the focused study of treatment effectiveness for this population (Allard et al., 2011). Preliminary searches identified some existing narrative reviews related to sexual violence in a military setting or among veterans, but these reviews have several important limitations; the authors did not pool data quantitatively, one included only studies that were published between 2010 and 2016, and one did not include research cataloged in PsycINFO (a critical database for psychological research) (Allard et al., 2011; Gerber et al., 2014; Middleton and Craig, 2012).

Barriers and Facilitators

The second review focused on identifying barriers to and facilitators of treatment access and retention that are specific to military service members who have experienced sexual harassment or sexual assault. Previous studies have explored barriers to and facilitators of accessing and engaging in mental health care and have pointed to conceptual frameworks summarizing the key influencing areas (see Figure 1.2), including individual characteristics, social networks, treatment factors, and military norms (Acosta et al., 2018).

Figure 1.2. RAND Conceptual Framework Outlining Possible Influences on Service Members' Decision to Seek Mental Health Treatment



SOURCE: Acosta et al., 2018, Figure S.2, p. xv.

However, there likely are unique barriers that are specific to individuals who have been sexually assaulted or harassed. Given the exploratory nature of this review, along with the needs to identify key characteristics or factors and assess the amount and quality of research in this area, we conducted a scoping review, which is a valid approach to evidence synthesis, to help fill gaps in the knowledge base and summarize and disseminate research findings (Arksey and O'Malley, 2005; Munn et al., 2018). Like the systematic review processes, the scoping review methodology relies heavily on rigorous and transparent processes that span the refinement of topic areas and the publication of the final evidence review report.

There is an existing body of research exploring the barriers to and facilitators of care following sexual assault or sexual harassment in the military context. Studies tend to rely on qualitative methods to understand these barriers and facilitators, although there have been some survey analyses providing insight into factors affecting seeking care (Zinzow et al., 2015). Many studies focus on the U.S. Department of Veterans Affairs (VA) setting to explore experiences with treatment for military sexual trauma (Cichowski et al., 2019; Turchik et al., 2014). Studies often tend to focus on female service members or veterans, and barriers for male service members are explored less frequently (Sadler et al., 2018).

However, there are limited studies synthesizing the evidence in this area. One practice-based scoping review examined barriers to engagement in acute and post-acute sexual assault response

services and found 18 key barriers within four major categories: service and systems, health professional, person/survivor, and person-context (Fitzgerald et al., 2017). However, this review's population inclusion was broad, included experiences of intimate partner violence, and focused only on barriers. To provide insight into barriers and facilitators affecting access to and retention of psychological interventions for victims of military sexual assault and sexual harassment, we incorporated studies exploring these issues in the military context.

Associations Between Sexual Assault and Sexual Harassment and Mental Health Conditions

The third review focused on associations between mental health conditions and sexual assault or harassment. Preliminary searches identified a growing body of evidence pointing to associations between mental health conditions and sexual assault or harassment among the general population and among military members and veterans. Commonly studied mental health conditions include PTSD, depression, anxiety, suicidal ideation and suicidality, and substance abuse or misuse in relation to sexual assault, sexual harassment, and MST (Rosellini et al., 2017; Schuyler et al., 2017; Street et al., 2008). One meta-analysis of research from 1970 to 2014 found that there is an increased risk for all forms of psychopathology studied (i.e., bipolar conditions, depression, anxiety, obsessive-compulsive conditions, trauma and stressor-related conditions, substance abuse or dependence, suicidality, and disordered eating) in association with sexual assault; the impacts (i.e., higher levels of psychopathology) of sexual assault victimization were found to be substantial for both military and nonmilitary populations (Dworkin et al., 2017).

Studies focusing on military members or veterans suggest that experiences with sexual trauma or sexual assault result in greater symptoms, higher risk, or greater odds of PTSD and depression (Beckman et al., 2018; DiMauro and Renshaw, 2018; Gross, Kroll-Desrosiers, and Mattocks, 2020; Gross et al., 2020; Schuyler et al., 2017). One recent study found that women veterans who had faced MST were at an increased risk for PTSD compared with men who had experienced MST, while men were more at risk for suicidal ideation (Tannahill et al., 2020). Another study examined mediators of suicidal ideation and MST among female service members and veterans and found that sexual harassment during military service was only weakly related to PTSD symptoms and depression symptom severity, while sexual assault during military service was strongly associated with both (Blais and Geiser, 2019). Other studies have pointed to a positive relationship between sexual harassment and greater risks of depression (Street at al., 2008). However, much of this research draws from studies without a comparator.

This systematic review comprehensively examines the strength of associations between sexual assault and sexual harassment and three conditions (PTSD, depression, and substance abuse) that are specifically named in Section 702 of the fiscal year (FY) 2019 National Defense Authorization Act (Pub. L. 115-232, 2018; van Toorenburg et al., 2020). Although observational studies are not equipped to provide insight into causal relationships, this information will be

valuable to better understand the negative aftermath of sexual violence and inform needed supports to service members (Klein and Gallus, 2018).

Summary

Together, these three reviews provide insight into the experiences of adult victims of sexual assault and sexual harassment, particularly in military settings. In the next chapter, we describe the methodology for these reviews.

2. Methodology

In this chapter, we describe the methodology for each of the evidence reviews, which vary in their aims, methods, and scopes. We begin this chapter by describing methods and approaches common to all three reviews, followed by specific descriptions for each of the reviews. The systematic reviews on psychological interventions for victims of sexual assault or harassment (Review 1) and associations between sexual assault and sexual harassment and mental health conditions (Review 3) have been registered in PROSPERO, the International Prospective Register of Systematic Reviews.

Overview of Reviews

In the following sections, we describe each of the literature reviews in detail. Table 2.1 provides a broad overview of the methods, focus, and population of interest for each review.

Table 2.1. Overview of Reviews

Review	Review Type	Focus	Population
1	Systematic review	Psychological interventions for adult victims of sexual assault or sexual harassment	Adults who reported experiencing sexual assault or sexual harassment in military settings[a]
2	Scoping review	Barriers and facilitators to accessing and remaining in care	Adults who reported experiencing sexual assault or sexual harassment in military settings
3	Systematic review	Associations between sexual assault or harassment and mental health conditions (i.e., PTSD, depression, and substance use disorders)	Victims of sexual assault or sexual harassment occurring in adulthood[b]

NOTES: PTSD = posttraumatic stress disorder.
[a] Because of the dearth of studies of psychological interventions for victims of military sexual assault and sexual harassment, this review initially had an expanded scope, to include studies in civilian workplace settings (i.e., similar workplace contexts). Given that such contextual factors as power dynamics and potential repercussions (e.g., retaliation, lost wages) could be similar across military and civilian workplace settings, evidence from interventions used in civilian workplace settings could be relevant. However, no relevant reviewed studies focused on the civilian workplace context. For the purposes of presentation in this report, we have specified military settings only.
[b] This review initially intended to focus on associations for adults who experienced sexual assault or sexual harassment in military settings or the workplace. However, because of limited information on the setting in which the sexual assault or sexual harassment was experienced and the limited number of studies focused specifically on adult experiences, the review scope was expanded.

Search Strategy Across Reviews

The RAND Southern California Evidence-based Practice Center librarian and content experts developed and tailored the search strategies to each review. Because we anticipated considerable overlap in search results across reviews, we used a central database for all reviews.

To identify the literature, we accessed the following electronic databases:

1. PubMed/MEDLINE
2. PsycINFO
3. Cumulative Index to Nursing and Allied Health Literature (CINAHL)
4. Campbell Collaboration Library of Systematic Reviews
5. Cochrane Database of Systematic Reviews (CDSR)
6. Cochrane Central Register of Controlled Trials (CENTRAL).

We searched ClinicalTrials.gov for more information about published trials and results published in the trial record. We also conducted a targeted search of the gray literature (e.g., RAND reports, Defense Technical Information Center website, the Sexual Assault Prevention and Response Office [SAPRO] website, the VA Office of Research and Development) and executed targeted searches in a general search engine (e.g., Google search). The search strategy for each review is documented in Appendix A. Studies published before 1980 were excluded from all three reviews to ensure applicability to a more modern context; study-specific inclusion and exclusion criteria are specified in the following subsections for each review.

Inclusion Screening Across Reviews

The search strategy yielded 10,552 citations. Articles were retrieved from the first database searched; articles might have been found in other databases but were removed as duplicates when the search was being completed. Citations were imported into DistillerSR, an online data abstraction program for systematic reviews, to manage the review.

The results of literature searches and inclusion-screening decisions are documented in a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram (Figure 2.1). In the title and abstract screening stage, the first 300 references were reviewed by at least two independent reviewers with prior experience screening titles and abstracts. These references were viewed in batches so that the reviewers could discuss any areas of ambiguity or conflict before independently reviewing the remainder of the articles. Definitions regarding exclusion criteria were clarified as needed throughout this process. The remaining title and abstract citations were reviewed by a single reviewer with the option to mark any citations as "Discuss" for a senior reviewer to adjudicate.

Studies that focused on sexual assault and sexual harassment occurring during childhood or adolescence were some of the most-frequently excluded studies (n = 2,839 and n = 1,064, respectively), followed by studies that included populations that did not experience sexual assault or sexual harassment (n = 2,005). Editorials, literature reviews, letters to the editor, etc. (n

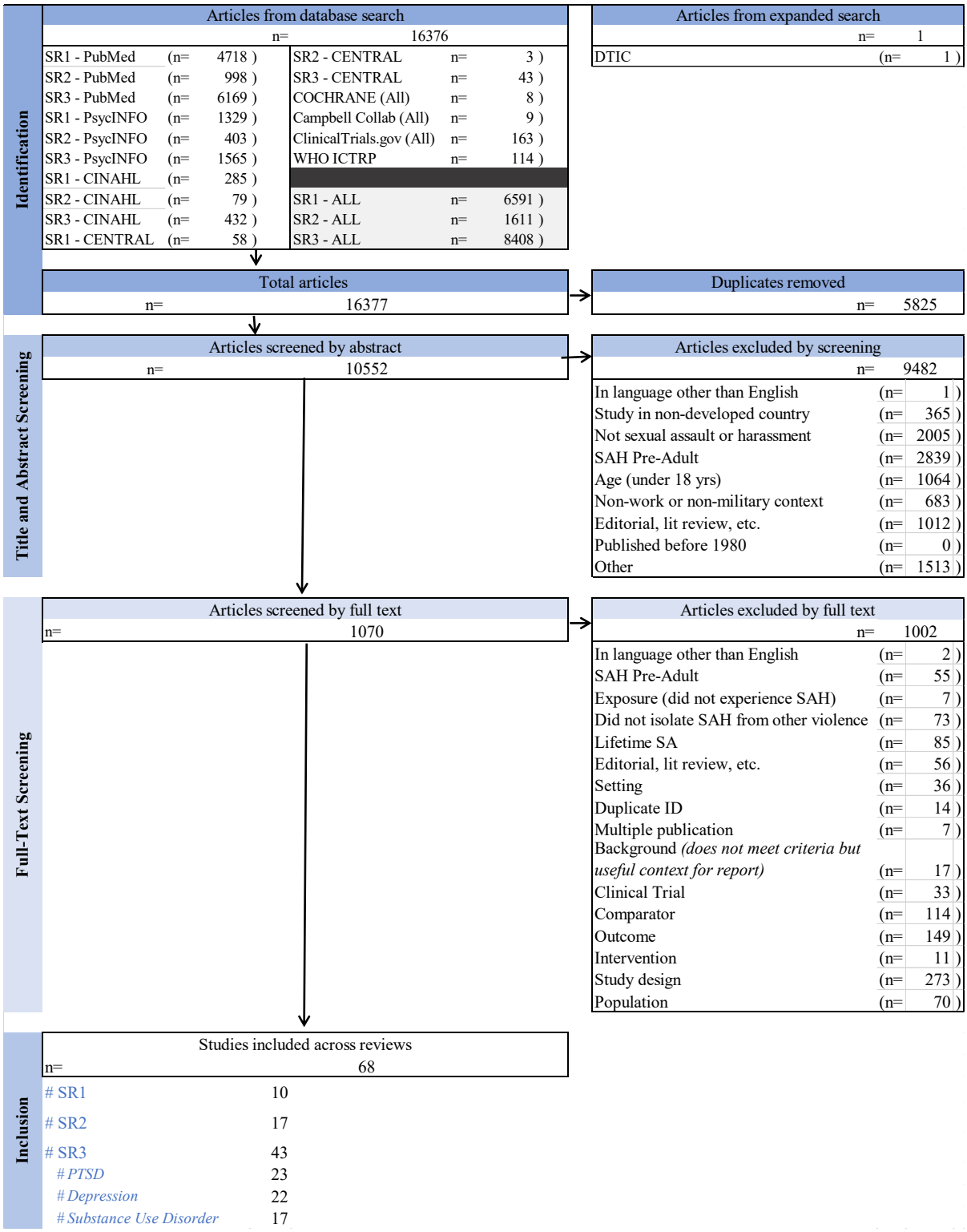
= 1,012), and references that focused on domestic violence, sex work, torture, or incest (*n* = 683) were also excluded. Finally, the "other" category (*n* = 1,513) primarily included references (1) with outcomes that were outside the scope of the three reviews (e.g., trends in health care utilization for Review 2, pain for Review 3) (*n* = 945); (2) that excluded study design types (e.g., descriptive studies for Reviews 1 and 3) (*n* = 322); (3) that lacked a comparator for Review 3 (*n* = 99); (4) that focused on a nonpsychological or complementary and alternative intervention (e.g., yoga, equine) for Review 1 (*n* = 42); or (5) where the population of focus was not relevant (i.e., participants in prison, individuals with developmental disabilities) (*n* = 85).

Citations that were deemed relevant in the title and abstract screening stage were then obtained as full-text articles (*N* = 1,070). Two independent reviewers screened these citations against the explicit inclusion and exclusion criteria for each review. Discrepancies or conflicts were automatically flagged in DistillerSR and either discussed among the project team or adjudicated by a senior reviewer.

In the full-text review, 1,003 citations were excluded, including 14 additional duplicates. The primary reasons for exclusion were study design (*n* = 273) for Reviews 1 and 3 (e.g., cross-sectional design for Review 3); the outcome of interest (*n* = 149); lack of a comparator for Review 3 (*n* = 114) (i.e., studies included only participants who were exposed to sexual assault or harassment); inclusion of only aggregate sexual assault or sexual harassment (i.e., sexual assault could have been experienced in adulthood or childhood) (*n* = 85); inclusion of only aggregate violence measures (i.e., the study did not isolate sexual assault and sexual harassment from other types of violence) (*n* = 73); population (*n* = 70), which in some cases was review-specific (e.g., nonmilitary for Review 2); and setting (*n* = 36) when the study occurred in a developing country or prison.

We also reviewed clinical trial records (registered on ClinicalTrials.gov) (*n* = 33). Eleven clinical trials were in process, paused, or terminated. Of the completed studies (*n* = 22), five were not focused on sexual assault or sexual harassment, and ten had no results. For the remaining studies (*n* = 7), results and/or references were reviewed against the inclusion and exclusion criteria. After we performed full-text exclusion and reference mining, there were 68 studies identified for data abstraction.

Figure 2.1. PRISMA Flow Chart



NOTE: CENTRAL = Cochrane Central Register of Controlled Trials. CINAHL = Cumulative Index to Nursing and Allied Health Literature. DTIC = Defense Technical Information Center. ICTRP = International Clinical Trials Registry Platform. PTSD = posttraumatic stress disorder. SA = sexual assault. SAH = sexual assault and harassment. SR1 = systematic review 1. SR2 = scoping review 2. SR3 = systematic review 3. WHO = World Health Organization.

Data Abstraction Procedure Across Reviews

The project team created detailed abstraction forms for each review to standardize data-collection processes. Multiple publications reporting on the same participant groups were counted as a single study so that they did not enter the review analysis multiple times. Throughout the data-abstraction process, publications reporting on the same participant group were consolidated. To ensure consistency of interpretation of all fields on the form, reviewers pilot-tested the form on a few studies for which results were clearly reported. The team discussed any issues and incorporated revisions into the form. One reviewer abstracted data that were checked by a second experienced reviewer. To minimize transcription errors, abstracted results for use in meta-analyses were reviewed for errors and typos by a third reviewer. Any discrepancies were resolved through discussion.

One aspect of data abstraction that is particularly important to this review was capturing information about how sexual assault or sexual harassment was defined and measured. Research has shown that substantial variation in both definitions and measurement approaches—such as question wording or the measurement setting—can depress or increase prevalence estimates of sexual assault or sexual harassment (Farris et al., 2014). For example, if participants are asked to self-label the event as sexual harassment or sexual assault, it can lead to lower prevalence estimates, while embedding the questions in a public health or more-neutral survey context can increase prevalence estimates (Farris et al., 2014). Many differences exist across studies in terms of assessment method, wording, setting, and comprehensiveness of exposure measurement, which add to substantive differences in definition and research purpose. These inconsistencies could lead to significant bias in our assessment of the psychological impacts of sexual assault or sexual harassment and the effectiveness of interventions to mitigate those impacts. Therefore, during the data-abstraction process, we categorized studies according to whether victims were recruited from populations seeking treatment or other services (i.e., "treatment-seekers") and according to the means of sexual assault or harassment assessment. The recruitment of subjects among treatment-seekers tends to select for higher-severity trauma or disease, while the determination of who is identified as a victim can vary significantly by means of assessment (Farris et al., 2014). Means of assessment were the MST screener, self-report survey, interview, or administrative records: The *MST screener* category included all studies that used a standard two-question VA screener, *self-report survey* included all studies that used a self-administered questionnaire, *interview* included studies where exposure was measured through questions and assessment by a trained or experienced interviewer, and *administrative records* included studies where exposure was indicated in official records, such as through the criminal justice system or a hospital. Studies that used administrative records that originally relied on any of the other three means of assessment, such as the MST screener, were categorized by the original means of assessment.

Review 1: Psychological Interventions for Adult Victims of Sexual Assault or Sexual Harassment

This systematic review focused on treatment for the psychological sequelae of sexual assault and sexual harassment. The review was guided by the following key questions:

1. What are the effects of psychological interventions for adult victims of military or workplace sexual assault or sexual harassment?
   a. Do the effects vary by the type (e.g., psychotherapy, pharmacotherapy)[3] or intensity (e.g., intensive outpatient program [IOP]) of the intervention?
   b. Do the effects vary by treatment setting and modality?
   c. Do the effects vary by population (e.g., gender, military versus civilian, race/ethnicity)?
   d. Do the effects vary by the timing of the intervention relative to the trauma?

Eligibility Criteria

Criteria were developed by the study team in collaboration with PHCoE and SAPRO. Study inclusion and exclusion criteria are summarized using the PICOTSS framework (Population, Intervention, Comparator, Outcome, Timing, Setting, and Study design). Parameters for the inclusion and exclusion criteria for Review 1 are presented in Table 2.2.

Table 2.2. Review 1 Inclusion and Exclusion Criteria for the Systematic Review

	Inclusion Criteria	Exclusion Criteria
Population	Adults who report sexual assault or sexual harassment that occurred in settings similar to military contexts	Individuals younger than 18 years of age; individuals who report sexual assault or sexual harassment that occurred in settings that were not similar to military contexts (e.g., sexual assault on a college campus, intimate partner violence)
Intervention	Interventions that aim to reduce PTSD, anxiety, depression, and/or increase psychosocial adjustment; interventions might include psychotherapy or counseling (e.g., cognitive behavior therapy, exposure-based therapy, seeking safety, accelerated resolution therapy) or pharmacological therapy (e.g., such antidepressants as SSRIs and SNRIs)	Nonpsychological interventions; complementary and alternative interventions (e.g., yoga, acupuncture)
Comparator	Studies that include a comparison group that receives a placebo, treatment as usual or standard care, wait-list control, no treatment, or another active treatment	None
Outcome	Studies that report one or more of the following outcomes: PTSD, insomnia, suicidal behavior (e.g., suicide, attempt, or ideation), self-harm, depression, psychological distress, anxiety, substance misuse, and psychosocial adjustment or	Studies that include only other outcomes (e.g., legal processes, pregnancy, sexually transmitted diseases, pain, hospitalization)

[3] No included studies evaluated pharmacotherapy interventions, and evaluation of type was dropped from the Review 1 analysis.

	Inclusion Criteria	Exclusion Criteria
	functioning (including social and occupational outcomes)	
Timing	Studies can involve any treatment duration and any follow-up period; studies published on or after January 1, 1980, to October 31, 2020	Studies published prior to January 1, 1980
Setting	Outpatient, residential, or inpatient care, in national and international settings, including health care and settings outside health care; studies will be assessed for relevance to U.S. settings	Prisons, developing countries
Study design	A two-group or multiple-group design with an intervention of interest and at least one comparator; this includes pre- and postintervention studies with a single cohort	Descriptive (i.e., case studies, qualitative interviews) and cross-sectional survey studies

NOTE: PTSD = posttraumatic stress disorder. SSRI = selective serotonin reuptake inhibitor. SNRI = serotonin-norepinephrine reuptake inhibitor.

Data Abstraction

For each individual study, we abstracted a description of the study and participant characteristics (e.g., study aim and design, data-collection methods, recruitment). If the study reported results by subgroups (i.e., women, men, military, civilian, White, Black, Hispanic), the data were abstracted at the subgroup level as well. The data abstraction captured details about participants' exposure and assignment to the control group and treatment arms. Treatment details, including type, timing, and intensity, were recorded. We abstracted treatment and control group mental health outcome means for all study collection time points. Finally, we recorded study outcome data, including effect size, precision statistics, confidence intervals and levels, test statistics, and *p*-values.

Risk of Bias

Risk of bias in pre-post studies was determined using the Cochrane Risk of Bias in Non-Randomized Studies–of Interventions (ROBINS-I) tool for nonrandomized studies of interventions (Sterne et al., 2016). Each study was judged on seven domains of potential bias: bias resulting from confounding, bias in the selection of participants into the study, bias in the classification of interventions, bias resulting from deviations from intended interventions, bias resulting from missing data, bias in measurement of outcomes, and bias in selection of the reported results. We then converted domain judgments into an overall judgment of bias according to prespecified Cochrane criteria as critical risk, serious risk, moderate risk, or low risk of bias.

Risk of bias in randomized controlled trials (RCTs) was determined using the Cochrane Risk of Bias 2 (RoB 2) tool (Sterne et al., 2019) for randomized trials. For each study, the risk level was judged on five domains of potential bias: (1) bias in the randomization process, (2) bias because of deviations from the intended intervention, (3) bias because of missing outcome data, (4) bias in the measurement of the outcome, and (5) bias in the selection of the reported results. We then converted domain judgments into an overall judgment of high risk, some concerns, or low risk of bias.

Risk of bias results for both pre-post and RCT studies were presented using the robvis visualization tool (McGuinness and Higgins, 2021).

Synthesis

We summarized and analyzed evidence of the effectiveness of treatment for the mental health sequelae of sexual assault and sexual harassment. We performed meta-analyses by study design (RCT and uncontrolled pre-post designs) and focused on two mental health outcomes that were well represented across the intervention studies: PTSD and depression.

Many different interventions were included in this review, and few were included in more than one study, making pooling studies by intervention infeasible. Therefore, to test the effect of modality, we consulted clinical and subject-matter experts to determine sensible treatment groupings. These groupings included control therapies, which are typically used in experiments to emulate common factors in psychotherapy (including present-centered therapy and person-centered therapy); trauma-focused therapies, which involve revisiting memories of a specific traumatic event (including cognitive processing therapy [CPT], prolonged exposure [PE] therapy, and Bravemind virtual reality exposure therapy); skills-based therapies, which develop coping skills to manage mental health sequelae (including holographic reprocessing, Warrior Renew, and Skills Training in Affective and Interpersonal Regulation [STAIR]); and multisystem therapies, which combine several therapies and other supports (including IOPs, specialty intensive treatment, and residential rehabilitation treatment programs).

To compare effect sizes across treatments, we calculated the standardized mean differences known as Hedges' g (Hedges and Olkin, 1985) between the mean scores on symptom scales in the posttreatment period and the baseline. Studies with multiple treatment arms would therefore contribute one effect size per treatment in the study. We describe Hedges' g effect sizes as small if they are less than or equal to 0.2, medium if they are between 0.2 and 0.8, and large if they are greater than or equal to 0.8, following common guidance (Cohen and Mannarino, 1988). Because the RCTs in this review lacked a consistent control therapy, for comparability, we analyzed and presented RCT effect sizes in terms of the pre-post differences of each treatment arm (including pre-post results of the control therapy). This also created a common reference point for the effect sizes of therapies in RCTs and uncontrolled pre-post studies.

We had to estimate the standard errors of each treatment's Hedges' g estimate because most studies included only standard errors of intermediate statistics (e.g., of pre- and postintervention results separately). To do this, we used formulas derived by Bornstein (Bornstein et al., 1999) for the estimation of Hedges' g and associated variance in a single group pre-post design. Unlike in experimental studies with multiple comparison groups, variance estimation in single-group pre-post designs requires knowing the correlation between the pre-intervention and postintervention groups. However, this statistic is typically not made available for each study and therefore must be estimated from other sources (see note 2 in Hoyt and Del Re, 2018). Surís and colleagues, 2013, was the only study in the meta-analysis that provided data that could be used to estimate

pre-post correlations for any of the mental health scales; it was also the highest-quality study included in this review. We used these correlations from Surís and colleagues in the calculations of standard errors for three mental health symptom scales (i.e., Clinician-Administered PTSD Scale [CAPS], PTSD Checklist [PCL], and Quick Inventory of Depressive Symptomatology [QIDS]) across studies. For two additional scales—Patient Health Questionnaire-9 (PHQ-9) and Posttraumatic Cognitions Inventory (PTCI)—correlation data could not be estimated using studies in the review, so we used data available in sources outside this review in a clinical trial protocol for PTSD psychotherapy (Lovell and Ghaed, 2018). We could not identify sources for three scales for depression (Beck Depression Inventory [BDI], Brief Symptom Inventory [BSI], and Center for Epidemiological Studies-Depression Scale [CES-D]) used in this analysis and, therefore, used the correlation for QIDS estimated in Surís et al., 2013, for all depression scales across studies. Pre-post correlations for all scales ranged between 0.6 and 0.75, which is consistent with correlations commonly seen in applied contexts (Estrada, Ferrer, and Pardo, 2019).

Meta-analysis of effects across studies were performed with the R package metafor, using a mixed-effects model with normally distributed random effects and errors. The parameters of this model were estimated using a restricted maximum-likelihood estimator, which produces reasonably efficient and asymptotically unbiased estimates of the model variance components (Viechtbauer, 2010). Summary effect estimates across studies were calculated using the standard inverse-variance method, where studies with greater estimated variance on their estimates are weighted proportionately less (Viechtbauer, 2005). Standard errors of the summary effect estimates were calculated using the Hartung-Knapp method, which uses the students' *t* distribution to compute more-conservative precision estimates in meta-analyses when there are low numbers of included studies and heterogeneity is present in the included study-level effects.

Review 2: Barriers and Facilitators to Accessing and Remaining in Mental Health Care for Adults Who Have Experienced Sexual Assault or Sexual Harassment While in the Military

This scoping review was guided by the following key questions:

1. What are the barriers and facilitators for service members who are—or were—victims of sexual assault or sexual harassment to accessing and remaining in treatment for the psychological sequelae of sexual assault and sexual harassment?
   a. Are the barriers and facilitators for accessing care different from those for continuing to engage in treatment?
   b. Do the barriers or facilitators vary by treatment setting or modality?
   c. Do the barriers or facilitators vary depending on individual experiences and characteristics?

Eligibility Criteria

Criteria were developed by the study team in collaboration with PHCoE and SAPRO. Study inclusion and exclusion criteria are summarized using the PICOTSS framework. Parameters for the inclusion and exclusion criteria for Review 2 are presented in Table 2.3.

Table 2.3. Review 2 Inclusion and Exclusion Criteria for the Scoping Review

	Inclusion Criteria	Exclusion Criteria
Population	Current or former service members who reported experiencing sexual assault or sexual harassment; studies that include subgroup analyses for subsamples of individuals who reported experiencing sexual assault or sexual harassment while in the military also will be included	Individuals younger than 18 years of age; individuals who reported experiencing sexual assault or sexual harassment in nonmilitary settings (e.g., sexual assault on a college campus)
Intervention	Studies that report data on accessing mental health services and/or crisis interventions or remaining in care following sexual assault or sexual harassment	Studies not focused on issues of access or remaining linked to care; studies focused solely on access to physical health care services
Comparator	No comparison or control groups required	None
Outcome	Barriers and facilitators to individuals accessing—or remaining in—care following sexual assault or sexual harassment	Studies focused on utilization of care without providing data regarding insights on barriers and facilitators (e.g., trends in utilization); studies that include only data about accessing physical health care services
Timing	Studies published on, or after, January 1, 1980, to October 31, 2020	Studies published prior to January 1, 1980
Setting	Treatment settings might include outpatient, residential, or inpatient care, in national and international settings, using telehealth or in person, including health care and settings outside health care; studies will be assessed for relevance to military and/or U.S. settings	Prisons, developing countries
Study design	Studies might be observational (i.e., recording barriers and facilitators to care access) or longitudinal (i.e., how access to care changes over time), or could be intervention studies (i.e., piloting a measure or program that aims to improve care access); qualitative studies will be included if the data include descriptions of experiences with access or engagement in care	Editorials, literature reviews, letters to editors, books, theses, and conference abstracts

Data Abstraction

All included studies were reviewed and abstracted by trained literature reviewers, who were also involved in the full-text review stage, and then the studies were reviewed by a senior reviewer. The literature reviewers began by reviewing and abstracting the same study to ensure consistency in information abstracted. Once consistency was achieved, reviewers abstracted basic study information (i.e., author, publication year, country, funding source), study aims and context (i.e., geographic setting, health care setting, treatment modality, study date range, theoretical background), and information about the study sample (i.e., recruitment strategy, sampling, eligibility criteria, total *N*, trauma exposure type and definition, demographics, and military-specific factors, including branches and service eras). Reviewers also abstracted information about study design (i.e., data-collection methods and analysis approach), information

about study findings (organized by themes for access, retention in treatment, or unspecified), and an assessment of study quality.

Synthesis

The study team used Microsoft Excel to review information across studies on key descriptive variables. Themes were reviewed for commonalities within the areas of access to and retention of treatment. The team also documented author-identified study limitations and added notes on other limitations or gaps relevant to the scoping review.

Review 3: Associations Between Sexual Assault or Sexual Harassment and Mental Health Conditions

This systematic review was guided by the following key questions:

1. What are the associations between PTSD and experiences of sexual assault and/or harassment occurring in adulthood?
2. What are the associations between depression and experiences of sexual assault and/or harassment occurring in adulthood?
3. What are the associations between substance use disorders and experiences of sexual assault and/or harassment occurring in adulthood?
4. Do the associations between mental health conditions (i.e., PTSD, depression, substance use disorders) vary by population (e.g., gender, military versus civilian, race/ethnicity) for adult victims of sexual assault and/or sexual harassment?

Eligibility Criteria

Criteria were developed by the study team in collaboration with PHCoE and SAPRO. Study inclusion and exclusion criteria are summarized using the PICOTSS framework. Parameters for the inclusion and exclusion criteria for Review 3 are presented in Table 2.4.

Table 2.4. Review 3 Inclusion and Exclusion Criteria for the Systematic Review

	Inclusion Criteria	Exclusion Criteria
Population	Individuals 18 years of age or older who reported experiencing sexual assault or sexual harassment as an adult	Individuals younger than 18 years of age; individuals who do not report experiencing sexual assault or sexual harassment as an adult; individuals experiencing a form of sexual violence with minimal relevance to military or workplace settings (e.g., individuals experiencing intimate partner violence, sex workers)
Intervention	N/A	N/A
Comparator	Individuals who did not report experiencing sexual assault and sexual harassment as an adult	None
Outcome	Studies that report one or more of the following outcomes: PTSD, depression, and substance abuse or misuse; studies that examine additional psychosocial outcomes must include subgroup analyses focused on one of the three primary outcomes	Studies that include only other outcomes (e.g., legal processes, pregnancy, sexually transmitted diseases, pain, hospitalization)
Timing	Studies published between January 1, 1980, and October 31, 2020	Studies published before January 1, 1980
Setting	Studies will be assessed for relevance to U.S. settings	Developing countries
Study design	Observational studies (case-control and cohort) that compared individuals who experienced sexual assault or sexual harassment as an adult with a comparison group	Descriptive (i.e., case studies, qualitative interviews)

NOTE: N/A = not applicable. PTSD = posttraumatic stress disorder.

Data Abstraction

We abstracted a description of study and participant characteristics (e.g., study aim and design, data-collection methods, recruitment) from each individual study. If the study reported results by subgroups (i.e., women, men, military, civilian, White, Black, Hispanic), the data were also abstracted at the subgroup level. The data abstraction captured details about participants' exposure to sexual harassment and/or sexual assault, including type, timing, definition, and identification. We recorded outcomes by mental health condition—PTSD, depression, and substance use disorders. Characteristic and outcome data were abstracted for both exposed and unexposed study participants. If the mental health outcome was treated as binary, the number of participants with and without the mental health outcome for the exposed and unexposed groups was recorded. For mental health outcomes that were continuous, the means for both groups were abstracted. For meta-analyses, study data were abstracted documenting effect size, precision statistics, confidence intervals and levels, test statistics, and *p*-values.

Risk of Bias

We graded the quality of each study using the Newcastle-Ottawa Scale (NOS) for cohort and case-control studies (Wells et al., 2013). The NOS is widely used for observational studies and can be easily modified to fit a particular study subject (Ma et al., 2020; Seehra et al., 2016). We

selected this tool for its adaptability, applicability to the variety of studies in the review, and ease of interpretation and implementation. The NOS awards quality stars to cohort studies based on performance in the categories of selection, comparability, and outcome, with up to nine stars awardable across categories. In this review, *selection* was graded on victim and comparator representativeness of the target population and the strength of exposure identification, *comparability* was graded on whether the study matched or controlled for differences in the risk of prior mental health condition and sociodemographics, and *outcome* was graded on its assessment (blind or through linked records) and the adequacy of follow-up.

Synthesis

We summarized and analyzed the evidence of association by mental health outcome. Meta-analyses were performed separately on two different types of measures of effect size in available studies with follow-up designs: standardized mean differences in mean scores on symptom scales and/or inventories (Hedges and Olkin, 1985) and relative risk scores of mental health diagnoses.

Studies reporting associations between sexual assault and the mental health outcomes of interest were included for meta-analysis when the data on outcomes in the exposed and unexposed groups were published or calculable from other provided statistics and when available study results were similar enough to be pooled. More specifically, the criteria for inclusion in the meta-analysis included the following: the study had available data to abstract or calculate either an unadjusted relative risk or standardized mean difference (Cohen's d), used a follow-up study design (e.g., a prospective or retrospective cohort), used a comparison group that would produce similarly interpretable results to those of other included studies (i.e., a "comparable comparison group," which we describe in more detail below), and used a comparable outcome measurement (e.g., effect sizes on perinatal depression outcomes should not be compared with effects on other depression outcomes). Reports that included only results of multiple regression analysis were not included in the meta-analyses because of the lack of a comparable comparison group (i.e., inconsistent adjustment for covariates can lead to effect sizes that cannot be consistently interpreted). For each meta-analysis, we report the number of abstracted studies excluded and compare their results with meta-analytic summary effects. Studies reporting only the effects of sexual harassment were too few to conduct meta-analysis and were therefore evaluated independently.

The size of an association between sexual assault and mental health outcomes will be strongly dependent on the comparison group used. Studies differed on whether victims of sexual assault were compared with people with other reported prior trauma or whether the comparison group included people without prior trauma, which likely affects the strength of detectable association. Therefore, in most meta-analysis, we included the type of comparison group as a moderator, similar to Dworkin et al., 2017. Studies in which the comparison group had no sexual assault experiences in adulthood but had experienced a prior trauma were classified in analysis as "compared to nonsexual prior trauma." Studies in which the comparison group had no sexual

assault experience in adulthood but might or might not have experienced a prior trauma were classified as "compared to no sexual assault."

Meta-analysis of effects across studies were performed with the R package metafor, with a normal mixed-effects model using a restricted maximum-likelihood estimator, which produces reasonably efficient and approximately unbiased estimates of the model variance components (Viechtbauer, 2010). Summary effect estimates across studies were therefore calculated using the standard inverse-variance method, where studies with greater variance on their estimates are weighted proportionately less (Viechtbauer, 2005). Standard errors of the summary effect estimates were calculated using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses when there is a low number of included studies and when heterogeneity is present in the included study-level effects.

Assessing the Quality of the Evidence Through GRADE

We summarized the evidence in Reviews 1 and 3 by key question; study results were pooled so that summary effects could be evaluated within the context of the quality of the body of evidence that supports them. We rated the quality of the evidence for all studies included in each of several meta-analyses. Using Grading of Recommendations Assessment, Development and Evaluation (GRADE) guidelines, we categorized the quality of the evidence as follows:

- **high:** We are very confident that the true effect lies close to that of the estimate of the effect.
- **moderate:** We are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
- **low:** Our confidence in the effect estimate is limited; the true effect might be substantially different from the estimate of the effect.
- **very low:** We have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of the effect.

We followed guidance on implementing the GRADE approach that was published in Balshem et al., 2011, which begins by assigning an initial quality rating to a body of evidence based on study design and then upgrades or downgrades the quality based on eight factors. By this guidance, a body of evidence reliant on RCTs would begin with a high quality rating, whereas observational studies begin with a low quality rating. Among the adjustment factors, study limitations (risk of bias), inconsistency, indirectness, imprecision, and publication bias can decrease the quality of evidence. Large effect sizes, exposure-response gradient, and uniformity in the direction of plausible confounding could increase the quality of the evidence.

Study limitations assess the quality and risk of bias of the identified pertinent studies and were informed by ROBINS-I and NOS assessments. Inconsistency assesses whether the identified association was consistently present across independent studies. Indirectness takes into account whether the available research studies accurately reflect the review question (e.g., study population differs from target population). Evidence was downgraded for imprecision if the

sample size of included studies was insufficient or if the confidence interval for effect estimates was wide. Publication bias was assessed by critically reviewing results based on effect size and variance. Evidence for individual summary results could be upgraded for large effect size or if an exposure-gradient response was identified. The quality of evidence was documented in a quality-of-evidence table organized by key question and outcome.

3. Results

In this chapter, we describe the results of each of the evidence reviews. Review 1 includes ten studies that focused on psychological interventions for adult victims of sexual assault or sexual harassment. Review 2 includes 17 studies describing barriers and facilitators to accessing and remaining in mental health treatment following experiences of sexual assault or sexual harassment, and Review 3 includes 43 studies focused on the associations between sexual assault or sexual harassment and mental health conditions (i.e., PTSD, depression, and/or substance use disorders).[4]

Review 1: Psychological Interventions for Adult Victims of Sexual Assault or Sexual Harassment

In this systematic review, we targeted studies that investigated the effects of psychological interventions for adult victims of sexual assault or sexual harassment in military settings. Ten studies met all inclusion criteria and were abstracted and analyzed (Holliday et al., 2020; Katz, 2016; Katz, Cojucar, et al., 2014a; Katz, Douglas, et al., 2014b; Khan et al., 2020; Loucks et al., 2019; Tiet et al., 2015; U.S. National Library of Medicine, 2015; Weiss et al., 2018; Zalta et al., 2018). No studies examined the effects of psychological interventions on victims of sexual harassment. Eight studies were nonrandomized studies of interventions with a follow-up design, reporting pretreatment and posttreatment means on psychological scale outcomes (pre-post studies). Two studies were RCTs. All but one study was conducted in an outpatient setting (n = 9). Three studies tested trauma-focused psychotherapies, three studies tested skills-based psychotherapies, and four studies tested bundled (multisystem) therapies. Study subjects were all veterans (n = 10), and eight studies focused exclusively on subjects who experienced MST. Subjects across studies were individuals seeking treatment, with nine studies measuring exposure status through self-report using a standard MST screener, and one study not reporting how exposure status was determined. All studies included in the full-text abstraction were included in at least one meta-analysis.

Posttraumatic Stress Disorder

Across studies, two different scales were used to assess the severity of PTSD: the CAPS (Blake, Pincus, and Buckner, 1995) and the PCL (Weathers et al., 1993). Four studies also

[4] Using stakeholder input, we included studies capturing a broad variety of potentially traumatic sexual experiences across reviews. Therefore, terminology and definitions for sexual assault and/or harassment varied across studies. Given this variation in definitions, we retained the terminology used by study authors when discussing specific study results for transparency.

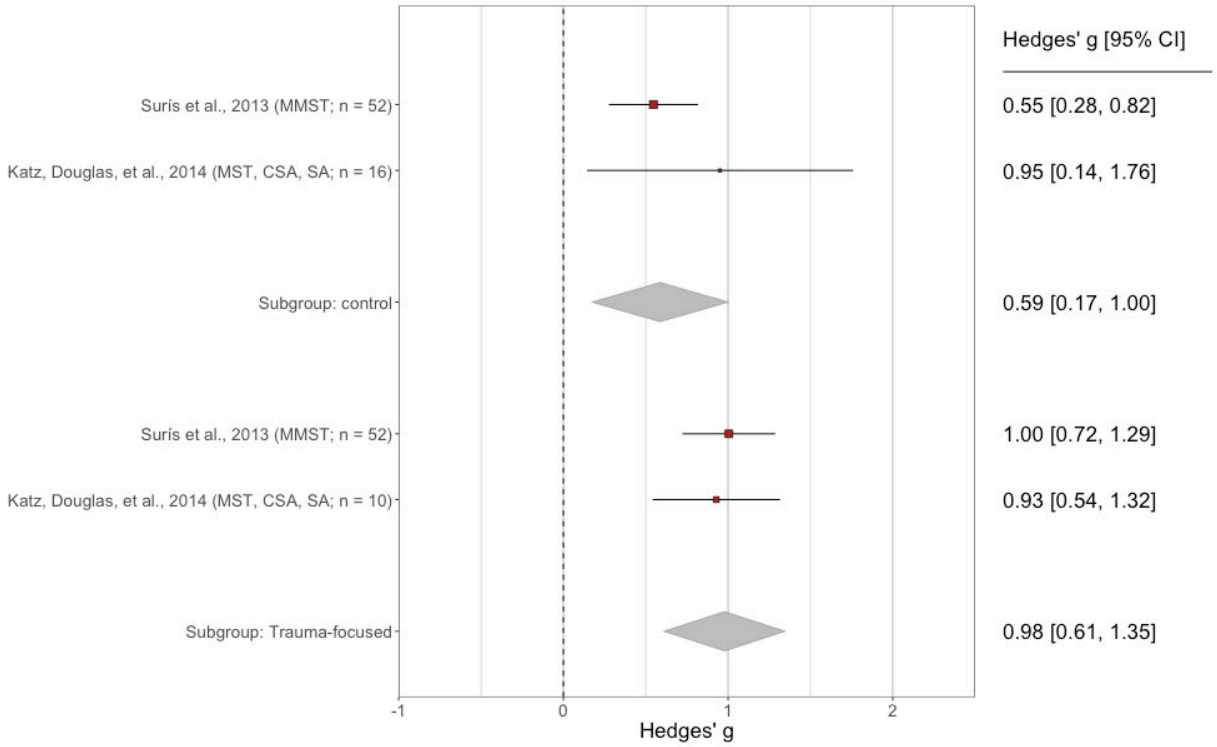
assessed trauma-related thoughts and beliefs through the PTCI (Foa et al., 1999) as a secondary outcome. All studies ($N = 10$) used the PCL, four studies used the PTCI, and two studies used the CAPS. Five studies used a combination of two outcomes. For consistency, we conducted our main analysis using the PCL. To assess the robustness of results to the use of different scales, we repeated the meta-analyses using available alternative scales for all studies that used more than one measure of PTSD (i.e., the CAPS, PTCI, or PCL).

Figure 3.1 summarizes the meta-analysis of RCT results for the effects of various interventions on PTSD symptom scales. Both control and trauma-focused therapies were found to reduce PTSD symptoms, with medium and large overall effect sizes, respectively.[5] The figure shows estimates of standardized mean differences (Hedges' g) by intervention with summary statistics for two intervention groupings. The first group includes control therapies that emulate common factors seen in psychotherapy, and the second group includes interventions that involve revisiting memories of a specific traumatic event. A normal mixed-effects model was used to estimate the overall mean Hedges' g and its confidence interval. To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean Hedges' g is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance. Red squares indicate individual therapies (as opposed to group or combination group and individual therapies). The type of trauma and study size are indicated in parentheses next to the study authors and date.

Summary Hedges' g values are 0.59 (95-percent confidence interval [CI]: 0.17, 1.0) for control therapies and 0.98 (CI: 0.61, 1.35) for trauma-focused therapies. Therapy-type groups are balanced in terms of risk of bias, and no difference in summary effect estimates was detected ($p = 0.17$). The skills-based therapy tested in Katz, Douglas, et al., 2014, was not included in the pooled analysis of RCT studies to avoid the calculation of a single-study summary statistic. It has a Hedges' g of 1.74 (CI: 1.20, 2.29) and a high risk of bias rating.

[5] Following common guidance, we describe Hedges' g effect sizes as small if they are less than or equal to 0.2, medium if the effect size is between 0.2 and 0.8, and large if the effect size is greater than or equal to 0.8. An effect size of 1 corresponds to a change equal to one standard deviation of the difference.

Figure 3.1. Pre-Post Effect Sizes of RCT Studies, Grouped by Intervention Type (PTSD)



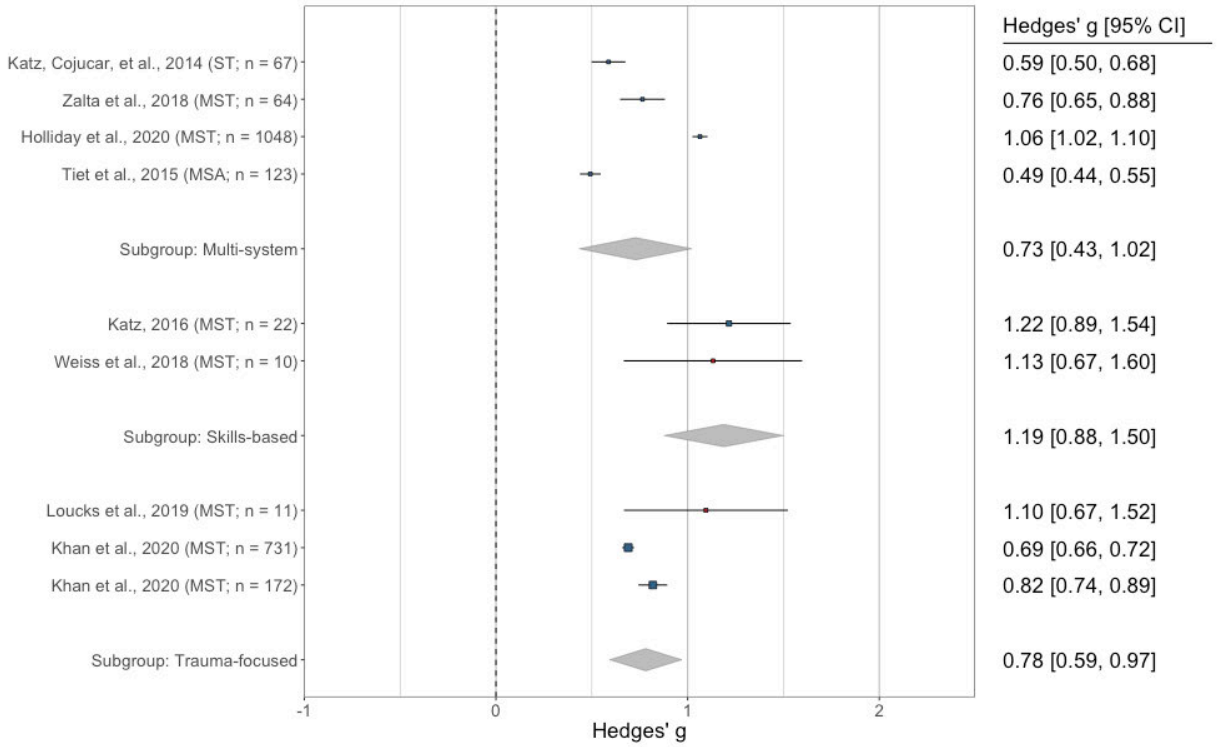
NOTE: CI = confidence interval. CSA = childhood sexual assault. MMST = modified military sexual trauma. MST = military sexual trauma. SA = sexual assault.

Figure 3.2 summarizes the meta-analysis of trials in uncontrolled pre-post studies. The figure shows estimates of standardized mean differences (Hedges' g) by intervention with summary statistics for three intervention groupings. The first group includes interventions that combine several therapies and supports, the second group includes interventions that work to give coping skills to manage mental health symptoms, and the third group includes interventions that involve revisiting memories of a specific traumatic event. A normal mixed-effects model was used to estimate the overall mean Hedges' g and its confidence interval. To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean Hedges' g is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance. Red squares indicate individual therapies (as opposed to group or combination group and individual therapies). The type of trauma and study size are indicated in parentheses next to the study author and date.

All therapy types were found to reduce PTSD symptoms, with medium to large overall effect sizes across therapy types. Summary Hedges' g values were 0.73 (CI: 0.43, 1.02) for multisystem therapies, 1.19 (CI: 0.88, 1.50) for skills-based therapies, and 0.78 (CI: 0.59, 0.97)

for trauma-focused therapies. Therapy-type groups were balanced in risk of bias, and no moderation by therapy type was detected ($p = 0.22$). We found significant residual heterogeneity (I^2 96.69 percent; Q test for residual heterogeneity $p = < 0.0001$), indicating potential moderation in the effect sizes of interventions that is unaccounted for in the model.

Figure 3.2. Pre-Post Effect Sizes from Uncontrolled Before and After Studies, Grouped by Intervention Type (PTSD)



NOTE: CI = confidence interval. MSA = military sexual assault. MST = military sexual trauma. ST = sexual trauma.

In a robustness check, results of summary effect, tests of moderation, and tests of residual heterogeneity were similar for both uncontrolled pre-post studies and RCTs when using mixed scales (i.e., using alternatives CAPS or PTCI instead of PCL when available) instead of a single scale of PTSD symptoms (i.e., the PCL). Effect sizes ranged from medium to large in both RCT and uncontrolled pre-post designs. In RCTs, control treatments had a summary effect of 0.74 (CI: 0.32, 1.16) and trauma-focused therapies had a summary effect of 1.00 (CI: 0.63, 1.38). In uncontrolled pre-post trials, multisystem treatments had a summary effect of 0.77 (CI: 0.47, 1.07), skills-based treatments had a summary effect of 1.19 (CI: 0.93, 1.45), and trauma-focused treatments had a summary effect of 0.77 (CI: 0.62, 0.92).

Depression

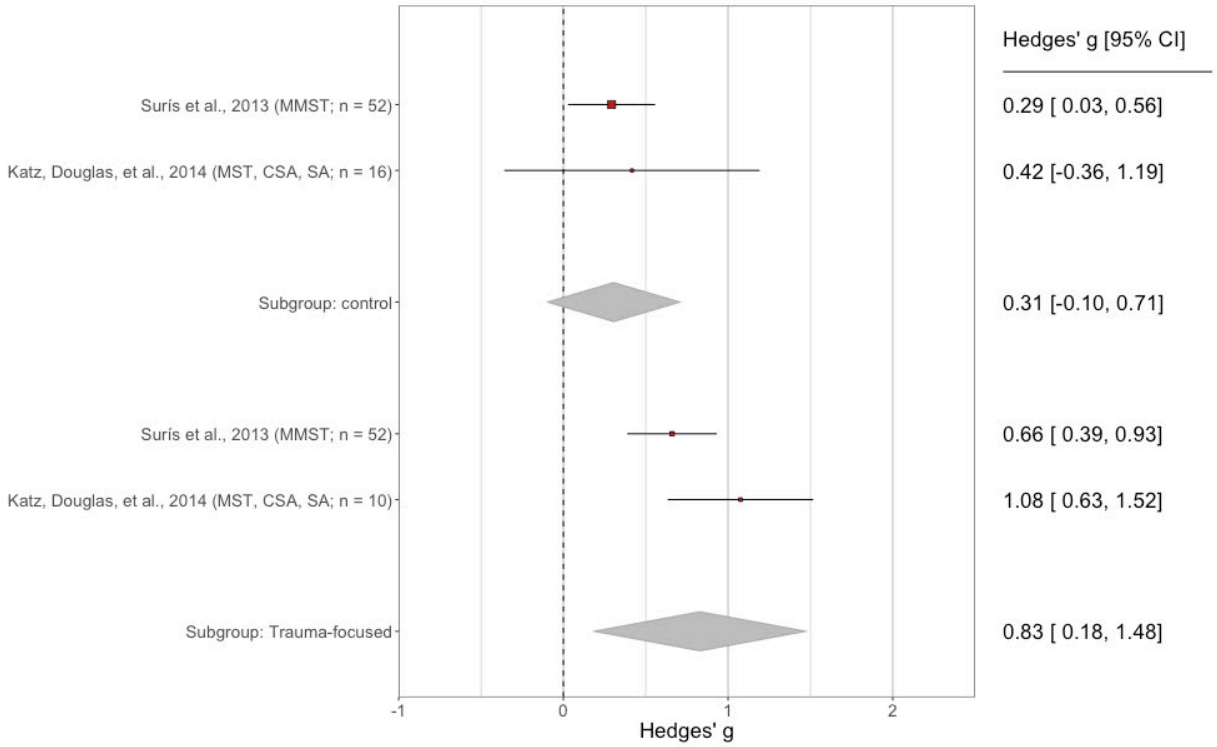
Across studies, five different scales were used to assess the severity of depression: the BDI (Beck, Steer, and Brown, 1996; Wirtz et al., 2018), the CES-D (Radloff, 1977), the QIDS (Rush

et al., 2003), the Brief Symptom Inventory–18 (BSI-18) (Derogatis, 2001), and the PHQ-9 (Spitzer, Kroenke, and Williams, 1999). No more than one scale was used per study.

Figure 3.3 summarizes the meta-analysis of RCT results on the effects of various therapeutic interventions on depression symptom scales. This figure shows estimates of standardized mean differences (Hedges' g) by intervention with summary statistics for two intervention groupings. The first group includes control therapies that emulate common factors seen in psychotherapy, while the second group includes interventions that involve revisiting memories of a specific traumatic event. A normal mixed-effects model was used to estimate the overall mean Hedges' g and its confidence interval. To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean Hedges' g is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance. Red squares indicate individual therapies (as opposed to group or combination group and individual therapies). The types of trauma and study sizes are indicated in parentheses next to the study author and date.

Both control and trauma-focused therapies were found to reduce depression symptoms, with medium and large overall effect sizes, respectively. Summary Hedges' g values were 0.31 (CI: –0.10, 0.71) for control therapies and 0.83 (CI: 0.18, 1.48) for trauma-focused therapies. Therapy-type groups were balanced in terms of risk of bias, and no difference in summary effect estimates was detected ($p = 0.17$). Once again, the skills-based therapy tested in Katz, Douglas, et al., 2014, was not included in the pooled analysis of RCT studies to avoid the calculation of a single-study summary statistic. This therapy had a Hedges' g of 1.15 (CI: 0.79, 1.52) and a high risk of bias rating.

Figure 3.3. Pre-Post Effect Sizes of RCT Studies, Grouped by Intervention Type (Depression)



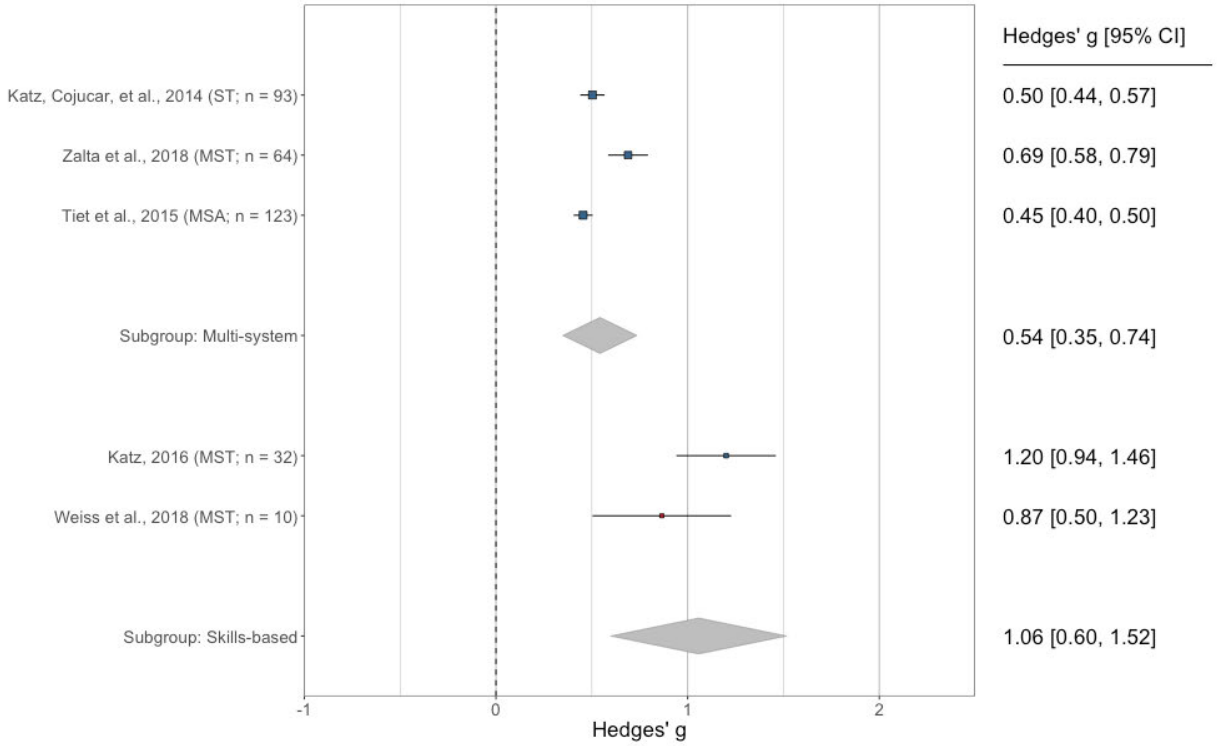
NOTE: CI = confidence interval. CSA = childhood sexual assault. MMST = modified military sexual trauma. MST = military sexual trauma. SA = sexual assault.

Figure 3.4 summarizes the meta-analysis of uncontrolled pre-post results. This figure shows estimates of standardized mean differences (Hedges' g) by intervention with summary statistics for two intervention groupings. The first group includes interventions that combine several therapies and supports, while the second grouping is made up of interventions that foster coping skills to manage mental health symptoms. A third group, therapies that involve revisiting memories of a specific traumatic event, was excluded to avoid the calculation of single-study summary statistics. A normal mixed-effects model was used to estimate the overall mean Hedges' g and its confidence interval. To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean Hedges' g is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger square sizes in the figure signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance. Red squares indicate individual therapies, as opposed to group or combination group and individual therapies. Types of trauma and study sizes are indicated in parentheses next to study authors and dates.

Both multisystem and skills-based therapy types were found to reduce depression symptoms, with medium and large overall effect sizes, respectively. Summary Hedges' g values were 0.54

(CI: 0.35, 0.74) for multisystem therapies and 1.06 (CI: 0.60, 1.52) for skills-based therapies. Therapy-type groups were balanced in terms of risk of bias, and no difference in summary effect estimates was detected ($p = 0.18$). The trauma-focused therapy tested in Loucks (Loucks et al., 2019) was not included in the pooled analysis of uncontrolled pre-post studies to avoid the calculation of a single-study summary statistic. This therapy had a Hedges' g of 0.7 (CI: 0.38, 1.02) and a high risk of bias rating.

Figure 3.4. Pre-Post Effect Sizes of Uncontrolled Before and After Studies, Grouped by Intervention Type (Depression)



NOTE: CI = confidence interval. MSA = military sexual assault. MST = military sexual trauma; ST = sexual trauma.

Variation in Treatment Effects by Intensity

Among the included intervention studies, four were high-intensity treatments that involved daily or near-daily sessions. All high-intensity treatments were multisystem therapies involving a combination of psychotherapies and other supports (all multisystem therapies were high-intensity). Five intervention studies used standard-intensity interventions, involving sessions of under two hours and occurring less than three times per week, and the intensity of one study could not be determined because the precise frequency and length of therapies were unclear (Katz, Douglas, et al., 2014).

Among high-intensity treatments, two were described as IOPs (Katz, Cojucar, et al., 2014; Zalta et al., 2018), one was an inpatient program (Tiet et al., 2015), and one was the VA

residential treatment program (Holliday et al., 2020). Participants in these studies tended to have more-severe illness than those in other studies in this review. Inpatient program and residential treatment programs were specifically for those who experienced severe illness and required an intensive level of care. One IOP study included only participants with a history of homelessness (Katz, Cojucar, et al., 2014).

Given the mutual exclusivity of standard-intensity and multisystem therapies, we can evaluate variation in effect by intensity in Figures 3.2 and 3.4. (The study with indeterminate intensity is not included in these figures.) We found no evidence that effects varied by intensity; however, total overlap in therapy type (e.g., multisystem) and therapy intensity makes us unable to distinguish independent effects. Additionally, given the higher level of patient acuity among more-intensive treatments, it is not possible to conclude whether any observed effect differences by intensity are attributable to features of the treatment or features of the population.

Variation in Treatment Effects by Population

Among the included intervention studies, four examined variations in treatment effects by population subgroups. Khan et al., 2020, found a significant interaction between gender and the treatment effectiveness of CPT (i.e., trauma-focused) on PTSD symptoms, with larger treatment effects among women than among men and no significant interaction of gender on PE (i.e., trauma-focused). However, these analyses combined MST and non-MST samples and were therefore not specific to sexual assault (Khan et al., 2020). Similarly, Holliday et al., 2020, found residential rehabilitation treatment programs (RRTPs) to be more effective at reducing PTSD symptoms from admission to four-month follow-up among men and White non-Hispanic demographic groups, but the study was not powered to test these associations specifically among the MST population. Tiet et al., 2015, found that both men and women who had experienced MST and who underwent VA PTSD specialty intensive treatment programs showed significant improvement in depressive and PTSD outcomes but also showed increases in drug and alcohol severity, with no differences in treatment impacts by gender. An additional study (Zalta et al., 2018) reported being underpowered to test for the interaction between gender and treatment effectiveness.

Timing of Intervention Relative to Assault

None of the included studies analyzed the impact of length of time between (1) exposure to sexual assault and (2) the intervention.

Risk of Bias

The Cochrane ROBINS-I tool is designed to place grades of observational studies of interventions on a scale that can be compared with RCTs. A low risk of bias corresponds to that of an RCT and will be awarded to nonrandomized studies of interventions only on rare occasions because of the confounding risk inherent in such designs (Sterne et al., 2016). Therefore, all

uncontrolled pre-post studies in this review were graded as having a serious risk of bias (Figure 3.5). The most-serious sources of bias were attributable to confounding and selection. Most studies of this design depend on self-selected or convenience samples of subjects that might be related to outcomes in a way that introduces bias. A study consisting entirely of participants with a strong desire to enroll, for instance, is likely to overstate treatment effectiveness in a real-world context. Another common source of bias was in the measurement of outcomes, given that knowing the treatment status of subjects, which can introduce investigator bias, is often unavoidable in single-group pre-post studies.

In the two RCTs, one was judged to have a serious risk of bias because of its inclusion of only self-reported measures of mental health outcomes (outcome measurement cannot be blinded to treatment status), and the other was judged to have some concerns because of possible deviations from treatment and missing outcome data (Figure 3.6).

Figure 3.5. Risk of Bias Judgments for Pre-Post Studies

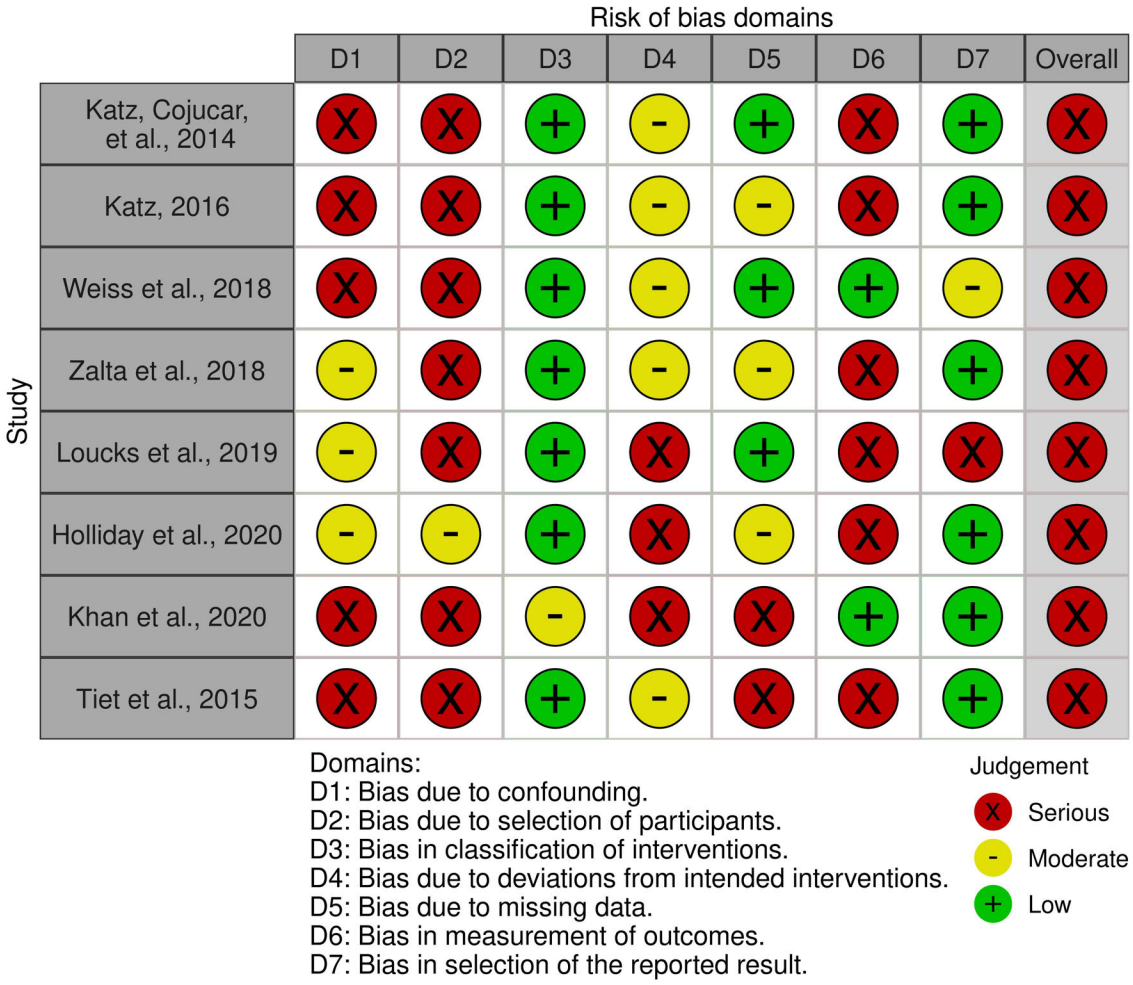
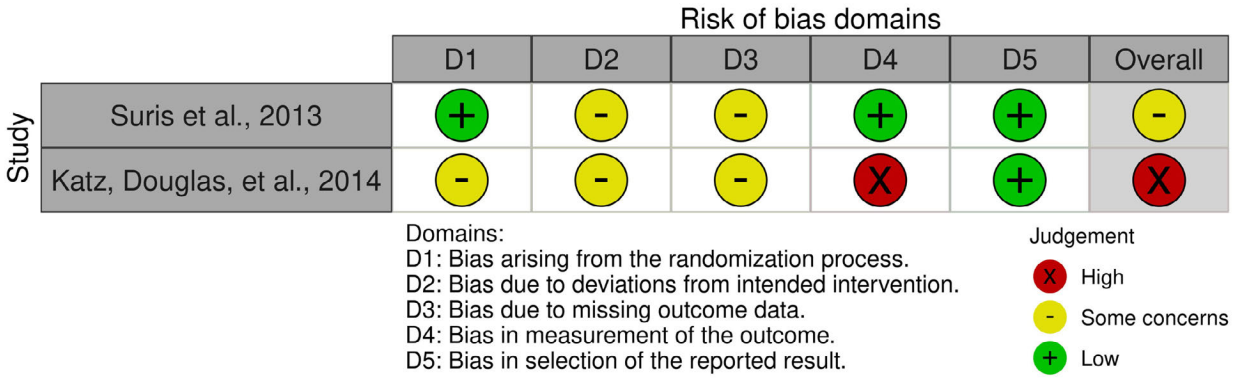


Figure 3.6. Risk of Bias Judgments for RCT Studies



Quality of the Body of Evidence

We evaluated the quality of evidence (QoE) of the studies on the effect of psychological interventions for adult victims of sexual assault in military settings using a GRADE approach (Table 3.1).

Table 3.1. Summary of Results and Quality of the Evidence Using GRADE

Outcome	Number of Studies	Reasons for Upgrading or Downgrading QoE	Summary Effect of Interventions, by Therapy and Outcome (Hedges' g)	QoE (GRADE)
PTSD				
Control therapies (RCT)	2	Downgrade: Study limitations (RoB 2) leading to high risk of confounding on outcome measurement, lack of intention-to-treat analysis, and risk of publication bias	0.59 (CI: 0.17, 1.0)	Very low
Trauma-focused therapies (RCT)	2	Downgrade: Study limitations (RoB 2) leading to high risk of confounding on outcome measurement, lack of intention-to-treat analysis, and risk of publication bias Upgrade: Large effect size	0.98 (CI: 0.61, 1.35)	Low
Trauma-focused therapies (NRSI)	3	Downgrade: Study limitations (ROBINS-I) on self-selection into studies, outcome measurement (lack of blindedness), and lack of intention-to-treat analysis	0.78 (CI: 0.59, 0.97)	Very low
Multisystem therapies (NRSI)	4	Downgrade: Study limitations (ROBINS-I) on self-selection into studies, outcome measurement (lack of blindedness), and lack of intention-to-treat analysis	0.73 (CI: 0.43, 1.02)	Very low
Skills-based therapies (NRSI)	2	Downgrade: Study limitations (ROBINS-I) on self-selection into studies, outcome measurement (lack of blindedness), and lack of intention-to-treat analysis Upgrade: Large effect size	1.19 (CI: 0.88, 1.50)	Very low
Depression				
Control therapies (RCT)	2	Downgrade: Study limitations (RoB 2) on self-selection into studies, outcome measurement (lack of blindedness), and lack of intention-to-treat analysis; imprecision in summary effect	0.31 (CI: –0.10, 0.71)	Very low
Trauma-focused therapies (RCT)	2	Downgrade: Study limitations (RoB 2) on self-selection into studies, outcome measurement (lack of blindedness), and lack of intention-to-treat analysis Upgrade: Large effect size	0.83 (CI: 0.18, 1.48)	Low
Multisystem therapies (NRSI)	3	Downgrade: Study limitations (ROBINS-I) on self-selection into studies, outcome measurement (lack of blindedness), and lack of intention-to-treat analysis	0.54 (CI: 0.35, 0.74)	Very low
Skills-based therapies (NRSI)	2	Downgrade: Study limitations (ROBINS-I) on self-selection into studies, outcome measurement (lack of blindedness), and lack of intention-to-treat analysis Upgrade: Large effect size	1.06 (CI: 0.60, 1.52)	Very low

NOTE: No included studies evaluated the impact of interventions for victims of sexual harassment. Therefore, this component of Key Question 1 could not be assessed. GRADE = Grading of Recommendations Assessment, Development and Evaluation. NRSI = nonrandomized studies of interventions. PTSD = posttraumatic stress disorder. QoE = quality of evidence. RCT = randomized controlled trial. RoB 2 = Risk of Bias 2. ROBINS-I = Risk of Bias in Non-Randomized Studies–of Interventions.

The QoE for the pooled outcomes across Review 1 were all graded either low or very low. According to GRADE, evidence from a body of evidence consisting of nonrandomized studies of interventions (NRSI) without a control group should start with a low grade. All NRSI without a control group were further downgraded based on the study limitations, as determined through the ROBINS-I tool. Results from skills-based interventions were upgraded because of large effect sizes. However, grades were nonetheless very low, given the very serious risk of bias because of selection and outcome measurement. Results from RCT studies begin with high grades. Grades were downgraded because of study limitations detected using the RoB-2 tool and because of a lack of intention-to-treat analysis, which can introduce significant bias. In the case of control interventions for depression, grades were downgraded because of the imprecision of estimates. Trauma-focused therapies were upgraded because of large effect sizes, ultimately earning them a low grade.

The QoE for Key Question 1b (whether effects varied by treatment modality) was graded very low. We further downgraded the QoE for tests of modality because of the indirectness of evidence; most modalities were not directly compared within study but were compared indirectly across studies. The QoEs for Key Questions 1a, 1c, and 1d were insufficient because of a lack of available evidence.

Review 2: Barriers and Facilitators to Accessing and Remaining in Mental Health Care for Adults Who Have Experienced Sexual Assault or Sexual Harassment in Military Settings

In this scoping review, we targeted studies that examined barriers and facilitators to accessing and remaining in care for adults who have experienced sexual assault or sexual harassment in military settings. This review had one primary key question and three sub-questions:

1. What are the barriers and facilitators for victims of military sexual assault or sexual harassment to accessing and remaining in treatment for the psychological sequelae of sexual assault and sexual harassment?
    a. Are the barriers and facilitators for accessing care different from those for continuing to engage in treatment?
    b. Do the barriers or facilitators vary by treatment setting or modality?
    c. Do the barriers or facilitators vary depending on individual experiences and characteristics?

Seventeen studies met all inclusion criteria and were abstracted (see Appendix B for associated evidence tables).[6] The majority of these studies were published in the past five years

[6] These 17 studies are Burns et al., 2014; Cichowski et al., 2019; Farmer et al., 2020; Gilmore et al., 2020; Hahn, Turchik, and Kimerling, 2020; Holder et al., 2019; Holland, Rabelo, and Cortina, 2016; Kehle-Forbes et al., 2017; McBain, Garneau-Fournier, and Turchik, 2020; Monteith et al., 2020; Murray-Swank, Dausch, and Ehrnstrom,

(*n* = 14), with seven published in 2020. Almost all studies took place in the United States (*n* = 12; four did not report); one study also collected data from U.S. military members in Afghanistan, South Korea, and Germany; studies in which U.S. regions were specified tended to focus on the West (*n* = 8).

All studies focused on sexual assault, harassment, or trauma experienced in military settings (i.e., MST [*n* = 14], military sexual assault or trauma [*n* = 2], or military sexual assault and harassment [*n* = 1]). For approximately half of these studies (*n* = 8), identification of MST occurred through the use of a two-item MST screening questionnaire. Other studies (*n* = 5) relied on targeted questions regarding experiences of sexual assault, sexual trauma, and/or sexual harassment in either interviews (*n* = 3) or surveys (*n* = 2). Two studies relied on administrative records, one study focused on treatment-seekers for MST, and one study coded survey and interview data to identify instances in which the respondent might have mentioned sexual assault or trauma, but it was not explicitly asked about (e.g., "Did you ever knowingly experience discrimination in the military?" "Were you ever subjected to unwanted touching, comments, assault, or violence?").

There were varying levels of exposure or experiences of sexual trauma across the studies. The majority of the studies (*n* = 9) included participants who all experienced MST; in two studies, more than 90 percent of participants experienced MST. Three studies included a majority of participants who experienced MST (i.e., 80 percent, 68 percent, and 65 percent), and three included less than half of participants who experienced MST (i.e., 32 percent, 22 percent, and 2 percent). Themes extracted from these studies focused on those who experienced MST when the information was differentiated.

In this section, we synthesize findings from the scoping review by key question.

Key Question 1: Identified Barriers and Facilitators

We abstracted themes and assessed them separately to see whether there were unique barriers and facilitators for access to and retention in treatment in military settings.

Access

Thirteen studies reported themes related to accessing care following sexual assault or sexual harassment.[7] Six of these studies relied on interviews, six used surveys or assessments (one phone-based and one in-person), and one study used focus groups as the data-collection source. Themes and sample quotes or extracts related to the theme are presented in Table 3.2.

2018; Sexton et al., 2020; Turchik et al., 2013; Turchik et al., 2014; Valentine et al., 2020; Waitzkin et al., 2018; and Wolff and Mills, 2016.

[7] These 13 studies are Burns et al., 2014; Cichowski et al., 2019; Farmer et al., 2020; Hahn, Turchik, and Kimerling, 2020; Holland, Rabelo, and Cortina, 2016; McBain, Garneau-Fournier, and Turchik, 2020; Monteith et al., 2020; Murray-Swank, Dausch, and Ehrnstrom, 2018; Sexton et al., 2020; Turchik et al., 2013; Turchik et al., 2014; Waitzkin et al., 2018; and Wolff and Mills, 2016.

Themes are presented according to four levels: health system, program, provider, and individual. The primary theme at the health-system level is that negative perceptions and distrust of health systems tended to lead to a reluctance to engage in care—i.e., whether this reluctance was associated with a less-than-welcoming environment for women or concerns around how medical records were stored and shared (Burns et al., 2014; Cichowski et al., 2019; Monteith et al., 2020; Murray-Swank, Dausch, and Ehrnstrom, 2018; Turchik et al., 2013). At the program level (i.e., themes related to a specific type of treatment or therapy), there was only one study that examined whether MST victims might be more likely to engage in certain types of care; it found that there was a significant association between experiences of MST and use of psychotherapy compared with other traumas (Farmer et al., 2020). Themes at the provider level tended to focus on either (1) the importance of victims' preferences for a specific gender in their choice of provider or (2) concerns regarding the potential reaction of providers (Burns et al., 2014; Cichowski et al., 2019; McBain, Garneau-Fournier, and Turchik, 2020). Finally, at the individual level, there was a wider variety of themes affecting the ability or willingness of victims to access care. The predominant theme was perceptions of stigma and shame and how victims might be viewed by coworkers, leaders, or even providers (Burns et al., 2014; Hahn, Turchik, and Kimerling, 2020; Holland, Rabelo, and Cortina, 2016; Monteith et al., 2020; Murray-Swank, Dausch, and Ehrnstrom, 2018; Turchik et al., 2013). Logistical factors also emerged in several studies that called out issues with scheduling appointments, challenges getting time off work, or challenges in finding alternative arrangements when such needs as child care arose (Hahn, Turchik, and Kimerling, 2020; Holland, Rabelo, and Cortina, 2016; Murray-Swank, Dausch, and Ehrnstrom, 2018). Other factors mentioned as either barriers or facilitators at the individual level included negative cognitive beliefs or concerns about not being believed (Hahn, Turchik, and Kimerling, 2020; Turchik et al., 2013), perceptions that MST does not affect men or that the trauma is not serious or important enough to warrant treatment (Turchik et al., 2013), a lack of awareness of available MST services (Turchik et al., 2013), and issues with insurance coverage (Waitzkin et al., 2018).

Table 3.2. Summary of Barriers and Facilitators Related to Access

Level	Factor	Example or Illustrative Quote
Health system	• Negative perceptions (e.g., feelings that the culture at the VA is not welcoming to women) and distrust of the health system led to a reluctance to use care (Cichowski et al., 2019; Monteith et al., 2020; Murray-Swank, Dausch, and Ehrnstrom, 2018). • Privacy and confidentiality concerns (Burns et al., 2014; Monteith et al., 2020; Turchik et al., 2013) (Barriers)	• "People don't want to come to the VA 'cause everybody has access to your records—everybody. Everything you say, doesn't matter where you say it, doggone phlebotomist can pull up your record and know what you said in group, so nobody wants to come here." (Monteith et al., 2020) • "The Womens Clinic is nice, and it's nice to know that I can go there and I'm not having to discuss everything with men all over the place." "Because it's really hard to relax and be vulnerable and be in your body and in your emotions if there's a bunch of penises around. When I saw these guys on the floor I'm like, I ain't going in there." (Cichowski et al., 2019, p. 43) • "Some things in the military records are career-enders. . . . It doesn't matter what it's for, they see that you've been in there for mental health and they'll re-evaluate you—are you really stable enough to be a soldier?" (Burns et al., 2014, p. 347)
Program	• Certain types of therapy might be more likely to be used by MST victims (i.e., psychotherapy) (Farmer et al., 2020; Turchik et al., 2014). (Facilitators)	• "Possibly owing to a greater need for care, women who experienced military sexual trauma and women with multiple mental health comorbidities showed increased psychotherapy use." (Farmer et al., 2020, p. 371) • "A greater number of veterans felt that the gender-targeted MST brochure presented the best information compared to the gender-neutral brochure (85% vs. 15%, $p < .01$) and would be more likely to encourage help seeking than the gender-neutral brochure (90% vs. 10%; $p < .01$)." (Turchik et al., 2014, p. 244)
Provider	• Gender provider preferences (Cichowski et al., 2019; McBain, Garneau-Fournier, and Turchik, 2020; Sexton et al., 2020) (Facilitators) • Sensitivity and reactions of providers (Turchik et al., 2013) (Barriers)	• "It all depends on where you go. [. . .] Well, especially in nonliberal staff that they, you know you're in the Midwest, and in San Francisco probably half your class might be homosexual or a large percentage of it. As opposed to if there were homosexuals out in Oklahoma they might not be telling people. And I think just your basic attitude your basic liberal attitude has uh people accept other differences and other people uh more so." (Turchik et al., 2013, p. 218) • "If the doctor ignores the claim, you have to deal with that." (Turchik et al., 2013, p. 218) • "Men and women associated perceived provider barriers and comfort with provider gender preference. Women also associated provider competence with provider gender preference. . . . Men mostly preferred a female provider or had no preference. The majority of women preferred a women provider. Less than half of veterans were matched with their preferred provider" (McBain, Garneau-Fournier, and Turchik, 2020, p. 13).

Level	Factor	Example or Illustrative Quote
Individual	• Perceptions of stigma and shame (e.g., fears of being seen as weak, concerns that leaders might treat them differently or that coworkers would have less confidence in them) (Burns et al., 2014; Hahn, Turchik, and Kimerling, 2020; Holland, Rabelo, and Cortina, 2016; Monteith et al., 2020; Murray-Swank, Dausch, and Ehrnstrom, 2018; Turchik et al., 2013) (Barriers) • Concerns the trauma is not serious enough to warrant treatment (Turchik et al., 2013) (Barriers) • Logistical factors (e.g., transportation, difficulty getting time off work, difficulties scheduling an appointment, child care needs) (Hahn, Turchik, and Kimerling, 2020; Holland, Rabelo, and Cortina, 2016; Murray-Swank, Dausch, and Ehrnstrom, 2018) (Barriers) • Insurance coverage (e.g., no approval for disability benefits) (Waitzkin et al., 2018) (Barriers) • Negative cognitive beliefs or emotions about seeking care for MST or not being believed (Hahn, Turchik, and Kimerling, 2020; Turchik et al., 2013) (Barriers) • Perceptions that MST does not affect men (Turchik et al., 2013) (Barriers) • Lack of knowledge or awareness of MST services (Turchik et al., 2013) (Barriers)	• "I don't want [providers] to judge me and think I'm just some stupid woman who doesn't know what the hell is going on with her body." (Monteith et al., 2020) • "I would think that among most men [who have experienced MST] the biggest barrier would be that they wouldn't want to report it in the first place because it's something that they should be able to take care of themselves." (Turchik et al., 2013, p. 217) • "If they were almost raped, or approached to be raped, they would just shrug it off." (Turchik et al., 2013, p. 218) • "The most frequently reported obstacles included accessibility and availability concerns such as: 'It is difficult to schedule an appointment' (29%), 'Medical center is too far away' (28%), 'Mental health care costs too much money' (24%), and 'There would be difficulty getting time off work for treatment' (22%)." (Murray-Swank, Dausch, and Ehrnstrom, 2018)

Retention in Treatment

Six studies reported themes related to remaining in mental health care following sexual assault or sexual harassment.[8] Themes and sample quotes or extracts related to the theme are presented in Table 3.3. Themes are presented according to four levels: health system, program, provider, and individual. Themes at the health-system level tended to reflect on the Veterans Health Administration (VHA) environment for MST services, pointing to the predominantly male environment being a deterrent to remaining in care or serving as a trigger (Kehle-Forbes et al., 2017; Monteith et al., 2020). At the program level, one study reported findings regarding treatment modality (e.g., increased likelihood of remaining in care for in-person sessions) (Valentine et al., 2020), and one study reported that victims of MST might be more likely to remain in care than other individuals who have experienced trauma (Farmer et al., 2020). Themes at the provider level (from one study) focused on the relationship between victims and

[8] These six studies are Farmer et al., 2020; Gilmore et al., 2020; Holder et al., 2019; Kehle-Forbes et al., 2017; Monteith et al., 2020; and Valentine et al., 2020.

their providers and spoke to (1) issues of distrust or a lack of compassion and (2) the effects of establishing a relationship with a specific provider and then having difficulties remaining in care if the victims are forced to change providers (Monteith et al., 2020). Finally, at the individual level, studies pointed primarily to (1) emotional or cognitive difficulties that affected an individual's ability or willingness to remain in care (Holder et al., 2019; Gilmore et al., 2020) and (2) logistical factors, such as challenges in finding the time for appointments and dealing with finding child care (Farmer et al., 2020; Gilmore et al., 2020).

These studies also contained findings or themes for individuals who were not identified as having experienced sexual assault, sexual harassment, or sexual trauma in military settings. For example, it was common among those who reported MST and other types of trauma for care to not be delivered according to patients' needs, general preferences, or preferences related to provider gender (Farmer et al., 2020).

Table 3.3. Summary of Barriers and Facilitators Related to Retention in Treatment

Level	Factor	Example or Illustrative Quote
Health system	• The VHA's predominately male environment was unwelcoming to women (Kehle-Forbes et al., 2017) (Barriers) • VHA services fell short of meeting women veterans' needs and caused distress (Kehle-Forbes et al., 2017; Monteith et al., 2020) (Barriers)	"There's just so many men here. There's a lot, a lot of men, and men who have particularly worn uniforms. And that was one of my big triggers, was being around people in uniform." (Monteith et al., 2020)
Program	• There is an increased likelihood that victims will complete treatment that is delivered in person compared with treatment delivered by video (Valentine et al., 2020) (Facilitators) • Women with a history of MST showed higher psychotherapy retention (Farmer et al., 2020) (Facilitators) • Care delivery that was consistent with preferences was associated with greater retention (Farmer et al., 2020) (Facilitators)	"Women who received care consistent with their preferences demonstrated greater psychotherapy retention than women whose care was not consistent with their treatment preferences. Perceptions that both gender-related and group-related preferences were met were each independently associated with better retention." (Farmer et al., 2020, p. 370)
Provider	• There was a perceived lack of trustworthiness and compassion from VHA providers (Monteith et al., 2020) (Barriers) • Victims did not want to continue care when they were required to change providers (Monteith et al., 2020) (Barriers)	"I wish [VHA providers] would respect and listen to the people a little bit more." (Monteith et al., 2020)

Level	Factor	Example or Illustrative Quote
Individual	• Cognitive or emotional reactions (e.g., emotional regulation issues, negative cognitions about self-blame) affected victims' ability to remain in treatment (Gilmore et al., 2020; Holder et al., 2019) (Barriers) • Logistical factors (e.g., need for child care, difficulties scheduling) were associated with increased dropout rates, as were feelings of emotional distress (Farmer et al., 2020; Gilmore et al., 2020) (Barriers)	"The only significant predictor of treatment dropout was difficulties with emotion regulation (odds ratio, 1.03; $p <$ .01). . . . Individuals with more difficulties with emotion regulation (M = 116.18; SD = 25.46) were significantly more likely to drop out of treatment than those with fewer difficulties with emotion regulation (M = 105.00; SD = 22.92)." (Gilmore et al., 2020, p. 466) "Parenting women demonstrated lower psychotherapy retention as compared with other women. Logistical barriers related to attending psychotherapy as a parent (e.g., lack of time or childcare) may prevent parenting women from engaging in psychotherapy, especially given women veterans' increased likelihood of being a single parent." (Farmer et al., 2020, p. 371)

Key Question 1a: Differences Between Access to and Retention in Treatment

In general, more studies examined barriers and facilitators related to access (n = 13) than retention in treatment (n = 6); three studies identified themes related to both access and retention. In reviewing themes between those related to access compared with those related to retention in treatment, we found similar patterns in barriers and facilitators for such areas as the health system environment. For example, a welcoming environment was important for individuals to both initially engage in care and continue coming to appointments for ongoing care needs. The reactions of providers and the creation of a trusting relationship also emerged as critical to both access and engagement. Furthermore, logistical concerns around getting to appointments (e.g., getting time off work, scheduling appointments) arose throughout the care continuum.

However, there appeared to be some factors that are unique to accessing services, including privacy and confidentiality concerns at the health-system level; worries that the trauma might not be serious enough to warrant treatment, particularly within military culture;[9] concerns about being believed; and insurance coverage challenges. In terms of retention in treatment, barriers and facilitators unsurprisingly focused more on care delivery considerations, such as the importance of receiving care that is aligned with patient preferences, the importance of having continuity in providers, and the impact of treatment modality (e.g., an in-person intervention might be associated with higher retention than a virtual intervention) (Valentine et al., 2020).

Key Question 1b: Variations by Treatment Setting or Modality

Reported health care settings were primarily VA settings (e.g., medical centers, specialty clinics, health care systems) (n = 13). The remaining studies did not specify a treatment setting; instead, they focused on broader experiences of military personnel during or after active duty (n

[9] Per Turchik et al., 2013, "Military culture, particularly the emphasis on hypermasculinity and resilience, appeared to reinforce such beliefs [as the experience not being important or serious enough to warrant treatment]; men may be thinking about sexual assault in contrast to stressors more commonly associated with military experience, such as combat exposure" (p. 218).

= 4). Studies that focused on the broader experiences of military personnel tended to focus more on access than retention. There were no readily apparent differences in barriers and facilitators between VA and non-VA settings; studies that focused on both noted perceptions of stigma and how experiences reporting or receiving care influenced the likelihood of accessing services. The one study that focused on military personnel and issues regarding retention in treatment included populations who experienced care decades ago and therefore might not reflect current barriers and facilitators (Wolff and Mills, 2016).

Studies did not always specify a particular treatment option or modality following sexual assault or sexual harassment. Eight studies had participants reflect broadly on experiences of care (i.e., both physical and mental health care); five focused specifically on mental health services, visits, or counseling; and four had a specific treatment or program specified (i.e., PE therapy; CPT, psychotherapy, pharmacotherapy, and a wellness retreat). Only two of the studies that focused on specific treatments or programs included findings related to access. Specifically, one study examining psychotherapy and pharmacotherapy found that MST victims were more likely to use psychotherapy than individuals who experienced other types of trauma (Farmer et al., 2020). The other study investigated factors affecting an individual's willingness to attend a wellness retreat among those interested in attending; perceived barriers were noted across levels (i.e., health system, provider, individual) based on items presented in a list of potential barriers (Murray-Swank, Dausch, and Ehrnstrom, 2018). The remainder of the studies focused on barriers and facilitators that were specific to retention in treatment. Two studies noted (1) the impact of cognitions or emotional regulations in influencing retention (i.e., individuals with more difficulty with emotional regulation were more likely to drop out of treatment) (Gilmore et al., 2020) and (2) that lower trauma-related negative cognitions were protective against dropout (Holder et al., 2019). The other two studies explored treatment modalities: One of these studies found that the treatment modality had no effect on retention in treatment (Gilmore et al., 2020), while the other noted that participants were more likely to complete treatment in person than using clinical video technology (Valentine et al., 2020).

Key Question 1c: Variations Based on Individual Experiences or Characteristics

Studies tended to report on a variety of characteristics for respondents, such as age; gender; race and ethnicity; and military context, including military branch(es) and service era(s). However, the effects of certain characteristics (e.g., age, race or ethnicity, military branch, service era) were not systematically explored across or within studies. The only individual characteristic that appeared to be examined for differences in experiences was gender. However, differences based on experiences related to gender were not frequently explored, which might be attributable to the high percentage of women included in most studies. Excluding two studies focused exclusively on men, women made up 80 percent of the study samples, on average. Eight studies included both women and men, seven included only women, and two included only men.

The predominant theme was the male-centric nature of the military and the VA, which often led women to feel uncomfortable seeking or remaining in care.

Variations in individual experiences were typically noted in qualitative studies, but these studies were descriptive in nature and not systematically examined by types of experiences. For example, symptom severity was not systematically measured or reported on, but a qualitative quote might have noted "severe anxiety" (Waitzkin et al., 2018). Furthermore, as noted earlier, not all studies excluded individuals who did not report experiencing sexual assault, sexual harassment, or sexual trauma in military settings. Furthermore, some studies did not compare barriers and facilitators among those who had not experienced sexual trauma, so the ability to interpret potential barriers and facilitators related to specific experiences and characteristics was limited.

Review 3: Associations Between Sexual Assault or Sexual Harassment and Mental Health Conditions (i.e., PTSD, Depression, and Substance Use Disorders)

In this systematic review, we targeted studies that investigated the associations between sexual assault or sexual harassment and three mental health conditions: PTSD (Key Question 1), depression (Key Question 2), and substance use disorders (Key Question 3). For each mental health condition, we also investigated whether effects might vary by population subgroups. Using an initial assessment of the availability of subgroup data among included studies, we abstracted all data that were relevant to potential variation by gender, military or civilian status, and race/ethnicity. Only one study (Burnam et al., 1988) examined racial variation and it found no effect. Thus, race/ethnicity was not included in subgroup analyses.

Forty-three studies met all inclusion criteria across mental health conditions and were abstracted, including 23 that are relevant to PTSD (see Appendix B, Table B.3), 22 that are relevant to depression (see Appendix B, Table B.4), and 17 that are relevant to substance use disorders (see Appendix B, Table B.5).[10] Some studies were relevant to multiple outcomes. Thirty-nine studies used a prospective (n = 14) or retrospective cohort (n = 25) design, and two studies used a case-control design. Twenty-seven studies identified non–treatment-seeking

[10] These 43 studies are Arata, 1999; Atkeson et al., 1982; Burnam et al., 1988; Clancy et al., 2006; Cloitre, Scarvalone, and Difede, 1997; Copeland et al., 2011; Davis et al., 2020; Deliramich and Gray, 2008; Dunmore, Clark, and Ehlers, 1999; Ellis, Atkeson, and Calhoun, 1981; Faravelli et al., 2004; Fillo et al., 2018; Frank and Pazak Anderson, 1987; Gilboa-Schechtman and Foa, 2001 (study 1 and study 2); Goldberg et al., 2019; Gross, Kroll-Desrosiers, and Mattocks, 2020; Kang et al., 2005; Krahé and Berger, 2017; Layman, Gidycz, and Lynn, 1996; Lombardo and Pohl, 1997; Maguen et al., 2012; McCallum et al., 2015; McGinley, Richman, and Rospenda, 2011; Messman-Moore, Brown, and Koelsch, 2005; Millegan et al., 2015; Millegan et al., 2016; Ouimette, Wolfe, and Chrestman, 1996; Richman, Flaherty, and Rospenda, 1996; Richman et al., 2002; Rosellini et al., 2017; Roth et al., 1997; Rowe et al., 2009; Rugulies et al., 2020; Santiago et al., 1985; Seelig et al., 2017; Sørbø et al., 2014; Straus, Norman, and Pietrzak, 2020; Tannahill et al., 2020; Thompson et al., 2003; Tiet et al., 2015; Valentiner et al., 1996; and Walker, Archer, and Davies, 2005.

victims through a two-item MST screening questionnaire (n = 6), an interview (n = 3), a self-report survey (n = 17), or administrative records from the justice system (n = 1). Twelve studies identified victims of sexual assault or harassment among treatment-seeking individuals through a two-item MST screening questionnaire (n = 2), a self-report survey (n = 1), or a structured interview (n = 9). The remaining four studies identified victims using structured interviews, drawing victims from a population that included both treatment-seeking and non–treatment-seeking populations. We analyzed strength of association results by mental health condition and describe results individually in the following sections.

PTSD

In this section, we focus on the evidence for the association between sexual assault and sexual harassment and PTSD (Key Question 1). Measurement of PTSD varied across studies, including 12 studies that used clinician-administered or semistructured interviews (e.g., CAPS, Structured Clinical Interview for Diagnostic and Statistical Manual Disorders [SCID], PTSD Symptom Scale–Interview), eight that used self-report measures (e.g., PCL, PTSD Symptom Scale–Self-Report version, Impact of Event Scale, Modified PTSD Symptom Scale [MPSS-SR]), and two that used treatment or diagnosis-based administrative records. We begin with an analysis of the overall evidence of an association and follow with an analysis of variation by subgroups (Key Question 4).

Overall Association (Key Question 1)

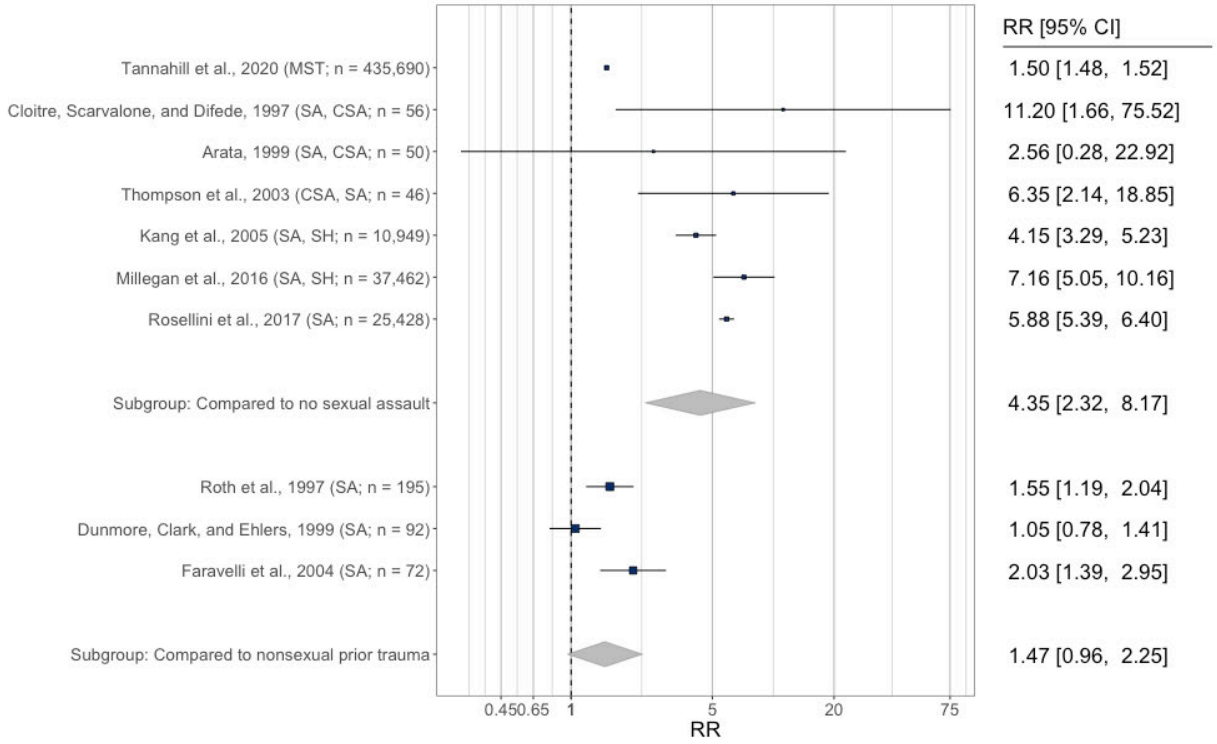
Among studies that included PTSD as an outcome, most focused on subjects from the United States (n = 20). Eight studies were on military populations, with five focused on sexual assault that occurred in a military setting, while the remainder (n = 3) did not have a setting clearly identified. All studies included sexual assault as an exposure (n = 22), and four studies also included sexual harassment as an exposure. Eleven studies assessed non–treatment-seeking victims through a two-item MST screening questionnaire (n = 2), an interview (n = 3), a self-report survey (n = 5), or administrative records from the justice system (n = 1). Ten studies assessed victims of sexual assault or harassment among treatment-seeking individuals through a two-item MST screening questionnaire (n = 2), a self-report survey (n = 1), or a structured interview (n = 7). Two studies assessed victims recruited from a population that included both treatment-seeking and non–treatment-seeking populations and assessed them using structured interviews. Sixteen studies could be included in the meta-analysis, with six using continuous measures of PTSD and ten reporting binary measures of diagnosis or likely diagnosis. Three studies that were excluded were done so on the basis of lack of available data, and three studies were excluded for a lack of a comparable comparison group.

Figures 3.7 and 3.8 summarize the meta-analysis for the association between sexual assault and PTSD. Figure 3.7 shows estimates of relative risks by study, with summary statistics for two study groupings. The first grouping is made up of studies where subjects who were sexually

assaulted were compared with subjects who had no known assault or trauma, while the second grouping includes studies where subjects who were sexually assaulted were compared with subjects who had experienced some other assault or trauma (e.g., physical assault). A normal mixed-effects model was used to estimate the overall mean log relative risk and its confidence interval (in the figure, the log relative risk estimates and confidence intervals are transformed and displayed in terms of relative risk). To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean log relative risk is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance.

We found an overall relative risk of PTSD diagnosis of 4.35 (CI: 2.32, 8.17) in subjects who reported being victims of sexual assault compared with subjects who did not report any sexual assault or other trauma. When compared with victims of nonsexual assault or trauma, relating to the marginal impact of sexual assault on PTSD beyond other trauma, the overall relative risk of PTSD among victims of sexual assault was 1.47 (CI: 0.96, 2.25). The test for a moderation by comparator was significant ($p = 0.032$), showing that effect sizes varied by whether people in the comparison group had reported being victims of nonsexual trauma or assault. Significant residual heterogeneity was detected using I^2 (98.0 percent; Q test for residual heterogeneity $p < 0.0001$), indicating potential moderation in association sizes that are unaccounted for; however, this result was driven by a single study of veterans of Operation Enduring Freedom and Operation Iraqi Freedom (Tannahill et al., 2020) with a low relative risk compared with other studies that use comparators who had not indicated any sexual assault or other trauma. Associations in this study might have been lower because of the high level of combat exposure among this population (Sternke, 2011). When we removed this study, I^2 declines to 68.5 percent, indicating significantly less residual heterogeneity among the remaining studies.

Figure 3.7. Relative Risk of PTSD Diagnosis Among Subjects Who Reported Being Exposed Relative to Unexposed to Sexual Assault



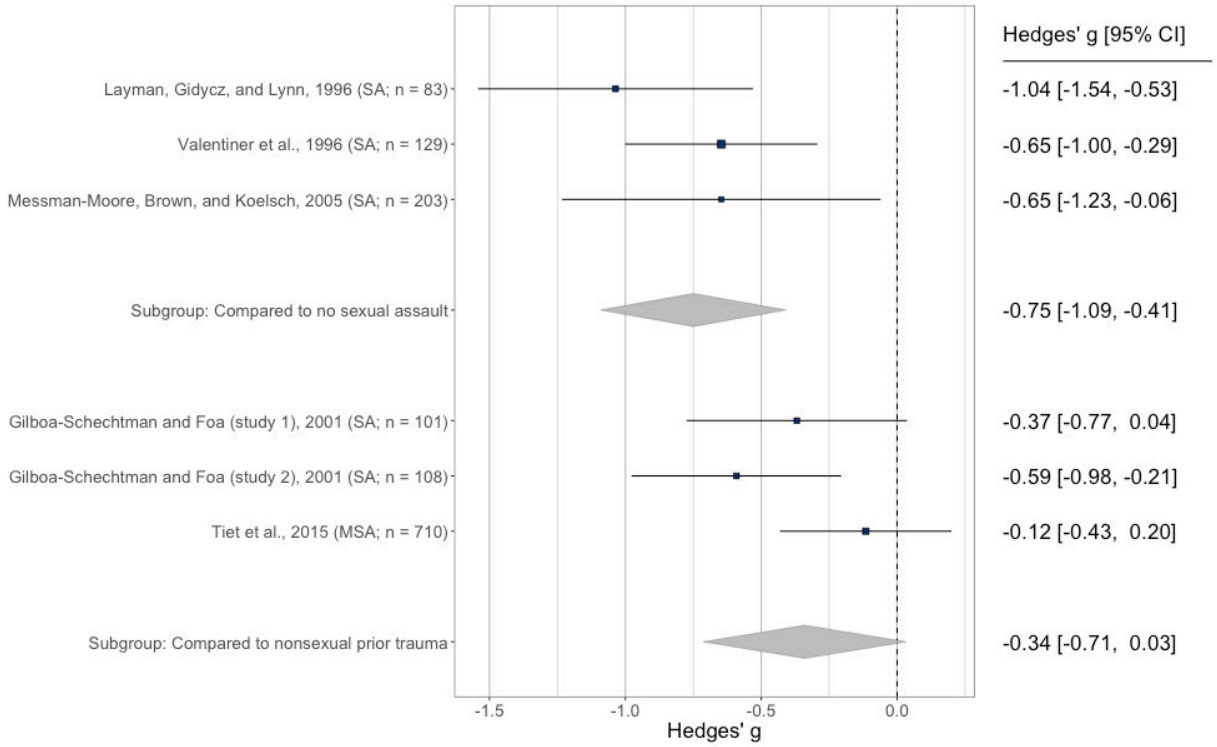
NOTE: CI = confidence interval. CSA = childhood sexual assault. MST = military sexual trauma. RR = relative risk. SA = sexual assault. SH = sexual harassment.

Figure 3.8 shows estimates of standardized mean differences (Hedges' g) by study with summary effects for two study groupings. The first group is made up of studies where subjects who were sexually assaulted were compared with subjects who had no known assault or trauma, while the second group is made up of studies where subjects who were sexually assaulted were compared with subjects who had experienced some other assault or trauma (e.g., physical assault). A normal mixed-effects model was used to estimate the overall mean Hedges' g and its confidence interval. To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean Hedges' g is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance.

We found medium overall association sizes between sexual assault and PTSD among studies that measured PTSD using mean scores on symptom scales and/or inventories. We found an overall Hedges' g of PTSD diagnosis of –0.75 (CI: –1.09, –0.41) when comparing victims who reported being sexually assaulted with subjects without any reported sexual assault or other trauma. When compared with victims who indicated a nonsexual assault or trauma, the overall

Hedges' g of PTSD among victims who reported being sexually assaulted was –0.34 (CI: –0.71, 0.03). No moderation by comparator was detected ($p = 0.59$). Residual heterogeneity was not detected (I^2 28.4 percent; Q test for residual heterogeneity $p = 0.262$), indicating consistent effect sizes within each moderator group.

Figure 3.8. Standardized Mean Differences of PTSD Severity Scores Among Subjects Who Reported Being Unexposed Relative to Exposed to Sexual Assault



NOTE: CI = confidence interval. MSA= military sexual assault. SA = sexual assault.

Among the six full-text abstraction studies that could not be pooled with other results, five found significant associations between adult sexual assault and either PTSD symptoms or diagnosis (Clancy et al., 2006; Copeland et al., 2011; Davis et al., 2020; McCallum et al., 2015; Ouimette, Wolfe, and Chrestman, 1996) and one did not (Lombardo and Pohl, 1997). The study that found no association examined the association of lifetime history of sexual assault with psychiatric outcomes and had a sample size of 38.

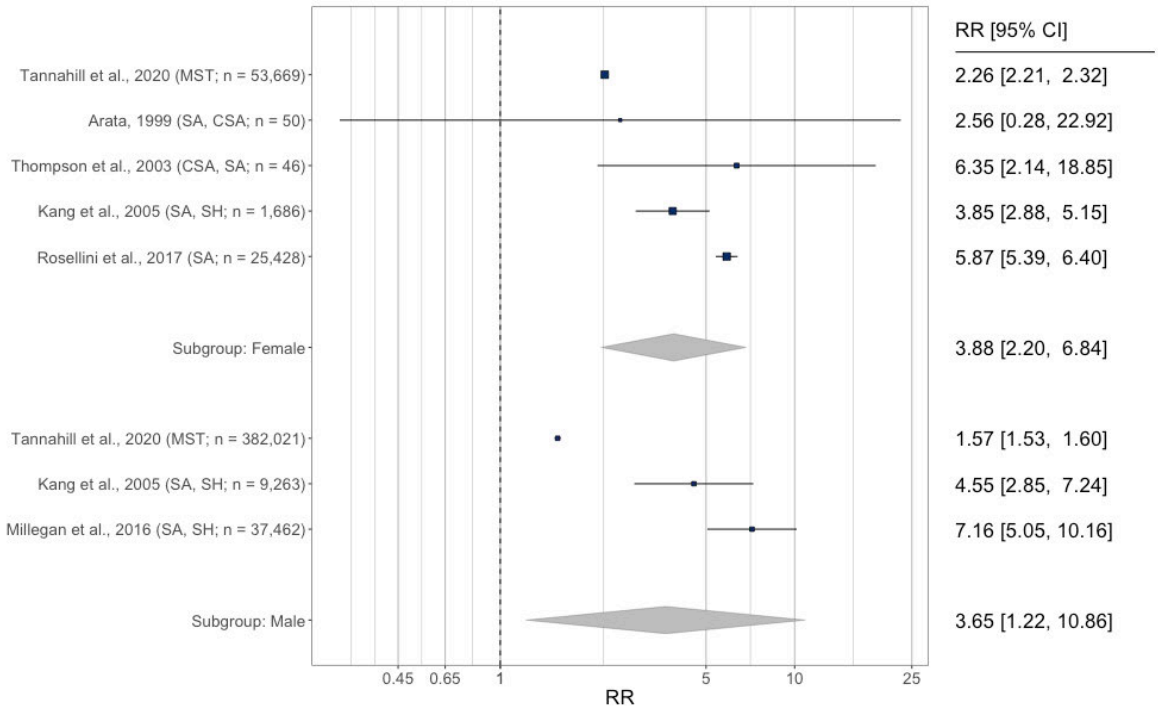
Subgroup Analysis (Key Question 4)

To limit potential confounding from differences among subgroups in the comparison group used, we limited our subgroup analysis to studies using a comparison group of individuals with no reported sexual assault or trauma. We did not detect a difference by gender in the relative risk of a PTSD diagnosis among subjects who reported being exposed relative to unexposed to sexual assault ($p = 0.86$). Indication of sexual assault was associated with higher risk of PTSD diagnosis

in both men and women. We found an overall relative risk of PTSD diagnosis of 3.88 (CI: 2.20, 6.84) in female victims of sexual assault compared with subjects who did not report sexual assault or other trauma. The relative risk of PTSD diagnosis was 3.65 (CI: 1.22, 10.86) in male victims. A single study (Tannahill et al., 2020) using standardized differences in mean scores on symptom scales and/or inventories included results for men only, so this meta-analysis was not performed. One study (Roth et al., 1997) (n = 195), which reported independent results of men and women, was excluded. This study was unable to detect an effect among men because of the small number of men who were sexually assaulted (n = 11).

Figure 3.9 shows estimates of relative risks by study with summary statistics for men and women. A normal mixed-effects model was used to estimate the overall mean log relative risk and its confidence interval (in the figure, the log relative risk estimates and confidence intervals are transformed and displayed in terms of relative risk). To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean log relative risk is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance.

Figure 3.9. Relative Risk of PTSD Diagnosis Among Subjects Who Reported Being Exposed Relative to Unexposed to Sexual Assault, by Gender

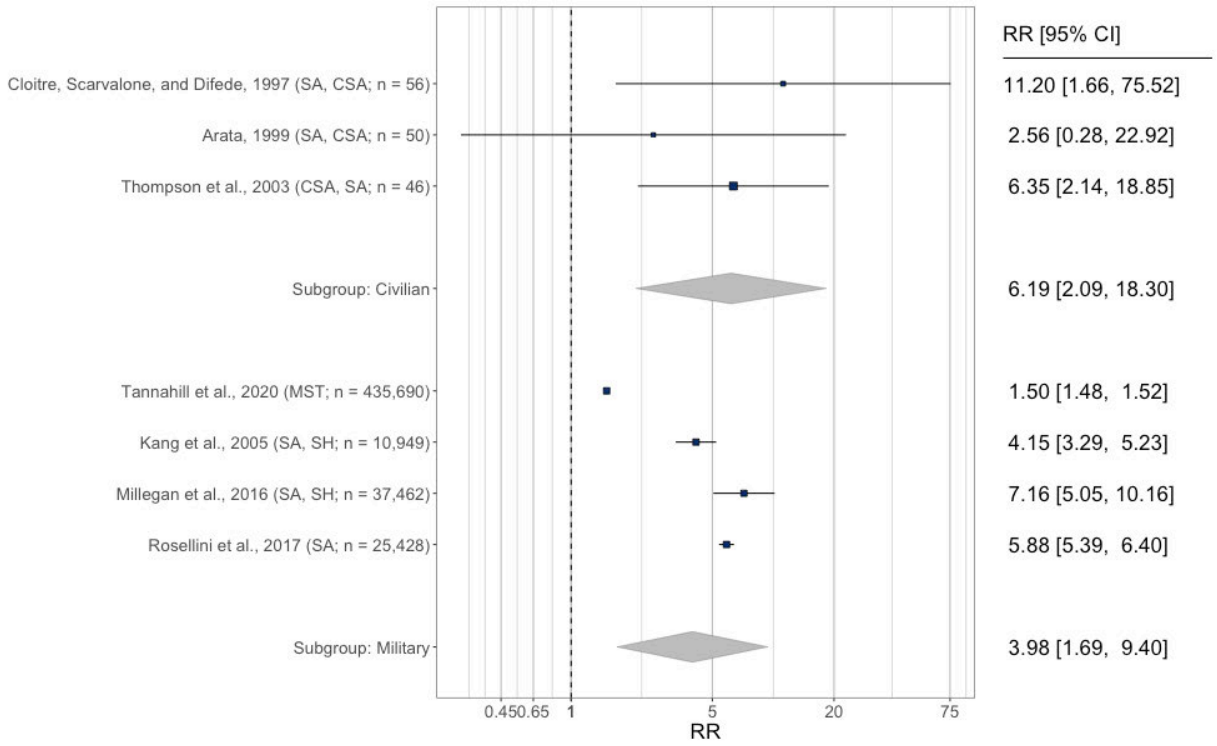


NOTE: CI = confidence interval. CSA = childhood sexual assault. MST = military sexual trauma. RR = relative risk. SA = sexual assault. SH = sexual harassment.

We did not detect a difference by military status in the relative risk of a PTSD diagnosis among subjects who reported being exposed relative to unexposed to sexual assault ($p = 0.61$). Indication of sexual assault was associated with a higher risk of PTSD diagnosis in both civilian and military populations. We found an overall relative risk of PTSD diagnosis of 6.19 (CI: 2.09, 18.30) in civilian victims of sexual assault compared with subjects who did not report any sexual assault or other trauma. We found an overall relative risk of PTSD diagnosis of 3.98 (CI: 1.69, 9.40) in military victims. Only one study of a military population (Tiet et al., 2015) used standardized differences in mean scores on symptom scales and/or inventories, so no meta-analysis was performed. Tiet et al., 2015, did not find that MST was associated with PTSD severity among patients entering VA PTSD specialty intensive treatment programs.

Figure 3.10 shows estimates of relative risks by study with summary statistics for military and civilian results. A normal mixed-effects model was used to estimate the overall mean log relative risk and its confidence interval (in the figure, the log relative risk estimates and confidence intervals are transformed and displayed in terms of relative risk). To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean log relative risk is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance.

Figure 3.10. Relative Risk of PTSD Diagnosis Among Subjects Who Reported Being Exposed Relative to Unexposed to Sexual Assault, by Military Status



NOTE: CI = confidence interval. CSA = childhood sexual assault. MST = military sexual trauma. RR = relative risk. SA = sexual assault. SH = sexual harassment.

Sexual Harassment

Two studies examined the association between indication of sexual harassment alone and PTSD (Kang et al., 2005; Millegan et al., 2016), and each found the association to be positive and significant. One study on male service members found that the association between indications of harassment and PTSD was significant and roughly less than half that of indications of assault (Millegan et al., 2016). The other study looked at male and female Gulf War veterans and found a significant association between indications of sexual harassment and PTSD in both groups, with the association among women roughly half that of indications of assault and the association among men roughly two-thirds that of indications of assault (Kang et al., 2005).

Depression

In this section, we focus on the evidence of the association between (1) sexual assault and sexual harassment and (2) depression (Key Question 2). Measurement of depression varied across studies, including six that used clinician-administered or semistructured interviews (e.g., Diagnostic Interview Schedule, Hamilton Depression Rating Scale, SCID, Florence Psychiatric Interview), 14 that used self-report measures (e.g., BDI, General Health Questionnaire [GHQ], CES-D, PHQ-9), and one that used treatment or diagnosis-based administrative records. We

begin with an analysis of the overall evidence of an association and follow with an analysis of variation by subgroups (Key Question 4).

Overall Association (Key Question 2)

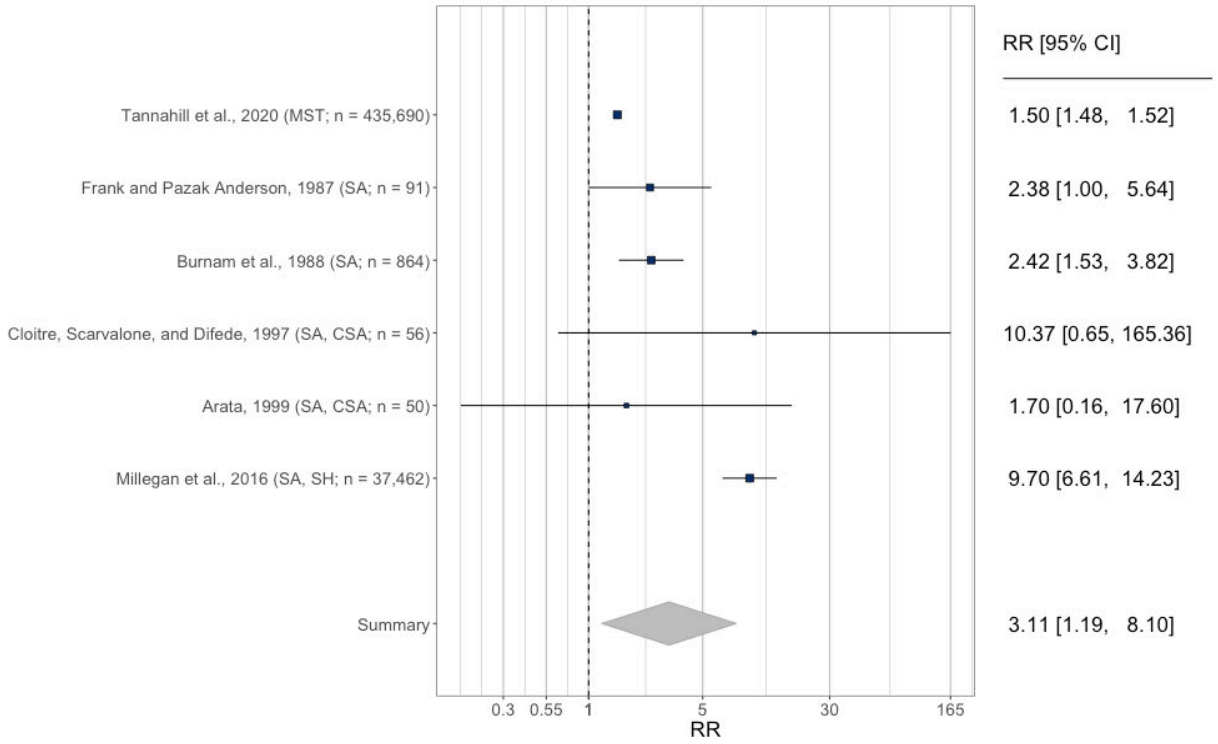
Among studies that included depression as an outcome, most focused on subjects from the United States (n = 16), with the remainder focusing on populations within European countries (n = 5). Seven studies were on military populations, with six focused on sexual assault that occurred in a military setting and one study where the setting was not clearly identified. Eleven studies assessed non–treatment-seeking victims through a two-item MST screening questionnaire (n = 4), an interview (n = 1), or a self-report survey (n = 6). Nine studies assessed victims of sexual assault or harassment among treatment-seeking individuals through either a two-item MST screening questionnaire (n = 2), a self-report survey (n = 1), or a structured interview (n = 6). Two studies assessed victims recruited from a population that included both treatment-seeking and non–treatment-seeking populations and assessed them using structured interviews. Nineteen studies included sexual assault as an exposure and one study also included sexual harassment as an exposure. Two studies included sexual harassment only as an exposure and were analyzed separately from studies including sexual assault because of differences in exposure severity. Twelve studies could be included in the meta-analysis, with five using continuous measures of depression and seven reporting binary measures of diagnosis or likely diagnosis. Three studies were excluded because of a lack of needed data, and four studies were excluded because of a lack of a comparable comparison group to the pooled studies.

Figures 3.11 and 3.12 summarize the meta-analysis for the association between reporting being sexually assaulted and depression. We found an overall relative risk of depression diagnosis of 3.11 (CI: 1.19, 8.10) in victims who reported being sexually assaulted compared with subjects who did not report sexual assault or other trauma. One study used victims who reported nonsexual assault or trauma as a comparison group, finding an overall relative risk of depression among victims who reported being sexually assaulted of 1.71 (CI: 1.00, 2.94) (not shown in the figure). Residual heterogeneity was detected (I^2 92.04 percent; Q test for residual heterogeneity $p < 0.0001$), indicating variation that is unaccounted for among studies.

Figure 3.11 shows estimates of relative risks by study with summary statistics for two study groupings. The first group is made up of studies where subjects who were sexually assaulted were compared with subjects who had no known assault or trauma, while the second group is made up of studies where subjects who were sexually assaulted were compared with subjects who had experienced some other assault or trauma (e.g., physical assault). A normal mixed-effects model was used to estimate the overall mean log relative risk and its confidence interval (in the figure, the log relative risk estimates and confidence intervals are transformed and displayed in terms of relative risk). To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean log relative risk is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-

analyses, with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup, but are not proportional to true weights, which are equal to the inverse of study estimate variance.

Figure 3.11. Relative Risk of Depression Diagnosis Among Subjects Who Reported Being Exposed Relative to Unexposed to Sexual Assault

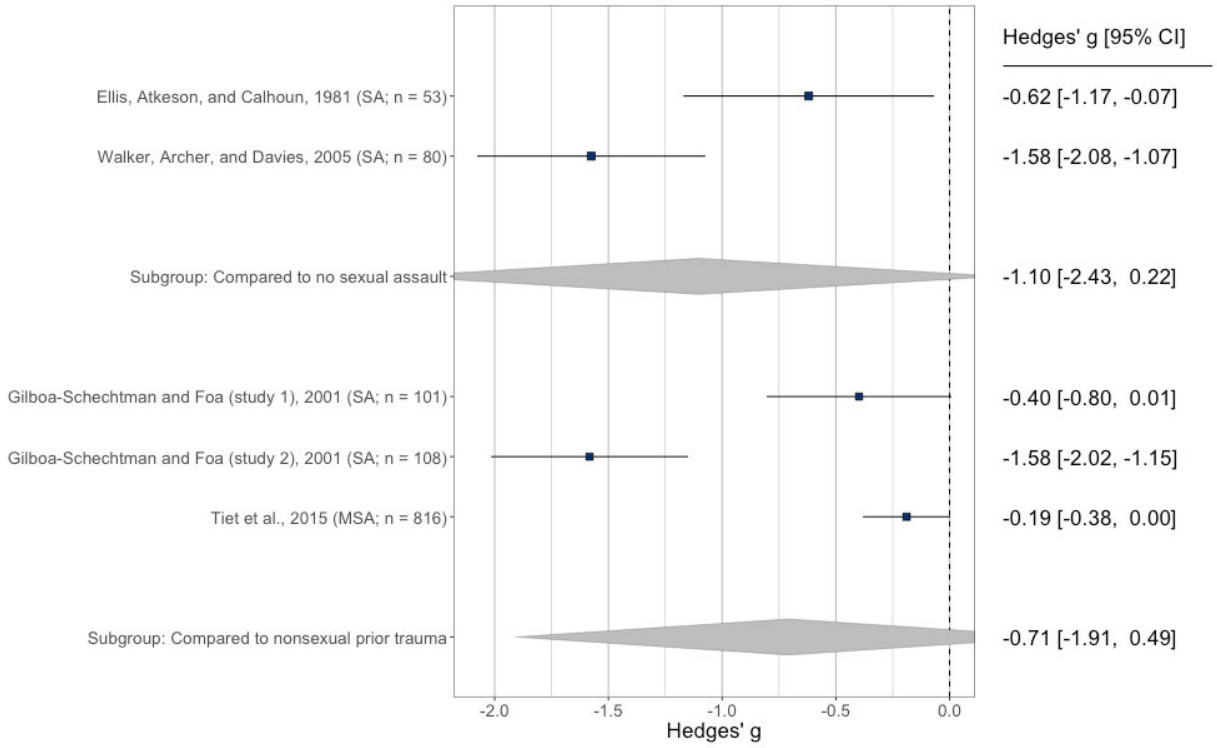


NOTE: CI = confidence interval. CSA = childhood sexual assault. MST = military sexual trauma. RR = relative risk. SA = sexual assault. SH = sexual harassment.

Overall association sizes between sexual assault and depression ranged from medium to large (Hedges' g greater than 0.2 and less than 0.8, and Hedges' g greater than 0.8) among studies that measured depression using mean scores on symptom scales and/or inventories. However, substantial heterogeneity in the estimates and small number of studies made us unable to detect a summary effect that was different from zero (not significant at $p < 0.05$). We found an overall Hedges' g of PTSD diagnosis of –1.10 (CI: –2.43, 0.22) when comparing victims who reported being sexually assaulted with subjects who did not report any sexual assault or other trauma. When compared with victims who reported nonsexual assault or trauma, the overall Hedges' g of depression among victims who reported being sexually assaulted was –0.71 (CI: –1.91, 0.49). No moderation by comparator was detected ($p = 0.59$). Residual heterogeneity was detected (I^2 92.92 percent; Q test for residual heterogeneity $p < 0.0001$), indicating variation that is unaccounted for.

Figure 3.12 shows estimates of standardized mean differences (Hedges' g) by study with summary effects for two study groupings. The first group is made up of studies where subjects who were sexually assaulted were compared with subjects who had no known assault or trauma, while the second group is made up of studies where subjects who were sexually assaulted were compared with subjects who had experienced some other assault or trauma (e.g., physical assault). A normal mixed-effects model was used to estimate the overall mean Hedges' g and its confidence interval. To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean Hedges' g is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that were weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance.

Figure 3.12. Standardized Mean Differences of Depression Severity Scores Among Subjects Who Reported Being Unexposed Relative to Exposed to Sexual Assault



NOTE: CI = confidence interval. MSA = military sexual assault. SA = sexual assault.

Among the three full-text abstraction studies that examined sexual assault that could not be pooled with other results because of a lack of necessary data, one (Santiago et al., 1985) found that victims who reported being raped had greater depression symptom severity than control group members, one was unable to detect differences in depression symptom severity among MST-positive and MST-negative groups (Rowe et al., 2009), and one found that depression

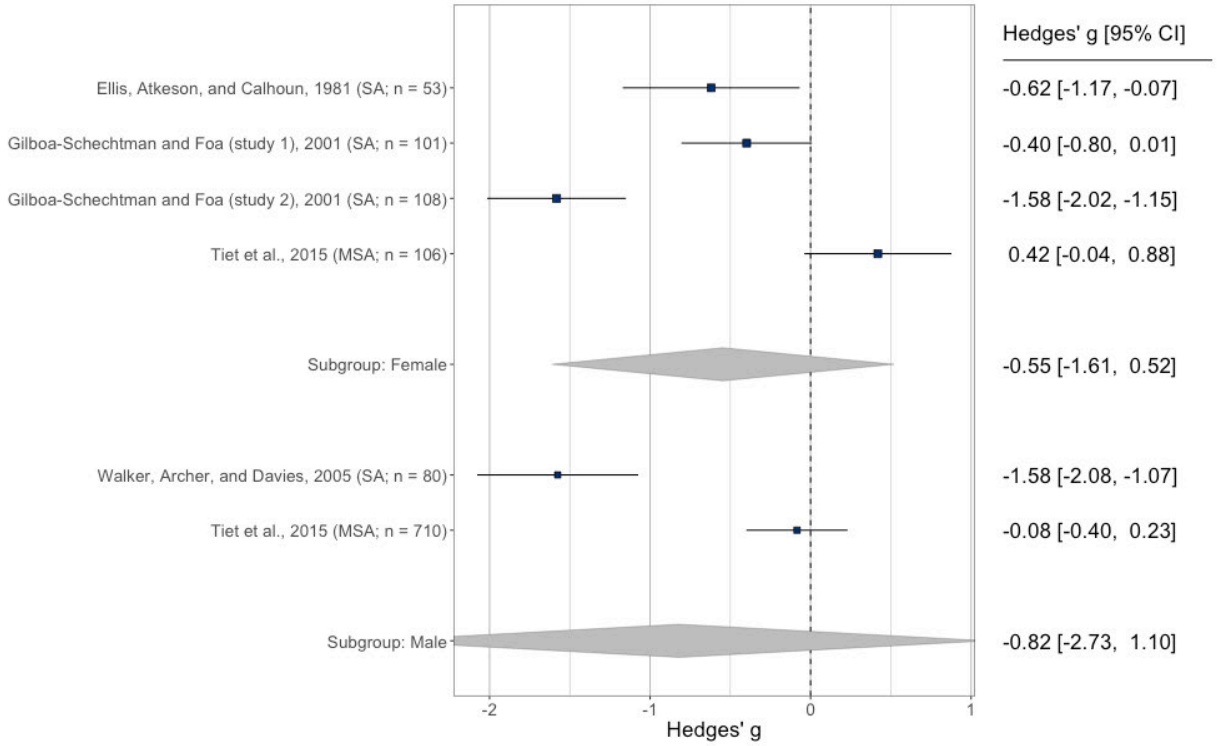
symptoms were significantly higher in victims who reported being raped than in a matched control group of individuals who did not report any trauma following the assault, but the difference dissipated after four months (Atkeson et al., 1982). All full-text abstraction studies that were not pooled because of a lack of a comparable comparison group ($n = 4$) detected associations between prior sexual assault and depression. In two studies, indications of sexual assault were found to be associated with increased perinatal depression symptoms among pregnant women (Gross, Kroll-Desrosiers, and Mattocks, 2020; Sørbø et al., 2014). One study on male veterans found that reports of being sexually assaulted after military service were associated with depression symptom severity in a model that included reports of sexual assault during military service (Clancy et al., 2006).

Subgroup Analysis (Key Question 4)

As in previous sections, we limited our subgroup analysis to studies using a comparison group of those who did not report being sexually assaulted or having other trauma. We did not detect differences by gender in the severity of depression symptoms among subjects who reported being exposed relative to unexposed to sexual assault ($p = 0.75$). There were no male-only results for depression diagnosis, so it was not possible to perform gender analysis based on relative risk.

Figure 3.13 shows estimates of standardized mean differences (Hedges' g) by study, with summary statistics for female and male results. A normal mixed-effects model was used to estimate the overall mean Hedges' g and its confidence interval. To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean Hedges' g is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance.

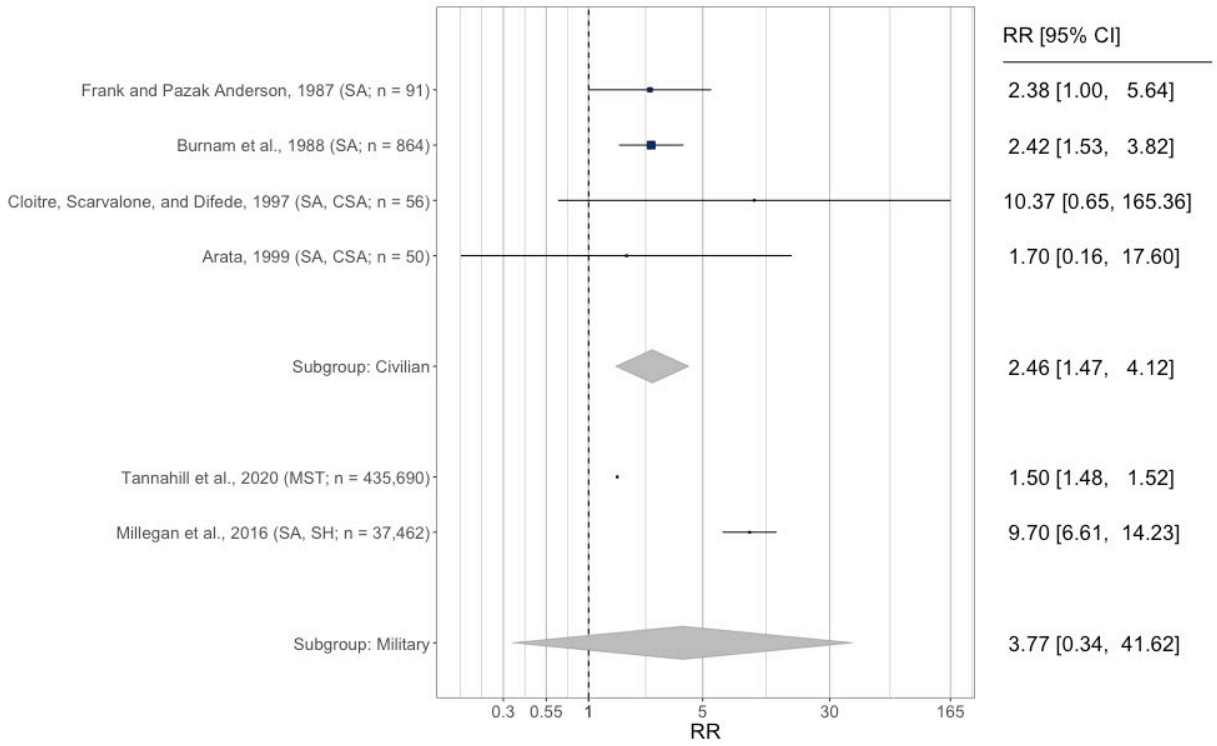
Figure 3.13. Standardized Mean Differences of Depression Severity Scores Among Subjects Who Reported Being Unexposed Relative to Exposed to Sexual Assault, by Gender



NOTE: CI = confidence interval. MSA = military sexual assault. SA = sexual assault.

Additionally, no difference was detected in the association between depression and sexual assault by military status in the relative risk of a depression diagnosis ($p = 0.71$; see Figure 3.14). The figure shows estimates of relative risks by study, with summary statistics for female and male results. A normal mixed-effects model was used to estimate the overall mean log relative risk and its confidence interval (in the figure, the log relative risk estimates and confidence intervals are transformed and displayed in terms of relative risk). To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean log relative risk is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance.

Figure 3.14. Relative Risk of Depression Diagnosis Among Subjects Who Reported Being Exposed Relative to Unexposed to Sexual Assault, by Military Status



NOTE: CI = confidence interval. CSA = childhood sexual assault. MST = military sexual trauma. RR= relative risk. SA = sexual assault. SH = sexual harassment.

Sexual Harassment

Three studies examined the association between reported experiences of sexual harassment alone and depression. Two studies detected an association (Millegan et al., 2016; Rugulies et al., 2020), while one detected a partial association (McCallum et al., 2015). The latter used a longitudinal design and found that deployment-related sexual harassment was commonly reported among men and women and was significantly associated with depression and PTSD three months after deployment; however, these associations were no longer significant when predeployment stressors were taken into consideration. One study that examined both sexual harassment and sexual assault found both to be associated with major depression, with the effect of harassment roughly half that of assault (Millegan et al., 2016). A study of harassment in the workplace found a stronger association when the reported harassment came from workplace personnel than from nonworkplace personnel (Rugulies et al., 2020).

Substance Use Disorders

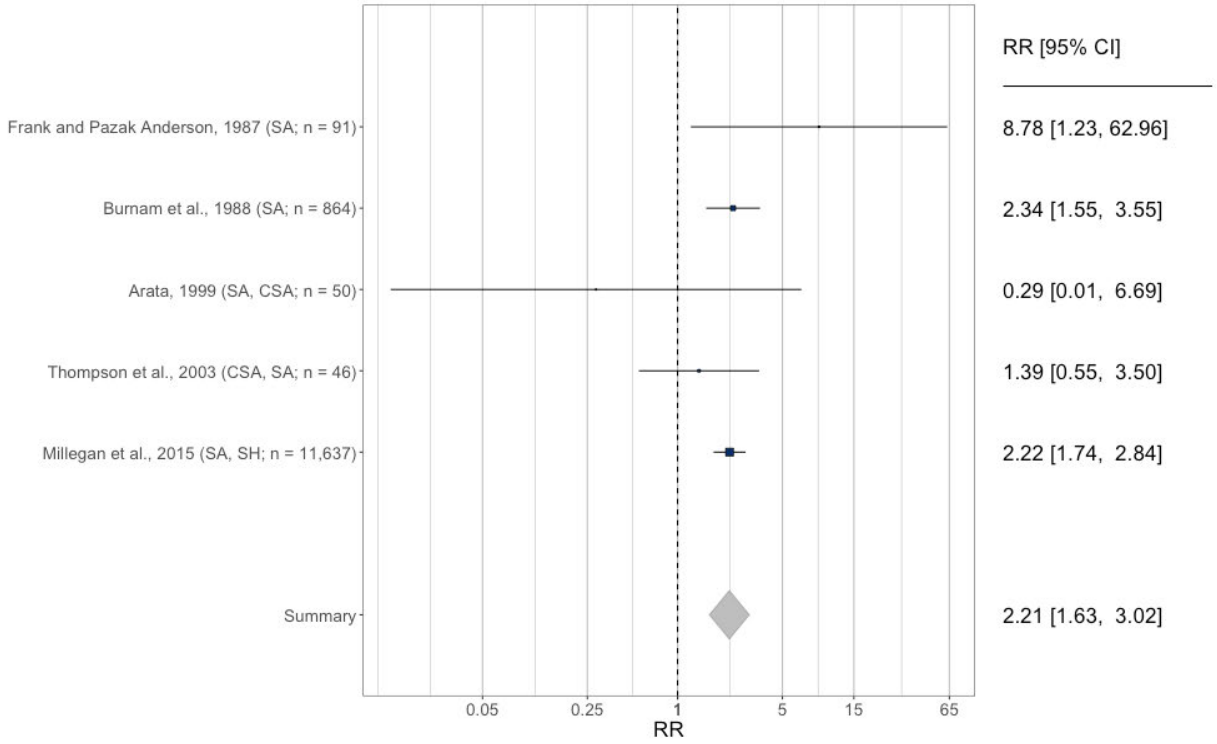
In this section, we focus on the evidence for the association between (1) sexual assault and sexual harassment and (2) substance use disorders (Key Question 3). Measurement of substance use disorders included four studies that used clinician-administered or semistructured interviews

(e.g., Diagnostic Interview Schedule, SCID), 11 that used self-report measures (e.g., Michigan Alcoholism Screening Test [MAST], Alcohol Use Disorders Identification Test [AUDIT], CAGE [Cutting Down, Annoyance by Criticism, Guilty Feeling, Eye-Openers] questionnaire, Addiction Severity Index [ASI] self-report form), and one that used treatment or diagnosis-based administrative records. We begin with an analysis of the overall evidence of an association and follow with an analysis of variation by subgroups (Key Question 4).

Among studies that included substance use disorders as an outcome, most focused on subjects from the United States (n = 16), with one study focused on Swedish subjects. Seven studies were on military populations, with five focused on reports of sexual assault that occurred in a military setting and two studies where the setting was not clearly identified. Twelve studies assessed non–treatment-seeking victims through a two-item MST screening questionnaire (n = 2), an interview (n = 1), or a self-report survey (n = 9). Four studies assessed victims of sexual assault or harassment among treatment-seeking individuals through either a two-item MST screening questionnaire (n = 2), or a structured interview (n = 2). One study assessed victims from a population that included both treatment-seeking and non–treatment-seeking individuals and assessed them using structured interviews. Fourteen studies included sexual assault as an exposure, including four that included both sexual harassment and sexual assault. Three studies included sexual harassment only as an exposure. Studies varied significantly in approach, reported statistics, and comparison group. Therefore, only five studies met the criteria to be included in the meta-analysis, all of which reported binary measures of substance use disorder outcomes. Three studies were excluded because they focused only on sexual harassment, five studies were excluded because of a lack of needed data, and four studies were excluded because of a lack of a comparable comparison group to the pooled studies.

Figure 3.15 summarizes the meta-analysis for the association between sexual assault and substance use disorders. We found an overall relative risk of substance use disorders to be 2.21 (CI: 1.63, 3.02) in victims who reported being sexually assaulted compared with subjects who did not report any sexual assault or other trauma. No evidence of significant heterogeneity was detected (Q test for residual heterogeneity, p = 0.33). The figure shows estimates of relative risks by study, with a summary statistic. Subjects who were sexually assaulted were compared with subjects who had no known assault or trauma. A normal mixed-effects model was used to estimate the overall mean log relative risk and its confidence interval (the log relative risk estimates and confidence intervals are transformed and displayed in terms of relative risk). To accurately represent the precision of the summary effect estimate, the confidence intervals for the estimated mean log relative risk is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance.

Figure 3.15. Relative Risk of Substance Use Disorders Among Subjects Who Reported Being Exposed Relative to Unexposed to Sexual Assault



NOTE: CI = confidence interval. CSA = childhood sexual assault. RR = relative risk. SA = sexual assault. SH = sexual harassment.

Among the 12 studies that were not included in the meta-analysis, ten reported significant associations between substance abuse disorder and sexual assault or sexual harassment. One study found no association between MST (i.e., sexual assault that occurred in a military setting) and substance use disorders among men or women patients entering treatment at VA intensive treatment programs (Tiet et al., 2015).

Subgroup Analysis (Key Question 4)

As we did in previous sections, we limited our subgroup analysis to studies using a comparison group of people who did not report sexual assault or trauma. Five of the included studies evaluated the association between sexual assault and substance abuse by subgroup. All five studies investigated gender as a moderator, with one study also exploring race and ethnicity as a moderator. Four of the five studies had significant findings relating to gender as a moderator. Two studies found men to be more likely to develop or relapse into substance use disorders. Burnam et al., 1988, looked at the probability of later onset of alcohol and drug abuse or dependence following reports of being sexually assaulted by different demographics, including gender and Hispanic ethnicity. The only significant predictor of later alcohol abuse or dependence was for gender; men who reported being sexually assaulted were more likely to

develop alcohol abuse or dependence after the assault than women ($p < 0.001$). There were no significant findings relating to gender or Hispanic ethnicity for drug abuse or dependence (Burnam et al., 1988). Maguen et al., 2012, found that men who screened positive for MST were significantly more likely to receive a diagnosis for substance use disorder ($p < 0.001$). However, in the study by Goldberg and colleagues, women had proportionally higher increased rates of both alcohol and drug use disorders than men did (alcohol use disorder adjusted odds ratio [AOR] = 1.43, $p < 0.001$; drug use disorder AOR = 1.17, $p = 0.003$) (Goldberg et al., 2019). Two studies found either mixed results or no difference among men and women. Seelig et al., 2017, found suggestive evidence that women and men who reported sexual assault while in the military might have different substance use disorder outcomes, with women at a significantly higher risk of alcohol misuse relapse (adjusted relative risk [ARR] = 1.73, 95-percent CI 1.06, 2.83, $p < 0.05$) and men significantly more susceptible to cigarette smoking relapse (ARR = 6.62, 95-percent CI 2.34, 18.73, $p < 0.05$). The second study, Tiet et al., 2015, found no significant gender differences in alcohol and drug abuse scores at treatment initiation.

Sexual Harassment

Three studies examined the association between reported experiences of sexual harassment alone in the workplace and substance use disorder (McGinley, Richman, and Rospenda, 2011; Richman, Flaherty, and Rospenda, 1996; and Richman et al., 2002), although two of these studies represented separate waves of a study on the same subjects (Richman et al., 2002, and McGinley, Richman, and Rospenda, 2011). All three studies used longitudinal designs and reported findings of an association between reported chronic harassment in the workplace and drinking outcomes. Richman, Flaherty, and Rospenda, 1996, evaluates reported experiences of sexual harassment among medical students and found associations with later problem drinking in both men and women, while the prevalence of reported experiences of sexual harassment was significantly higher among women. Richman et al., 2002, evaluates associations between (1) sexual harassment onset and chronicity and (2) a variety of drinking outcomes among both men and women employees of an urban university. Results were inconsistent across gender but generally showed a positive relationship between both predictors and several outcomes. McGinley, Richman, and Rospenda, 2011, is a follow-up study on subjects from Richman et al., 2002, examining the long-term effects of reported experiences of sexual harassment using latent class growth mixture modeling. Researchers confirmed evidence of two distinct classes of exposure—infrequent and chronic sexual harassment—and reported a strong relationship between chronic (relative to infrequent) sexual harassment and several alcohol outcomes over the ten years of the study.

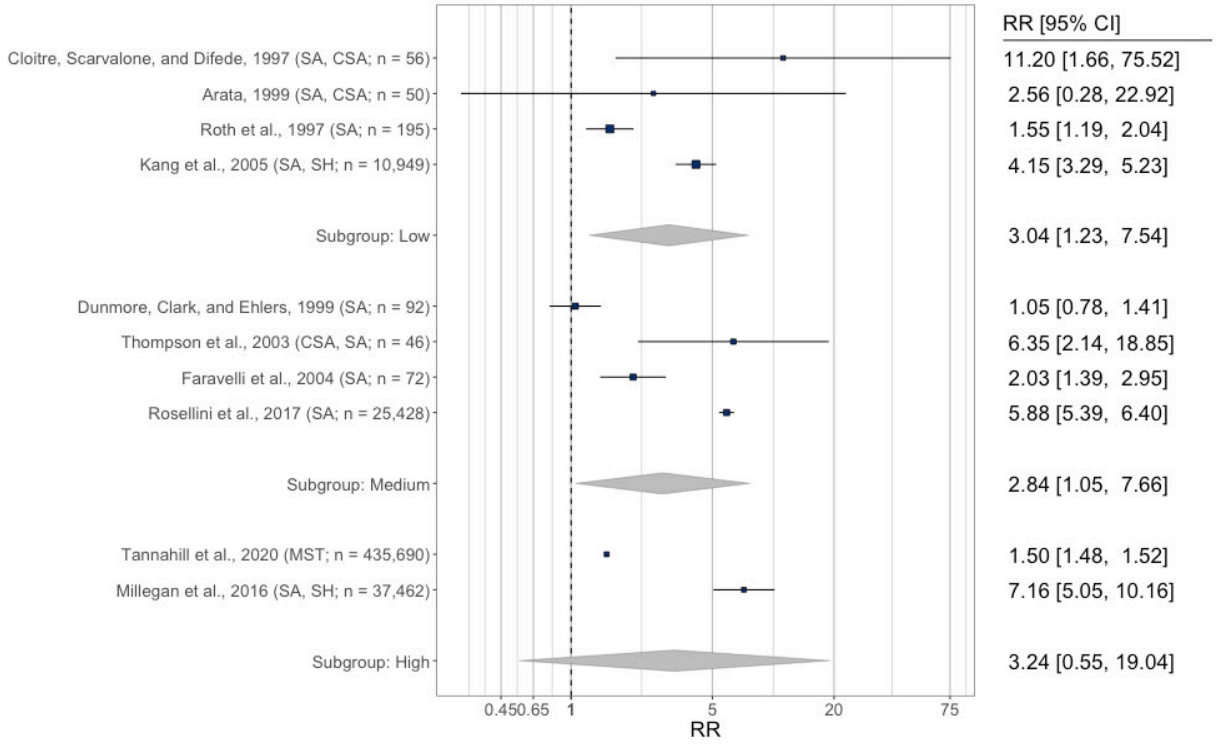
Quality of the Research

We used the NOS for cohort studies to assess the influence of research quality association effect sizes, which is graded on a nine-point scale, with higher numbers indicating higher quality and less risk of bias. No universal standard exists for the classification of studies as high or low quality on this scale, although other systematic reviews have suggested a cut point of greater than or equal to 7 to indicate studies of high quality and less than or equal to 3 to indicate studies of low quality (Islam et al., 2016; Sharmin et al., 2017). Studies across this review skewed toward lower quality, with three studies across reviews scoring greater than or equal to 7, 14 studies scoring less than or equal to 3, and 25 studies scoring between 3 and 7. The mean quality of studies that investigated sexual assault and sexual harassment associations was 4.22 for PTSD, 4.55 for depression, and 4.28 for substance use disorders.

To investigate any link between study quality and effect sizes, we divided quality ratings into tertiles and conducted a meta regression with study quality as a categorical moderator. Because of the large number of studies, we conducted this analysis on studies reporting relative risks across all study quality rating categories. Figures 3.16 through 3.18 show these results by mental health outcome. We did not detect evidence of variation in effect size by study quality for any condition, suggesting that the inclusion of lower-quality studies does not introduce bias beyond that which might exist in the literature overall.

Figure 3.16 shows estimates of relative risks by study, with summary statistics by study quality tertile (low, medium, and high quality). A normal mixed-effects model was used to estimate the overall mean log relative risk and its confidence interval (in the figure, the log relative risk estimates and confidence intervals are transformed and displayed in terms of relative risk). To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean log relative risk is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance.

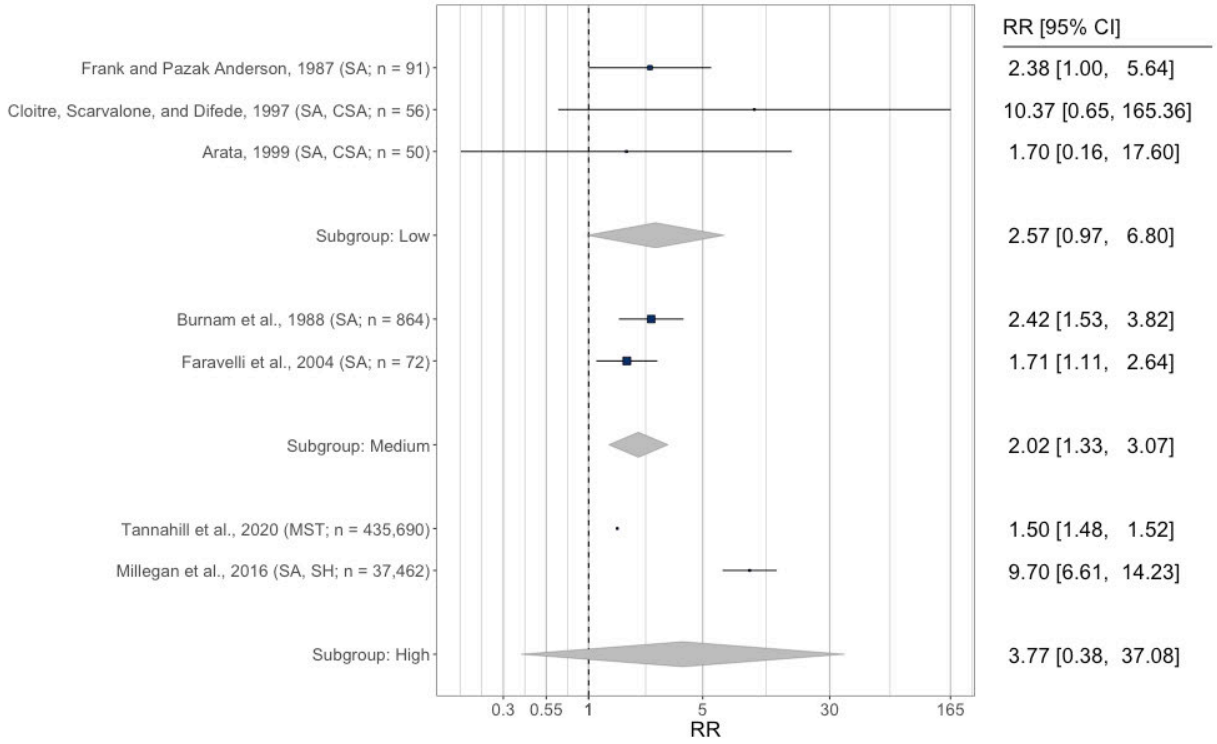
Figure 3.16. Relative Risk of PTSD Among Subjects Who Reported Being Exposed Relative to Unexposed to Sexual Assault, by NOS Quality Rating



NOTE: CI = confidence interval. CSA = childhood sexual assault. MST = military sexual trauma. RR = relative risk. SA = sexual assault. SH = sexual harassment.

Figure 3.17 shows estimates of relative risks by study with summary statistics by study quality tertile (low, medium, and high quality). A normal mixed-effects model was used to estimate the overall mean log relative risk and its confidence interval (in the figure, the log relative risk estimates and confidence intervals are transformed and displayed in terms of relative risk). To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean log relative risk is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance.

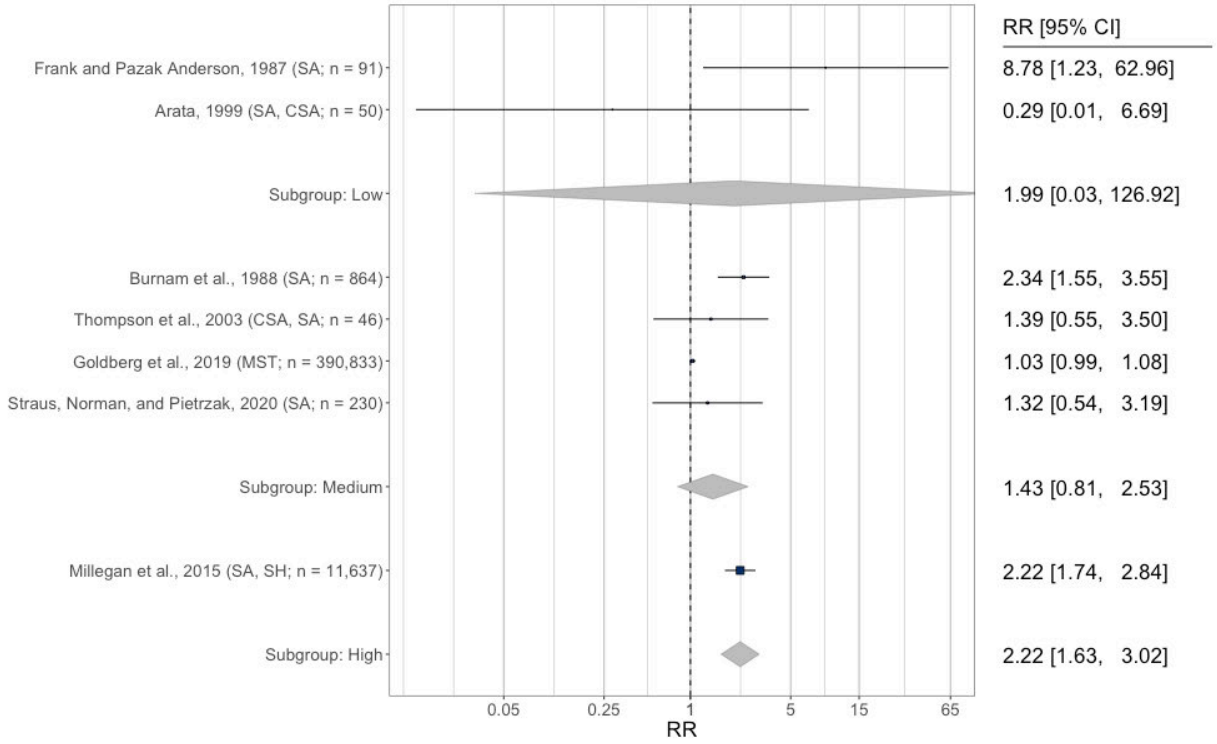
Figure 3.17. Relative Risk of Depression Among Subjects Who Reported Being Exposed Relative to Unexposed to Sexual Assault, by NOS Quality Rating



NOTE: CI = confidence interval. CSA = childhood sexual assault. MST = military sexual trauma. SA = sexual assault. SH = sexual harassment. RR= relative risk.

Figure 3.18 shows estimates of relative risks by study, with summary statistics by study quality tertile (low, medium, and high quality). A normal mixed-effects model was used to estimate the overall mean log relative risk and its confidence interval (in the figure, the log relative risk estimates and confidence intervals are transformed and displayed in terms of relative risk). To accurately represent the precision of the summary effect estimate, the confidence interval for the estimated mean log relative risk is computed using the Hartung-Knapp method, which produces a more-conservative precision estimate in meta-analyses with a low number of included studies and heterogeneity present in the included study-level effects. Larger squares signify studies that are weighted more within subgroup but are not proportional to true weights, which are equal to the inverse of study estimate variance.

Figure 3.18. Relative Risk of Substance Use Disorders Among Subjects Who Reported Being Exposed Relative to Unexposed to Sexual Assault, by NOS Quality Rating



NOTE: CI = confidence interval. CSA = childhood sexual assault. MST = military sexual trauma. RR = relative risk. SA = sexual assault. SH = sexual harassment.

Quality of the Body of Evidence

We evaluated the QoE of the associations between sexual assault or sexual harassment and three mental health conditions, along with potential moderators using a GRADE approach (see Tables 3.4 and 3.5).

Table 3.4. Summary of Results and Quality of the Evidence Using GRADE, Key Questions 1–3

Key Question	Number of Studies		Summary Effect and CI		Reasons for Upgrading or Downgrading QoE	QoE (GRADE)
Association of sexual assault with PTSD (Key Question 1)	16	Relative risk of diagnosis	4.35 (CI: 2.32, 8.17)	1.47 (CI: 0.96, 2.25)	Downgrade: risk of bias because of inadequate adjustment for risk of prior disorder	Low
		Symptom severity (Hedges' g)	–0.75 (CI: –1.9, –0.41)	–0.034 (CI: –0.71, –0.03)	Upgrade: large effect in both RR and SMD among compared groups	
Association of sexual assault with depression (Key Question 2)	11	Relative risk of diagnosis	3.11 (CI: 1.19, 8.10)	—	Downgrade: risk of bias because of inadequate adjustment for risk of prior disorder, low precision estimates for symptom severity, and inconsistency of results (high residual variation in results)	Very low
		Symptom severity (Hedges' g)	–1.1 (CI: –2.43, 0.22)	–0.71 (CI: –1.91, 0.49)		
Association of sexual assault with substance use disorder (Key Question 3)	5	Relative risk of diagnosis	2.21 (CI: 1.63, 3.02)	—	Downgrade: risk of bias because of inadequate adjustment for risk of prior disorder, risk of bias because of low inclusion into meta-analysis	Very low
		Symptom severity (Hedges' g)	—	—		

NOTE: CI = confidence interval. PTSD = posttraumatic stress disorder. QoE = quality of evidence. RR = relative risk. SMD = standardized mean difference.

Table 3.5. Summary of Results and Quality of the Evidence Using GRADE, Key Question 4

Key Question	Number of Studies	Summary Effect and CI			Reasons for Upgrading or Downgrading QoE	QoE (GRADE)
PTSD			Female/civilian	Male/military		
Gender as a moderator of association between sexual assault and PTSD	6	Relative risk of diagnosis	3.88 (CI: 2.20, 6.84)	3.65 (CI: 1.22, 10.86)	Downgrade: low precision estimates able to detect only large differences between categories	Very low
Military status as a moderator of association between sexual assault and PTSD	7	Relative risk of diagnosis	6.19 (CI: 2.09, 18.30)	3.98 (CI: 1.69, 9.40)	Downgrade: low precision estimates able to detect only large differences between categories	Very low
Depression						
Gender as a moderator of association between sexual assault and depression	6	Symptom severity (Hedges' g)	–0.55 (CI: –1.61, 0.52)	–0.82 (CI: –2.73, 1,10)	Downgrade: low precision estimates for symptom severity able to detect only large differences between categories, and inconsistency of results (high residual variation in results)	Very low
Military status as a moderator of association between sexual assault and depression	5	Relative risk of diagnosis	2.46 (CI: 1.47, 4.12)	3.77 (CI: 0.34, 41.62)	Downgrade: low precision estimates able to detect only large differences between categories, and inconsistency of results (high residual variation in results)	Very low

NOTE: CI = confidence interval. PTSD = posttraumatic stress disorder. QoE = quality of evidence. RR = relative risk. SMD = standardized mean difference.

The QoE for the pooled outcomes across Review 3 were all graded either low or very low. Per GRADE, evidence from a body of evidence consisting of observational studies should start with a low grade. QoE grades across all questions were downgraded from the risk of bias as assessed in the course of the NOS quality assessment, in particular from the difficulty of the study design to fully account for differences between comparison groups in the risk of prior disorder, which could confound observed relationships between the disease outcome and exposure. Results for PTSD overall were upgraded because of large effect sizes observed among both relative risk and standardized mean differences results and overall was given a QoE score of low. All results for Key Question 4 were graded as very low because of low precision of results and, in the case of results for depression, inconsistency across studies.

4. Discussion

In this chapter, we present high-level findings across each of our three reviews related to sexual assault and sexual harassment, beginning with the effectiveness of psychological interventions for adult victims of sexual assault or sexual harassment in military settings; moving on to barriers and facilitators for adults who have experienced sexual assault or sexual harassment to accessing and remaining in care; and, finally, discussing the strength of associations between sexual assault or sexual harassment and three mental health conditions (i.e., PTSD, depression, and substance use disorders). In addition to synthesizing the findings, in this discussion, we aim to identify remaining questions and gaps affecting quality care and access to psychological interventions for military service members who have experienced sexual assault or sexual harassment.

Review 1: Psychological Interventions for Adult Victims of Sexual Assault or Sexual Harassment in Military Settings

In this systematic review, we performed a meta-analysis of the effects of psychological interventions on the mental health outcomes of adult victims of sexual assault in military settings (Key Question 1). In this analysis, we also evaluated evidence on whether the effects varied by therapy type or intensity (Key Question 1a), by treatment setting and modality (Key Question 1b), by population subgroup (Key Question 1c), and by the timing of the intervention since trauma (Key Question 1d).

The findings of this review are based on a body of literature that we determined to be of low or very low quality, and we have little confidence that the summary effects we observe are a precise or accurate estimate of the true effects of the interventions included. These concerns are primarily attributable to study design (only two of ten studies were RCTs) and, among the included RCTs, a lack of intention to treat (ITT) analysis. It is also noteworthy that this review did not identify any RCTs on this topic where interventions are compared with no treatment. In the broader literature of the effectiveness of treatments for PTSD, studies have accomplished this using waitlist controls regarding who has yet to receive treatment (Jonas et al., 2013). We discuss these issues further in the limitations section. The summary results of interventions in this review nonetheless represent the best available indication of the effectiveness of psychotherapeutic interventions for this population to date and provide some justification for further study.

The available published evidence indicates overall medium to strong effect sizes of psychotherapy interventions in reducing PTSD and depression symptoms among veterans who experienced sexual assault in a military setting (Key Question 1). This finding applied across all treatment modality groupings for outcomes related to both PTSD and depression, including

trauma-focused, skills-based, multisystem, and control therapies (Key Question 1b). Effect sizes were comparable in each mental health diagnostic category; however, we did not detect an effect size that was significantly different from zero among control therapies for depression outcomes. Across the two RCTs included in this analysis, we found higher point estimates for trauma-focused therapies relative to control therapies in both mental health diagnostic categories but did not find statistical evidence that they were different. This is consistent with a meta-analysis of psychotherapy effectiveness in treating PTSD among victims of trauma (including nonsexual trauma) in the civilian population, which did not detect a statistically significant difference between trauma-focused cognitive behavioral therapies and non–trauma-focused therapies (e.g., present-centered therapy and relaxation) (Diehle et al., 2014). Our meta-analysis of uncontrolled before and after studies included mostly different therapy types from those in the RCTs, but both study types included results from trauma-focused therapies for PTSD. Strong effect sizes for these types of therapies were found across study design, which is consistent with the current body of evidence for victims of sexual assault and the broader civilian population with PTSD and supports the strong recommendation for these types of therapies within the VA and DoD (Diehle et al., 2014; Kim and Kim, 2020; Taylor and Harvey, 2009; Watkins, Sprang, and Rothbaum, 2018).

We found no statistical evidence to support the idea that effects differ across treatment modalities. However, compared with multisystem and trauma-focused psychotherapies, skills-based therapies had the highest point estimates of effect size for PTSD. Skills-based therapies also had higher point estimates of effect size than did multisystem therapies for depression, while trauma-based therapies lacked adequate data to be included. (The treatment effects of multisystem therapies and others should be made with caution because the effects often are applied to populations with more-severe mental illness.) Although it was out of the scope of this review, the studies evaluated suggest a potential additional benefit from skills-based therapies for lower patient attrition rates (Katz, Douglas, et al., 2014; Katz, 2016; Weiss et al., 2018). Attrition rates are a significant issue in trauma-focused therapies, particularly among women, and are important to consider in understanding the effectiveness of therapies in naturalistic settings (Eftekhari et al., 2013). Consequently, there is clinical interest in therapies that do not require revisiting trauma to better match a variety of treatment preferences (Weiss et al., 2018).

Insufficient evidence was available for a robust evaluation of other sources of variation in treatment effect. No studies on the effectiveness of pharmacological interventions that met the review criteria were identified; therefore, their effectiveness could not be evaluated (Key Question 1a). Although there was variation in treatment intensity, this was perfectly colinear with the multisystem modality and, therefore, any effects or the lack thereof linked to intensity cannot be distinguished from those of modality.

Similarly, evidence on variation in treatment effects by subpopulation is limited, with gender as the only demographic variable tested. The majority of the study populations in this review were predominantly composed of women, and the substantially lower rates of reported sexual

assault among men presents a challenge to producing an adequate sample to study moderation effects. The only study that was powered to test variation in treatment effects by gender among populations who reported experiencing sexual assault (Tiet et al., 2015) did not find any evidence that outcomes differed among men and women who completed an inpatient PTSD specialty intensive treatment program. Another study (Holliday et al., 2020) suggested that the treatment effects of trauma-focused psychotherapies on PTSD symptoms might be greater among women than men generally, but the study was not powered to test moderation among sexual assault victims.

Limitations of the Literature

We found significant limitations in this literature. The strength of evidence in this meta-analysis was limited in terms of the low number of studies, study design, and the lack of RCTs. Of the two RCTs included, one was described as a pilot study with preliminary findings. The remaining evidence was collected from uncontrolled before and after studies, which are inherently subject to potentially serious bias. In this review, results from a ROBINS-I analysis found that the most-serious limitations were attributable to selection and confounding. Results applied mostly to subjects who self-selected to receive available therapies, which can exaggerate effectiveness in real-world settings if enrollers are atypically motivated to adhere to or share psychological or other characteristics that are related to outcomes. The lack of a control group in these studies limits the ability to address threats of confounding that might explain results, such as environmental factors or the simple passage of time, which can affect outcomes across subjects.

Another significant limitation of the studies was the lack of ITT effects or analogous effects in the majority of included nonrandomized studies. ITT analyses incorporate the results of all subjects, regardless of whether they completed the treatment they were assigned, thereby accounting for the potential impacts of nonadherence in estimated intervention effects. ITT results can be difficult to capture because they require the measurement of outcomes among noncompleters, who often drop from a study entirely. Per-protocol effects (or "completers" effects) can introduce bias when comparing between interventions if adherence differs between comparison groups and can overestimate possible intervention effects under naturalistic settings (Ranganathan, Pramesh, and Aggarwal, 2016). Only one study in the meta-analysis reflected ITT results (Loucks et al., 2019), while another noted ITT as a robustness check (indicating no differences found between analyses) (Khan et al., 2020).

The ability to answer several key questions was constrained by common gaps in what studies collect or report. This review intended to include studies of populations of victims of sexual assault in both military and workplace settings; however, we could identify studies of assault that occurred only in military settings, and the number of studies was limited. Studies in this review also contained little analysis or discussion of the timing of interventions relative to when sexual assault occurred (Key Question 1c). Finally, subgroup analysis often was not performed because

of limitations in sample size among veterans who were adult victims of sexual assault (Key Question 1d).

There also were general limitations with the search and meta-analysis. The search did not include unpublished results, and, during the screening stage, references were reviewed by single reviewers after assessing interrater reliability, which might have led to omissions of studies. The meta-analysis comparison of interventions relied on standardized mean differences to compare study results. Standardized mean differences provide a way of comparing intervention effects between studies that use outcome scales and different standard deviations. However, comparisons can be over- or understated if comparison studies include populations with different variability in response to the intervention (Higgins et al., 2021). For instance, studies that include a more diverse group of subjects with a wide variety in treatment effect would have treatment effects that are understated relative to a study with more-homogeneous subjects. Although the strict exclusion criteria for this review (i.e., the study was limited to adults who experienced sexual assault or harassment in the military or workplace) might help limit population diversity, the included studies were mostly small, early stage trials that recruited from a single health system, and study variation in psychological intervention effect variability cannot be ruled out.

Implications for Future Research

The studies in our review report promising results for the effectiveness of psychotherapies in improving mental health outcomes among military populations who have experienced sexual assault. Although the number of studies in this review was limited, all were conducted within the past ten years, signaling emerging interest in conducting research on the effectiveness of psychotherapy interventions for victims of sexual assault in the military. As new studies become available, policymakers and program officers might receive clearer guidance on some of the suggestive findings of this review, particularly in the relative effectiveness of different psychotherapy approaches and encouraging results on skills-based approaches.

However, we have significant concerns regarding the strength of the current evidence, and substantial improvements in the design of future research will be necessary to inform policies and programs. To establish whether there should be differences in the treatment of survivors of sexual assault in military settings compared with individuals exposed to general trauma, more RCTs comparing therapies will be necessary to mitigate the serious bias concerns arising from uncontrolled before and after studies of interventions (which constituted the majority of the studies in this review). Second, RCTs should make all efforts within ethical boundaries to include a control group that receives no treatment (e.g., waitlist controls who will receive treatment after the study is completed rather than active controls who receive an alternative therapy in parallel with the treatment group) so that the true effect of the target intervention can be estimated, independent of the passage of time, which alone can affect outcomes. Third, research should include in its design the ability to estimate ITT analyses, and the results of these analyses should be fully reported. This means that efforts should be made to collect or estimate

outcomes data for subjects who do not complete or fully adhere to study therapies and that those outcomes should be reflected in effect size estimates. Third, more-objective measures of outcomes should be incorporated, such as clinician-administered measures (e.g., semistructured interviews), which can be administered by people who are blinded to treatment status to avoid researcher bias.

Additionally, we identified several gaps in the literature that are of clinical significance to the treatment of sexual assault victims. First, we found no studies on the effectiveness of pharmacotherapies either alone or in combination with other therapy types for this population. Pharmacotherapies, such as selective serotonin reuptake inhibitors (SSRIs), are first-line treatments for depression and PTSD among military veterans, and prior reviews have found them to be an effective treatment (Alexander, 2012; Ipser and Stein, 2012). Evidence is needed to evaluate their effectiveness for victims of sexual assault in this population. Second, there is evidence of subgroup variation in the effectiveness of interventions on PTSD among the general population, but insufficient research has been conducted to assess whether this applies to adult victims of sexual assault either in or formerly in the military. Given the likelihood of continued issues with sample size, future work should publish or make available results by subgroup, particularly by gender and race/ethnicity, so that future meta-analyses can test for moderation. Third, measurement or discussion of the timing of treatment relative to when the sexual assault occurred was nearly absent from the available research. Evidence in the literature suggests that symptom severity changes over time, which could have implications for research and clinical guidance for when therapies might be more or less effective (Layman, Gidycz, and Lynn, 1996).

Review 2: Barriers and Facilitators to Accessing and Remaining in Mental Health Care for Adults Who Have Experienced Sexual Assault or Sexual Harassment in Military Settings

This scoping review focused on the barriers and facilitators to accessing and remaining in treatment for the psychological sequelae of sexual assault and sexual harassment. Identified barriers and facilitators were categorized and presented according to four levels: (1) health system, (2) program, (3) providers, and (4) individuals. At the health-system level, barriers and facilitators tended to focus on such factors as negative perceptions and distrust of health systems and the influence of the predominantly male environment. At the program level, identified factors relating to the type of program or treatment or the modality included (1) increased use of certain types of interventions (e.g., psychotherapy) by individuals who reported experiencing MST and (2) the potential impact of in-person sessions increasing retention in treatment. At the provider level, factors focused either on provider characteristics (most notably, gender) or on providers' reactions to and interactions with patients. Finally, the majority of the barriers and facilitators were explored at the individual level. Perceptions of stigma and shame and fears or concerns about how victims might be viewed by coworkers, leaders, or even providers were

prominent factors that influenced seeking treatment. Logistical factors (e.g., issues with scheduling appointments, challenges in getting time off work, inadequate transportation, challenges in arranging child care) were also stressed. These types of barriers are fairly concrete and could be addressed with policy changes or other interventions to better meet the needs of those who have experienced sexual assault or sexual harassment. Other types of barriers and facilitators we identified that are more unique to sexual assault victims include negative cognitive beliefs or concerns about not being believed about having experienced sexual assault or trauma, perceptions that MST does not affect men or that the trauma is not serious or important enough to warrant treatment, and a lack of awareness of available MST services.

The barriers and facilitators identified in this review overlap with factors affecting individuals who might have experienced sexual assault or harassment in civilian settings. For example, in Fitzgerald et al., 2017, which is a scoping review exploring barriers to engagement in acute and post-acute sexual assault response services, similar factors arose at each level (e.g., negative experiences with the service system, provider attitudes and sensitivity, victims' feelings of guilt or shame). In a more recent study exploring health care seeking and engagement following sexual assault, individual barriers included such factors as provider gender (i.e., those who identify as male) and feeling a loss of control with disclosures, while facilitators included compassionate providers and provider gender (i.e., those who identify as female) (Wadsworth, Krahe, and Searing, 2019). Thus, the findings from our review reinforce the need for systematic consideration of the variety of barriers experienced by victims of sexual assault and/or sexual harassment and how to best improve access to mental health care and experiences once victims are engaged in care, considering specific examples of those in military settings.

In addition to identifying barriers and facilitators that are unique to individuals who reported experiencing sexual assault or sexual harassment in military settings, we also explored whether there is evidence supporting if and how barriers and facilitators might vary depending on (1) whether an individual is initially accessing services or attempting to remain engaged in care (Key Question 1a), (2) treatment setting or modality (Key Question 1b), and (3) individual experiences and characteristics (Key Question 1c). However, given the small number of studies, there was very limited information to provide insights into any of these subquestions across studies. Furthermore, not all studies specified a potential treatment setting; for those studies where the setting was specified, it was limited to VA settings.

Limitations of the Literature

Many studies reported issues relating to the generalizability of findings to other populations. Several studies were very narrowly targeted (e.g., examining experiences at one VA medical center, including only those individuals who have filed PTSD disability claims) and noted that the study populations tended to be homogeneous in terms of gender, race and ethnicity, class, and sexual orientation. For example, most studies were focused on women and no studies summarized the experiences of individuals who identify as transgender or nonbinary. With

respect to the representativeness of different branches or service eras, one study focused exclusively on the Army, while another did not include veterans from more-recent service eras (i.e., Operations Iraqi Freedom, Enduring Freedom, or New Dawn). Finally, studies noted challenges with the potential representativeness of their findings, pointing to how some participants might have been fundamentally different from others who experienced MST (e.g., those who disclosed MST to their provider and accepted a mental health referral for care; those who agreed to a focus group to talk about their experiences with MST care) or how certain exclusion criteria might have affected the conclusions (e.g., excluding those with substance use disorders).

Study authors also commonly reported measurement challenges. These challenges might have been attributable to limitations with timing or considerations of scope (e.g., not asking questions about logistical barriers to attending mental health treatment sessions, changes in items for studies relying on longitudinal surveys), the inconsistency of definitions (e.g., minimally adequate dose of psychotherapy in studies), or potential issues with recall bias when reflecting on treatment experiences. Other author-reported limitations focused on retrospective considerations around study design and analysis decisions (e.g., choosing to dichotomize certain variables resulted in losing nuance or variation, inability to establish causal relationships with cross-sectional study designs) or challenges with generalizing results to other treatments or settings.

At the review level, articles or reports exploring barriers and facilitators might have been missed if the information was not a primary focus of the article. However, full-text articles were reviewed across the three topic areas and included if any information related to barriers and facilitators to accessing or engaging in care following sexual assault or sexual harassment in the military context.

Although included studies addressed factors influencing initial access and ongoing engagement in care following sexual assault or sexual harassment, the primary focus tended to be on barriers or challenges, as opposed to facilitators. Furthermore, studies, particularly those using a survey methodology, tended to inquire about commonly known factors and the frequency of encountering these issues, which might have limited insights into new factors or more nuances that might be affecting an individual's ability to seek or remain in care following sexual assault or sexual harassment.

Implications for Future Research

Although the growing number of studies related to barriers and facilitators around access to and retention in care following sexual assault or sexual harassment is encouraging in terms of increased attention to the unique needs of current and former members of the military, there is little consistency across studies to be able to meaningfully synthesize findings that could be used to inform programs and policies. For example, several studies combined reported barriers and facilitators among those who had and had not reported experiencing military sexual trauma,

making it challenging to untangle potential barriers from experienced barriers. In addition, for those studies that included only individuals who had reported experiencing MST, the populations were often individuals who were already engaged in a specific care plan or expressed interest in care, which might be a fundamentally different group from those who are not accessing care because of some of the barriers discussed, such as concerns about being believed or not feeling as though the trauma was important enough to warrant attention. Thus, more studies that are focused on broader populations (e.g., those who are engaged and not engaged in care, those seeking care or receiving care outside the VA, men and individuals who identify as nonbinary or transgender), more consistent measures, and open-ended items are needed to determine prevalent factors that might be inhibiting or facilitating connections to mental health care or one's ability to remain engaged in care following sexual assault or sexual harassment in military settings.

Review 3: Associations Between Sexual Assault or Sexual Harassment and Mental Health Conditions (i.e., PTSD, Depression, and Substance Use Disorders)

In this systematic review, we performed meta-analyses to estimate the associations between reported experiences of sexual assault or sexual harassment as an adult and PTSD (Key Question 1), depression (Key Question 2), and substance use disorders (Key Question 3). In addition, we performed study reviews and meta-analyses to evaluate whether the associations in each mental health diagnostic category varied by gender, race/ethnicity, and military or civilian status.

As in Review 1, the findings of this review are based on a body of literature that we determined to be of low or very low quality, and we have little confidence that the summary effects we observe are precise or accurate estimates of the associations between sexual assault or harassment and the three mental health outcomes we focused on. Indeed, we observed significant residual heterogeneity (i.e., high inconsistency) across most analyses. The ethics and practicality of studying this research question dictate that practically all research on this topic is observational, which typically is considered to be a low quality of evidence without significant mitigating efforts. The summary results in this review nonetheless represent the best available indication of the harms associated with sexual assault and sexual harassment in three high-priority mental health conditions that affect U.S. military service members.

Generally, we found evidence of an association between reported experiences of sexual assault and the risk of diagnosis for all three studied diagnosis groups. Among these associations, we found the strongest support for the association between reported experiences of sexual assault and PTSD. In addition to the risk of diagnosis, a medium to strong association was also detected between reported experiences of sexual assault and PTSD symptom severity. Small sample sizes and wide variation in symptom severity among studies that examined depression contributed to wide confidence intervals, so no association was detected. Insufficient data were available to evaluate symptom severity for substance use disorders. Our findings on the relative strength of

association of PTSD and the size of our summary effects are consistent with a prior meta-analysis of sexual assault and psychopathology in a civilian population (Dworkin et al., 2017).

Previous literature has been mixed on whether sexual assault might be a more severe form of trauma than nonsexual traumas (Kelley et al., 2009; Kessler et al., 1999; Weaver and Clum, 1995). When we look only at studies in which the effects of these two traumas are compared, we found suggestive evidence that experiences of sexual assault have stronger associations with PTSD than other, nonsexual trauma, although the levels of significance were marginal. Too few studies were available to make the same determination for depression or substance use disorder using meta-analytic methods, although results from individual studies suggest stronger associations for sexual assault among those conditions as well.

Associations between sexual assault and mental health outcomes persisted across subgroups of gender and military status. Neither gender nor military status were detected to be moderators for PTSD or depression in pooled analysis. Pooled subgroup analysis could not be conducted for substance use disorders. However, analysis of individual studies shows that the evidence on gender moderation is mixed; studies varied on the presence and, if detected, direction of the moderation on studied outcomes. No analysis on moderation by race/ethnicity could be conducted.

It is notable that associations were found to be as strong among military populations as among civilians. Military populations, particularly women, have been found to have higher rates of PTSD (Lehavot et al., 2018; Tanielian and Jaycox, 2008) and depression (Gadermann et al., 2012) than civilian populations, and therefore, military victims of sexual assault likely are being compared with groups that are liable to have worse mental health outcomes than the general public (Tanielian and Jaycox, 2008).

For sexual harassment, pooled analysis could not be performed because of the number of studies. However, the available literature suggests a positive association between sexual harassment and PTSD, depression, and substance use disorders. In the studies that compared the associations of sexual harassment and assault with PTSD and depression, sexual harassment was found to have an effect of around half that of sexual assault (Kang et al., 2005; Millegan et al., 2016).

Limitations of the Literature

Our judgments of the quality of studies in this review skewed toward lower quality, with only a handful of studies earning full or near-full points on the quality scale used. The inclusion of lower-quality studies could bias overall results if the study findings were systematically biased in the same direction. However, we did not observe any associations between study quality and association sizes, so we retained all studies in the analysis.

To capture experiences across the continuum of harm that pertain to a wide population of affected service members, the studies in this review reflected a broad array of terminology designed to include studies that might pertain to sexual assault and/or sexual harassment. Even

when similar terminology was employed across studies, what is captured in terms of the type and severity of experiences can vary widely because of differences in definition, measurement, and study population. Results in this review can therefore be interpreted only as the mean effect across the continuum of harm captured within the academic literature that is focused on sexual assault and sexual harassment. Differentiation in results among these varying terminologies would have been valuable and would have enriched and focused this analysis by reducing the residual heterogeneity in our meta-analytic models. However, this examination was out of scope of this review, and the variety of constructs and differences in how precisely terms are defined from study to study would have presented a significant obstacle.

The studies included in this review also tested associations between (1) sexual assault and sexual harassment and (2) mental health outcomes across a wide variety of times elapsed between assault and outcome measurement. In most cases, the time that had elapsed was unclear or broadly defined. Time elapsed since sexual assault is predictive of mental health outcomes (Barker-Collo, Melnyk, and McDonald-Miszczak, 2000; Merry and Andrews, 1994); therefore, estimates of summary effects of mean associations between sexual assault and mental health outcomes in this review are dependent upon the timing of the measurement of outcomes in the available literature.

At the review level, summary effect estimates in the meta-analyses did not reflect any statistical adjustment that studies might have performed on results to achieve balance between exposed and unexposed groups. The treatment of adjusted and unadjusted results is a matter of academic debate (Voils et al., 2011). Methods for combining regression coefficients in meta-analyses exist but are a matter of scientific debate and can be computationally infeasible when the number of adjustment variables is greater than a few (Fernández-Castilla et al., 2019), as was the case for most adjusted results in this review. Using unadjusted results might have resulted in higher levels of variance in effect size estimates or bias if study adjustments tend to affect association estimates in the same direction. This concern was somewhat mitigated in this review by nonstatistical efforts made by study authors to achieve balanced comparison groups, including matching and inclusion and exclusion criteria. In the meta-regressions we performed on gender and military status for PTSD, we did not find evidence of moderation on those variables; however, results might reflect imbalance on other confounding variables. Our summary estimates for PTSD, depression, and substance use disorder are similar in magnitude to those found in another recent meta-analysis on this topic (Dworkin et al., 2017); however, risk of confounding is endemic to cohort studies, so meta-analytic results might still reflect bias across the field.

Implications for Future Research

In this meta-analysis, we found evidence of associations between sexual assault that occurs among adults (i.e., those older than 18) and the mental health conditions of PTSD, depression, and substance use disorder. The size of the estimated summary associations for PTSD and

depression symptom severity is consistent with those found in another recent meta-analysis of the psychopathology associated with sexual assault that was conducted on a broader population of victims and outcomes (Dworkin et al., 2017). A novel contribution of this review is the inclusion of separate analyses of continuous measures of disease severity through symptom scales and categorical analyses of studies relying on disease prevalence. We found evidence of associations for both disease prevalence and symptom severity for PTSD. Because of the low quality of the body of evidence, which in this review consisted mostly of follow-up cohort designs, the true psychological impacts of sexual assault and harassment are difficult to measure with high confidence. However, the overall quality of the evidence could be improved through more research that pursues a prospective longitudinal design where exposure and outcomes can be more directly linked.

Prior research has found that tens of thousands of service members are sexually assaulted or harassed every year and that these experiences can be associated with negative professional consequences, including separation from the military (Morral et al., 2015; Morral et al., 2021). Results from this review, which show comparable association sizes of adult sexual assault and PTSD and depression among military and civilian populations, are notable and warrant further review. The impact of sexual trauma on individuals who had prior combat trauma (or vice versa) is not well understood, although prior research has suggested that the two types of trauma might interact (Hahn et al., 2015). Future research should focus on the interactions between the traumatic experiences that military populations typically see and those from sexual assault to better understand the impacts and clinical implications of layered traumas.

We did not find evidence of association moderation by gender for PTSD or depression, suggesting that the mental health outcomes of adult sexual assault are as severe among men as they are among women. Pooled analysis of subgroup moderation for substance use disorders could not be conducted, but individual studies show mixed evidence. However, the low QoE indicates that further research is needed. Additionally, as in Review 2, there is a gap in the evidence regarding whether the impacts of sexual assault vary over categories of gender, including transgender and nonbinary populations.

Finally, evidence on whether the mental health effects of sexual assault vary by race/ethnicity was limited in the literature across diagnosis groups and could not be pooled. Whether this was a result of reporting bias (e.g., not reporting results given the lack of any difference found) or a lack of explicitly examining race/ethnicity in study designs could not be determined in this review. Prior studies generally have not detected variation by race/ethnicity in the severity of post–sexual assault outcomes, and a recent meta-analysis also did not find any moderation by race/ethnicity (Campbell, Dworkin, and Cabral, 2009; Dworkin et al., 2017). However, this analysis was based on relatively few studies for most minority groups and was conducted indirectly based on racial composition of the sample rather than on direct comparisons.

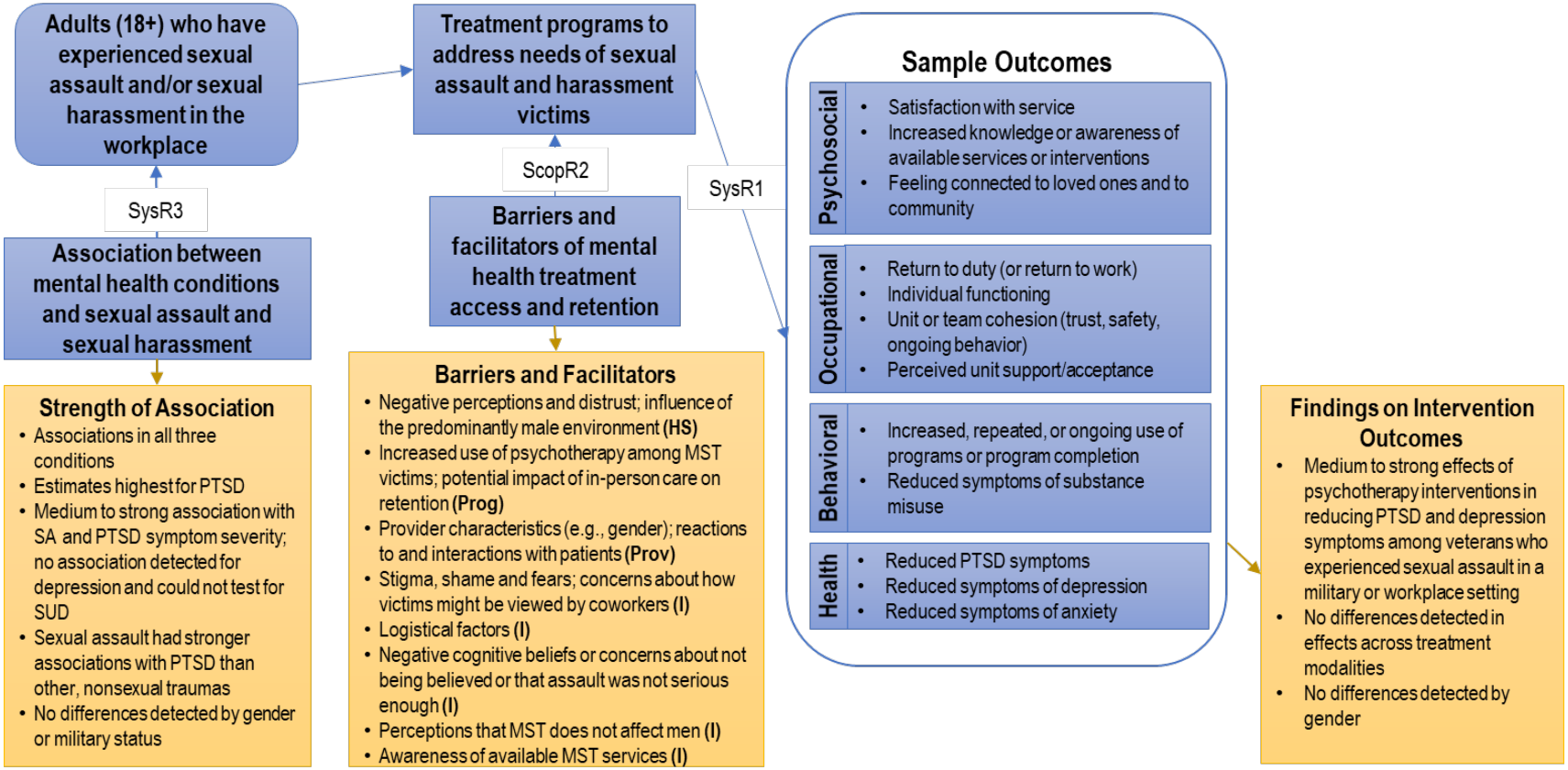
Synthesis

Each of the evidence reviews presented in this report provides additional insight across the outcomes and experiences of adult victims of sexual assault and sexual harassment, particularly in military settings. Drawing from the analytic framework presented in Chapter 1, Figure 4.1 presents highlights of the findings of each review, beginning with Review 3.

Review 3 used a systematic review approach to examine the strength of associations of specific mental health conditions (i.e., PTSD, depression, and substance use disorders) for adult victims of sexual assault or sexual harassment. There were significant associations between sexual assault and the presence of each of these conditions, with the highest estimates for PTSD (i.e., the best estimate of the association size is higher than that of other diagnoses). Findings also showed a medium to strong association with sexual assault and PTSD symptom severity and that sexual assault had stronger associations with PTSD than other, nonsexual traumas. In this review, we were unable to detect associations between depression and symptom severity, and there were insufficient data to test for the severity of substance use disorder symptoms. Furthermore, there were no differences detected by gender or military status. These findings emphasize the link between specific mental health conditions and experiences of sexual assault and/or sexual harassment, particularly for PTSD among those in military settings. Given the strong link, there is a clear need for victims to be connected to services and remain engaged in mental health care to improve treatment outcomes and experiences of care.

Review 2 explored barriers and facilitators to mental health care access and retention in treatment among current and former members of the military. Most of the identified factors influencing access to and retention in care were at the individual level—specifically, perceptions of stigma and shame and logistical factors, such as getting time off work to attend appointments. However, these individual factors likely are influenced by larger systemic or environmental factors (e.g., job flexibility to be able to take needed time for appointments). Barriers also were present at the health-system level, with concerns around negative perceptions about or distrust of the VA or the influence of a predominantly male-centric VA environment. Of the few studies that explored program- or treatment-level factors, there was preliminary evidence that certain types of therapy, such as psychotherapy, might be used more frequently by victims of MST than by individuals who experienced other types of trauma. Only one investigation into modalities pointed to the potential greater impact of in-person sessions on care retention, although this study noted in its limitations that other important variables, such as symptom changes through treatment, motivation, barriers to care, and treatment expectancies, were not included in the analysis (Valentine et al., 2020). Examining the impact of modality on both access to and retention in treatment will be important, given the rise in the use of telehealth during the coronavirus disease 2019 (COVID-19) pandemic and the potential benefits of telehealth on reducing individual barriers to obtaining services by offering more-flexible treatment options (Chiauzzi, Clayton, and Huh-Yoo, 2020).

Figure 4.1. Analytic Framework with Summary of Findings



NOTE: HS = health system. I = individual. MST = military sexual trauma. Prog = program. Prov = Provider. PTSD = posttraumatic stress disorder. SA = sexual assault. ScopR = scoping review. SUD = substance use disorder. SysR = systematic review.

Studies also pointed to the influence of providers. Their characteristics, such as gender, play a role in experiences of care, as do their reactions to patients after the disclosure of sexual assault or sexual harassment experiences. Although some of these barriers and facilitators tend to be similar and are consistent with other factors that might influence the willingness and likelihood of current and former service members to seek out mental health care (Acosta et al., 2018), there are some unique factors that adult victims of sexual assault and sexual harassment in military settings face, such as the perceived double stigma of the experience of sexual assault and the stigma of mental health care in the military. In addition, victims expressed concerns about not being believed or feeling that their experiences were not serious enough to warrant receipt of care. Finally, there were concerns around how victims might be viewed by coworkers or leadership, which victims of sexual assault or sexual harassment outside military or workplace settings might be less likely to experience. Insight into these barriers might be able to influence educational or outreach materials for victims of sexual assault and sexual harassment or could be used by outreach workers or providers in supporting victims. Although it is not focused on military settings, there is some emerging research into promising interventions that can provide support networks with greater confidence in responding to disclosures and improve positive social interactions (Edwards et al., 2020).

Once victims are in care, a variety of interventions might influence outcomes, particularly health and behavioral outcomes, such as reduced symptoms of PTSD and depression or substance misuse. Review 1 examined studies that focused on interventions for adult victims of sexual assault and sexual harassment in both military settings and workplace settings (although no studies were identified that focused on sexual harassment or in workplace settings). Findings showed medium to strong effects of psychotherapy interventions in reducing PTSD and depression symptoms among adult victims of sexual assault in military settings. This review did not detect any differences in treatment effects across treatment modalities or by gender, and data were not available to test additional subgroups, such as race and ethnicity. These data show promise for the effectiveness of psychotherapies for improving mental health outcomes.

Synthesis of Subgroup Analyses by Gender Across Reviews

These reviews evaluated the evidence for whether the issues surrounding sexual assault and sexual harassment might be different for men than for women. The review found a strong association between sexual assault and PTSD among men at a similar strength to that found among women; however, findings for depression among men were inconclusive because of the number of studies and variability in results. Further investigation is needed on the gender-specific impacts of sexual assault on substance abuse, which several included studies indicated evidence of, but with inconsistent results. Among individuals who seek treatment, gender preferences in providers have been found to be common, and male victims, like female victims, might more-commonly prefer female providers. Greater availability of providers of victims' preferred gender in military settings might improve access to care and retention. Finally,

insufficient evidence was available to systematically evaluate whether treatment effectiveness varies among men and women. Included studies found positive effects of psychoanalytic treatments on PTSD and depression among male survivors of trauma, but not of sexual assault. One study, which included male survivors of MST and non-MST, was consistent with evidence in literature among civilians that CPT might be less effective in treating PTSD among men than PTSD among women. Further investigation is needed on intervention effectiveness that focuses specifically on male victims of sexual assault and harassment.

Implications for Future Research

This series of reviews builds on existing literature by focusing on adult victims of sexual assault and sexual harassment, particularly in military settings. Furthermore, it provides a point-in-time examination across the care continuum—from outcomes of the sexual assault or sexual harassment experience to barriers to care and from retention to outcomes of treatment. The evidence for this population seems to be growing, with the majority of included studies being published within the past ten years (i.e., 80 percent of the studies in Reviews 1 and 2 were published in the past ten years, while just more than 40 percent of the studies in Review 3 were published in the past ten years) and several studies published within the past two years (i.e., 30 percent for Review 1, 60 percent for Review 2, and 14 percent for Review 3).

However, these reviews also revealed several research gaps that should be addressed to better inform future practice for current and former service members who have experienced sexual assault or sexual harassment. The first gap is the need to understand and specify the setting of the sexual assault. For example, in this review, we intended to capture literature in both military and workplace settings: The inclusion of civilian workplace settings might have provided additional insight into situations in which power dynamics and the potential repercussions (e.g., retaliation, lost wages) would be similar to those in military settings. However, the setting of the sexual assault (e.g., the workplace) was rarely specified and not assessed systematically.

The second need is to conduct additional research on sexual harassment in the military. Although preliminary data in Review 3 generally pointed to positive and significant associations with PTSD and depression, these data were from only a few studies because most of the studies included across reviews focused on sexual assault. Thus, it is difficult to truly improve our understanding of the potential impact of sexual harassment on the identified outcomes (e.g., PTSD, depression, substance use disorder) even though other research supports a likely impact on these outcomes and other related outcomes, such as retention in military service (Street et al., 2008).

For the sake of future reviews, there is also a need for more-precise and -consistent definitions and measurement of experiences of sexual assault, sexual harassment, and sexual trauma. For instance, varying levels of experience severity might affect the severity of symptoms or treatment approaches, but severity was not always measured or characterized, which impairs the ability to compare results across studies and limits interpretability when those results are

combined. Furthermore, many studies were excluded from this review because experiences of sexual assault or abuse as a child and as an adult were collapsed or because there were varying definitions of what constituted an experience as an adult (e.g., 18 years and older, 14 years and older). Timing of events was also not well captured in the body of evidence overall, including when the assault or harassment occurred in an individual's lifetime and when the assault or harassment was first reported or otherwise measured. Gaps in timing data might limit our ability to produce unbiased results specific to the adult population, the symptom trajectory, the effects of time between exposure and reporting, and the impact of time since exposure on treatment or on attempts to seek care. More-precise data on the definition, timing, and measurement of these experiences would be valuable to see how they might affect outcomes of both the experience of sexual assault or harassment and the outcomes of treatment.

Finally, future studies need to draw from more-diverse samples and obtain larger sample sizes so that differences in subgroups can be examined. In this series of reviews, we were not able to examine differences by race/ethnicity or gender (beyond women and men in some studies) because of insufficient data. Given the growing diversity of the military workforce and the need to address potential inequities in experiences and outcomes of care, additional evidence is needed.

Conclusion

This report documents a series of evidence reviews focused on sexual assault and sexual harassment, particularly in military settings. The team searched peer-reviewed and gray literature from January 1, 1980, through November 2020 to identify relevant studies across three review topics: (1) psychological interventions for adult victims of sexual assault or sexual harassment in military settings, (2) barriers and facilitators to accessing and remaining in mental health care for adults who have experienced sexual assault or sexual harassment in military settings, and (3) associations between adult victims of sexual assault or sexual harassment and three associated mental health conditions (i.e., PTSD, depression, and substance use disorders). More than 10,500 citations were screened in the title and abstract stage, followed by screening of more than 1,050 full-text articles against the inclusion and exclusion criteria for each review. The team abstracted key information for each of the 68 studies that met the inclusion and exclusion criteria to facilitate review and synthesis.

There were significant associations between sexual assault and the presence of PTSD, depression, and substance use disorders, emphasizing a link between specific mental health conditions and experiences of sexual assault and/or sexual harassment, particularly for PTSD among those in military settings. Individuals who have experienced sexual assault and sexual harassment in military settings pointed to barriers and facilitators affecting their ability to connect to services and remain engaged in care, including the double stigma of the experience of sexual assault and the receipt of mental health care in the military, concerns about not being

believed or feeling that their experiences were not serious enough to warrant receipt of care, and worries about how they might be viewed by coworkers. Insight into these barriers might influence educational or outreach materials for victims or could be used by outreach workers or providers in supporting victims. Once victims were in treatment, findings showed medium to strong effects of psychotherapy interventions in reducing PTSD and depression symptoms among adult victims of sexual assault in military settings.

Although this review highlighted critical research gaps—primarily the need to more precisely measure and capture the setting of the sexual assault or harassment, the timing of the experience in relation to symptoms, treatment-seeking, and outcomes; and the need for more-diverse samples—these findings help contribute to the overall evidence base regarding (1) psychological outcomes and mental health conditions for individuals who experienced sexual assault and sexual harassment victimization as adults, (2) barriers and facilitators to accessing and staying in care for current and former military service members, and (3) associated treatment outcomes.

Appendix A. Search Strategies

In this appendix, we present the search parameters and terms by database for each review.

Review 1: Psychological Interventions for Adult Victims of Sexual Assault or Sexual Harassment

Database: PubMed

We searched PubMed (National Library of Medicine, undated) using the parameters and search terms detailed below.
Parameters: 1980–present; English Language
NOT: editorials/letters (using filters)
Search run: November 18, 2020

"Sexual assault*"[tiab] OR rape[tiab] OR raping[tiab] OR raped[tiab] OR rapist[tiab] OR "sexual harass*"[tiab] OR "sexual abuse"[tiab] OR "sexual aggression*"[tiab] OR "sexual coercion"[tiab] OR "sexual violence"[tiab] OR "sexual victimization"[tiab] OR "sexual trauma*"[tiab] OR "unwanted sexual contact*"[tiab] OR "sex offense*"[tiab] OR "sex offence*"[tiab] OR "hostile work environment*"[tiab] OR rape[Majr] OR "sexual harassment"[Majr] OR "Sex Offenses"[Majr]
AND

Intervention*[tiab] OR treatment*[tiab] OR program*[tiab] OR "prolonged exposure"[tiab] OR psychotherap*[tiab] OR psychoeducat*[tiab] OR psychodynam*[tiab] OR psychoanaly*[tiab] OR psychosocial[tiab] OR psycho-social[tiab] OR behavio*[tiab] OR cognit*[tiab] OR dialectic*[tiab] OR counsel*[tiab] OR therap*[tiab] OR mindful*[tiab] OR hypno*[tiab] OR relaxation[tiab] OR medication*[tiab] OR psychotropic*[tiab] OR meditation[tiab] OR "problem-focus*"[tiab] OR "solution-focus*"[tiab] OR "emotion-focus"[tiab] OR narrative*[tiab] OR "eye movement"[tiab] OR emdr[tiab] OR desensitiz*[tiab] OR cbt[tiab] OR cpt[tiab] OR dbt[tiab] OR "Cognitive Behavioral Therapy"[Majr] OR "Meditation"[Majr] OR "Relaxation"[Majr]
AND

"PTSD"[tiab] OR "post traumatic stress*"[tiab] OR "posttraumatic stress*"[tiab] OR "distress*"[tiab] OR anxi*[tiab] OR "affective disorder*"[tiab] OR "mood disorder*"[tiab] OR "depress*"[tiab] OR "adjustment disorder*"[tiab] OR "panic disorder*"[tiab] OR "panic disorder"[Majr] OR "Substance-Related Disorders"[Majr] OR "Stress Disorders, Post-Traumatic"[Majr] OR "Depression"[Majr] OR "Anxiety Disorders"[Majr] OR "Adjustment

Disorders"[Majr] OR "Mood Disorders"[Majr]
Results: 4,722 studies – commentaries or replies = 4,718 studies

Database: American Psychological Association PsycInfo

We searched American Psychological Association (APA) PsycInfo (APA, undated) using the parameters and search terms detailed below.
Method: phrase searching
Parameters: 1980–present; English language
Search run: November 18, 2020

TI("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR "sexual violence" OR "sexual victimization" OR "sexual trauma*" OR "sex offense*" OR "sex offence*" OR "unwanted sexual contact*") OR AB("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR "sexual violence" OR "sexual victimization" OR "sexual trauma*" OR "sex offense*" OR "sex offence*" OR "unwanted sexual contact*") OR MM "Rape" OR (MM "Sex Offenses")
AND

TI(Intervention* OR treatment* OR program* OR "prolonged exposure" OR psychotherap* OR psychoeducat* OR psychodynam* OR psychoanaly* OR psychosocial OR psycho-social OR behavio* OR cognit* OR dialectic* OR counsel* OR therap* OR mindful* OR hypno* OR relaxation OR medication* OR psychotropic* OR meditation OR "problem-focus*" OR "solution-focus*" OR "emotion-focus" OR narrative* OR "eye movement" OR emdr OR desensitiz* OR cbt OR cpt OR dbt) OR AB(Intervention* OR treatment* OR program* OR "prolonged exposure" OR psychotherap* OR psychoeducat* OR psychodynam* OR psychoanaly* OR psychosocial OR psycho-social OR behavio* OR cognit* OR dialectic* OR counsel* OR therap* OR mindful* OR hypno* OR relaxation OR medication* OR psychotropic* OR meditation OR "problem-focus*" OR "solution-focus*" OR "emotion-focus" OR narrative* OR "eye movement" OR emdr OR desensitiz* OR cbt OR cpt OR dbt) OR MM "Meditation" OR MM "Relaxation"
AND

TI("PTSD" OR "post traumatic stress*" OR "posttraumatic stress*" OR "distress*" OR anxi* OR "affective disorder*" OR "mood disorder*" OR "depress*" OR "adjustment disorder*" OR "panic disorder*") OR AB("PTSD" OR "post traumatic stress*" OR "posttraumatic stress*" OR "distress*" OR anxi* OR "affective disorder*" OR "mood disorder*" OR "depress*" OR "adjustment disorder*" OR "panic disorder*") OR MM "Panic Disorder" OR MM "Substance Use Disorder" OR MM "Posttraumatic Stress" OR MM "Depression (Emotion)" OR MM "Anxiety Disorders" OR MM "Adjustment Disorders" OR MM "Affective Disorders"
NOT

PZ Dissertation OR PZ Chapter OR PT Book OR PZ editorial OR PZ letter
Results: 3,869 studies – duplicates, book reviews, and commentaries = 1,329 studies

Database: CINAHL

We searched CINAHL using the parameters and search terms detailed below.
Method: phrase searching
Parameters: 1980–present; English language
Search run: November 18, 2020

TI("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR "sexual violence" OR "sexual victimization" OR "sexual trauma*" OR "sex offense*" OR "sex offence*" OR "unwanted sexual contact*") OR AB("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR "sexual violence" OR "sexual victimization" OR "sexual trauma*" OR "sex offense*" OR "sex offence*" OR "unwanted sexual contact*") OR MM "Rape"
AND

TI(Intervention* OR treatment* OR program* OR "prolonged exposure" OR psychotherap* OR psychoeducat* OR psychodynam* OR psychoanaly* OR psychosocial OR psycho-social OR behavio* OR cognit* OR dialectic* OR counsel* OR therap* OR mindful* OR hypno* OR relaxation OR medication* OR psychotropic* OR meditation OR "problem-focus*" OR "solution-focus*" OR "emotion-focus" OR narrative* OR "eye movement" OR emdr OR desensitiz* OR cbt OR cpt OR dbt) OR AB(Intervention* OR treatment* OR program* OR "prolonged exposure" OR psychotherap* OR psychoeducat* OR psychodynam* OR psychoanaly* OR psychosocial OR psycho-social OR behavio* OR cognit* OR dialectic* OR counsel* OR therap* OR mindful* OR hypno* OR relaxation OR medication* OR psychotropic* OR meditation OR "problem-focus*" OR "solution-focus*" OR "emotion-focus" OR narrative* OR "eye movement" OR emdr OR desensitiz* OR cbt OR cpt OR dbt) OR MM "Meditation" OR MM "Relaxation"
AND

TI("PTSD" OR "post traumatic stress*" OR "posttraumatic stress*" OR "distress*" OR anxi* OR "affective disorder*" OR "mood disorder*" OR "depress*" OR "adjustment disorder*" OR "panic disorder*") OR AB("PTSD" OR "post traumatic stress*" OR "posttraumatic stress*" OR "distress*" OR anxi* OR "affective disorder*" OR "mood disorder*" OR "depress*" OR "adjustment disorder*" OR "panic disorder*") OR (MM "Panic Disorder") OR (MM "Substance Use Disorders+") OR (MM "Stress Disorders, Post-Traumatic+") OR (MM "Depression+") OR (MM "Anxiety+") OR (MM "Adjustment Disorders+") OR (MM "Affective Disorders+")
NOT

PT Doctoral Dissertation OR PT Book OR PT editorial OR PT letter
Results: 2,170 studies – duplicates or commentaries = 285 studies

Database: CENTRAL (Wiley)

We searched CENTRAL (Cochrane Library, undated-a) using the parameters and search terms detailed below.
Parameters: 1980–present; English language
(remove ClinicalTrials.gov and ICTRP records)
Search run: November 19, 2020

("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR "sexual violence" OR "sexual victimization" OR "sexual trauma*" OR "sex offense*" OR "sex offence*" OR "unwanted sexual contact*"):ti,ab OR [mh rape] OR [mh "sexual harassment"] OR [mh "Sex Offenses"]
AND

(Intervention* OR treatment* OR program* OR "prolonged exposure" OR psychotherap* OR psychoeducat* OR psychodynam* OR psychoanaly* OR psychosocial OR psycho-social OR behavio* OR cognit* OR dialectic* OR counsel* OR therap* OR mindful* OR hypno* OR relaxation OR medication* OR psychotropic* OR meditation OR "problem-focus*" OR "solution-focus*" OR "emotion-focus" OR narrative* OR "eye movement" OR emdr OR desensitiz* OR cbt OR cpt OR dbt):ti,ab OR [mh "Cognitive Behavioral Therapy"] OR [mh "Meditation"] OR [mh "Relaxation"]
AND

("PTSD" OR "post traumatic stress*" OR "posttraumatic stress*" OR "distress*" OR anxi* OR "affective disorder*" OR "mood disorder*" OR "depress*" OR "adjustment disorder*" OR "panic disorder*"):ti,ab OR [mh "Panic Disorder"] OR [mh "Substance Use Disorder"] OR [mh "Posttraumatic Stress"] OR [mh "Depression (Emotion)"] OR [mh "Anxiety Disorders"] OR [mh "Adjustment Disorders"] OR [mh "Affective Disorders"]
Results: 391 studies – 307 internal duplicates – other duplicates = 58 studies

Database: Cochrane Database of Systematic Reviews (CDSR) (Wiley)

We searched the CDSR (Cochrane Library, undated-b) using the parameters and search terms detailed below.
Parameters: 1980–present; English language
Search run: November 19, 2020

("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR "sexual violence" OR "sexual victimization" OR "sexual trauma*" OR "sex offense*" OR "sex offence*" OR "unwanted sexual contact*"):ti,ab OR [mh rape] OR [mh "sexual harassment"] OR [mh "Sex Offenses"]
AND

(Intervention* OR treatment* OR program* OR “prolonged exposure” OR psychotherap* OR psychoeducat* OR psychodynam* OR psychoanaly* OR psychosocial OR psycho-social OR behavio* OR cognit* OR dialectic* OR counsel* OR therap* OR mindful* OR hypno* OR relaxation OR medication* OR psychotropic* OR meditation OR “problem-focus*” OR “solution-focus*” OR “emotion-focus*” OR narrative* OR “eye movement” OR emdr OR desensitiz* OR cbt OR cpt OR dbt):ti,ab OR [mh “Cognitive Behavioral Therapy”] OR [mh “Meditation”] OR [mh “Relaxation”]
AND
(“PTSD” OR “post traumatic stress*” OR “posttraumatic stress*” OR “distress*” OR anxi* OR “affective disorder*” OR “mood disorder*” OR “depress*” OR “adjustment disorder*” OR “panic disorder*”):ti,ab OR [mh “Panic Disorder”] OR [mh “Substance Use Disorder”] OR [mh “Posttraumatic Stress”] OR [mh “Depression (Emotion)”] OR [mh “Anxiety Disorders”] OR [mh “Adjustment Disorders”] OR [mh “Affective Disorders”]
Results: 8 studies – duplicates = 2 studies

Database: Campbell Collaboration Library of Systematic Reviews

We searched the Campbell Collaboration Library of Systematic Reviews (Campbell Collaboration, undated) using the parameters and search terms detailed below.
Parameters: 1980–present
Method: Keyword (in Advanced Search)
Search run: November 19, 2020 (We had to run each line individually.)

intext:Sex OR intext:rape OR intext:sexual intext:therapy intext:depression
OR
intext:Sex OR intext:rape OR intext:sexual intext:meditation intext:depression
OR
intext:Sex OR intext:rape OR intext:sexual intext:relaxation intext:depression
OR
intext:Sex OR intext:rape OR intext:sexual intext:intervention intext:depression
OR
intext:Sex OR intext:rape OR intext:sexual intext:treatment intext:depression
OR
intext:Sex OR intext:rape OR intext:sexual intext:mindful intext:depression
OR
intext:Sex OR intext:rape OR intext:sexual intext:therapy intext:stress
OR
intext:Sex OR intext:rape OR intext:sexual intext:meditation intext:stress
OR
intext:Sex OR intext:rape OR intext:sexual intext:relaxation intext:stress
OR

intext:Sex OR intext:rape OR intext:sexual intext:intervention intext:stress
OR
intext:Sex OR intext:rape OR intext:sexual intext:treatment intext:stress
OR
intext:Sex OR intext:rape OR intext:sexual intext:mindful intext:stress
OR
intext:Sex OR intext:rape OR intext:sexual intext:treatment intext:substance
OR
intext:Sex OR intext:rape OR intext:sexual intext:intervention intext:substance
OR
intext:Sex OR intext:rape OR intext:sexual intext:therapy intext:substance
OR
intext:Sex OR intext:rape OR intext:sexual intext:treatment intext:anxiety
OR
intext:Sex OR intext:rape OR intext:sexual intext:intervention intext:anxiety
OR
intext:Sex OR intext:rape OR intext:sexual intext:therapy intext:anxiety

Results: 4 studies

Database: ClinicalTrials.gov

We searched ClinicalTrials.gov (U.S. National Library of Medicine, undated) using the parameters and search terms detailed below.

Parameters: English language; 1980–November 19, 2020

Status: Completed

Condition or disease: PTSD OR "post traumatic stress" OR "post-traumatic stress" OR "posttraumatic stress" OR depression OR anxiety OR "panic disorder" OR "substance abuse" OR "substance misuse" OR "substance use" OR "adjustment disorder"

AND

Other terms: sexual assault OR sexual trauma OR sexual harassment OR rape

Results: 81 studies

Database: WHO ICTRP

We searched WHO ICTRP (WHO, undated) using the parameters and search terms detailed below.

Parameters: English language; 1980–March 12, 2021

Main page; with results

Sexual Assault OR sexual trauma OR sexual harassment OR sexual violence

Results: 115 studies – duplicates = 114 studies

Database: RAND.org

We searched RAND.org (RAND Corporation, undated) using the parameters and search terms detailed below.

Method: Phrase searching

Sexual abuse OR sexual assault OR sexual harassment OR military sexual trauma

AND

Military OR treatment OR intervention OR PTSD OR depression

Results: 52 total hits, 1 relevant hit – duplicates = 1 study

Database: Discover.dtic.mil

We searched Discover.dtic.mil (DTIC, undated) using the parameters and search terms detailed below.

Method: phrase searching

Sexual abuse OR sexual assault OR sexual harassment OR military sexual trauma OR sexual

AND

Military OR treatment OR intervention OR PTSD OR depression

Results: 10 total hits, 2 relevant hits – duplicates = 2 studies

Database: SAPR.mil

We searched SAPR.mil using the parameters and search terms detailed below.

Method: Read through all of the sources under the Office of People Analytics/Defense Manpower Data Center; RAND Corporation; the Centers for Disease Control and Prevention; and the U.S. Commission on Civil Rights tabs (all are under the Research tab on the main header)

Results: 38 total hits, 0 relevant hits

Database: Google.com

We searched Google.com using the parameters and search terms detailed below.

Method: phrase searching

research related to military sexual trauma and treatment evaluation

OR

research related to military sexual trauma and PTSD evaluation

OR

research related to military sexual trauma and depression evaluation

Results: 43,860,000 total hits, 7 relevant hits – duplicates = 6 studies

150 records were reviewed out of the 42,860,00 hits before reaching a point of irrelevancy

Database: https://www.research.va.gov/

We searched Research.va.gov using the parameters and search terms detailed below.

Method: Phrase searching

Sexual assault OR sexual harassment
Results: 113 total hits, 2 relevant hits – duplicates = 2 studies

Systematic Review 1 total citations = 6,602

Review 2. Barriers and Facilitators to Accessing and Remaining in Care for Adults Who Have Experienced Sexual Assault or Sexual Harassment in Military Settings

Database: PubMed

We searched PubMed (National Library of Medicine, undated) using the parameters and search terms detailed below.
Parameters: 1980–present; English language
NOT: editorials or letters (using filters)
Search run: November 17, 2020

"Sexual assault*"[tiab] OR rape[tiab] OR raping[tiab] OR raped[tiab] OR rapist[tiab] OR "sexual harass*"[tiab] OR "sexual abuse"[tiab] OR "sexual aggression*"[tiab] OR "sexual coercion"[tiab] OR "sexual violence"[tiab] OR "sexual victimization"[tiab] OR "sexual trauma*"[tiab] OR "sex offense*"[tiab] OR "sex offence*"[tiab] OR "unwanted sexual contact*"[tiab] OR "rape"[Mesh] OR "sexual harassment"[Mesh] OR "Sex Offenses"[Majr] AND

military[tiab] OR "service member*"[tiab] OR soldier*[tiab] OR "armed forces*"[tiab] OR veteran*[tiab] OR army[tiab] OR navy[tiab] OR "air force"[tiab] OR enlisted[tiab] OR "marine corps"[tiab] OR servicewomen[tiab] OR servicemen[tiab] OR troops[tiab] OR "Military Personnel"[Mesh] OR "Veterans"[Mesh]
Results: 998

Database: APA PsycInfo

We searched APA PsycInfo (APA, undated) using the parameters and search terms detailed below.
Method: phrase searching
Parameters: 1980–present; English language
Search run: November 17, 2020

TI("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR "sexual violence" OR "sexual victimization" OR "sexual trauma*" OR "sex offense*" OR "sex offence*" OR "unwanted sexual contact*") OR AB("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR

“sexual violence” OR “sexual victimization” OR “sexual trauma*” OR “sex offense*” OR “sex offence*” OR “unwanted sexual contact*”) OR DE “Rape” OR (DE “Sex Offenses”)
AND

TI(military OR “service member*” OR soldier* OR “armed forces*” OR veteran* OR army OR navy OR “air force” OR enlisted OR “marine corps” OR servicewomen OR servicemen OR troops) OR AB(military OR “service member*” OR soldier* OR “armed forces*” OR veteran* OR army OR navy OR “air force” OR enlisted OR “marine corps” OR servicewomen OR servicemen OR troops) OR DE “Military Personnel” OR DE “Military Veterans”
NOT

PZ Dissertation OR PZ Chapter OR PT Book OR PZ editorial OR PZ letter
Results: 1,007 studies – duplicates = 403 studies

Database: CINAHL

We searched CINAHL using the parameters and search terms detailed below.
Method: phrase searching
Parameters: 1980–present; English language
Search run: November 17, 2020

TI(“Sexual assault*” OR rape OR raping OR raped OR rapist OR “sexual harass*” OR “sexual abuse” OR “sexual aggression*” OR “sexual coercion” OR “sexual violence” OR “sexual victimization” OR “sexual trauma*” OR “sex offense*” OR “sex offence*” OR “unwanted sexual contact*”) OR AB(“Sexual assault*” OR rape OR raping OR raped OR rapist OR “sexual harass*” OR “sexual abuse” OR “sexual aggression*” OR “sexual coercion” OR “sexual violence” OR “sexual victimization” OR “sexual trauma*” OR “sex offense*” OR “sex offence*” OR “unwanted sexual contact*”) OR (MH “Rape”)
AND

TI(military OR “service member*” OR soldier* OR “armed forces*” OR veteran* OR “army” OR navy OR “air force” OR enlisted OR “marine corps” OR servicewomen OR servicemen OR troops) OR AB(military OR “service member*” OR soldier* OR “armed forces*” OR veteran* OR army OR navy OR “air force” OR enlisted OR “marine corps” OR servicewomen OR servicemen OR troops) OR (MH “Military Personnel”) OR (MH “Veterans”)
NOT

PT Doctoral Dissertation OR PT Book OR PT editorial OR PT letter
Results: 647 studies – duplicates = 79 studies

Database: CENTRAL (Wiley)

We searched CENTRAL (Cochrane Library, undated-a) using the parameters and search terms detailed below.

Parameters: 1980–present; English language
(remove ClinicalTrials.gov and ICTRP results)
Search run: November 17, 2020

("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR "sexual violence" OR "sexual victimization" OR "sexual trauma*" OR "sex offense*" OR "sex offence*" OR "unwanted sexual contact*"):ti,ab OR [mh rape] OR [mh "sexual harassment"] OR [mh "sex offenses"]
AND
(military OR "service member*" OR soldier* OR "armed forces*" OR veteran* OR army OR navy OR "air force" OR enlisted OR "marine corps" OR servicewomen OR servicemen OR troops):ti,ab OR [mh "military personnel"] OR [mh veterans]

Results: 56 studies – duplicates = 3 studies

Database: Cochrane Database of Systematic Reviews (Wiley)

We searched CDSR (Cochrane Library, undated-b) using the parameters and search terms detailed below.

Parameters: 1980–December 2020; English language
Search run: November 17, 2020

("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR "sexual violence" OR "sexual victimization" OR "sexual trauma*" OR "sex offense*" OR "sex offence*" OR "unwanted sexual contact*"):ti,ab OR [mh rape]
AND
(military OR "service member*" OR soldier* OR "armed forces*" OR veteran* OR army OR navy OR "air force" OR enlisted OR "marine corps" OR servicewomen OR servicemen OR troops):ti,ab OR [mh "sexual harassment"] OR [mh "sex offenses"]

Results: 0 studies

Database: Campbell Collaboration Library of Systematic Reviews

We searched the Campbell Collaboration Library of Systematic Reviews (Campbell Collaboration, undated) using the parameters and search terms detailed below.

Parameters: 1980–present
Search run: November 17, 2020 (We ran each line individually.)

intext:Sex OR intext:rape OR intext:sexual intext:military
OR
intext:Sex OR intext:rape OR intext:sexual intext:soldier
OR
intext:Sex OR intext:rape OR intext:sexual intext:veteran

Results: 1 study

Database: ClinicalTrials.gov

We searched ClinicalTrials.gov (U.S. National Library of Medicine, undated) using the parameters and search terms detailed below.
Parameters: English; 1980–November 17, 2020
Status: Completed
Condition or Disease: Sexual Assault OR sexual trauma OR sexual harassment OR sexual violence OR rape
AND
Other terms: military OR veteran* OR soldier* OR "service member"
Results: 7 studies

Database: WHO ICTRP

We searched WHO ICTRP (WHO, undated) using the parameters and search terms detailed below.
Parameters: English; 1980–March 12, 2021
Main page; with results
Sexual Assault OR sexual trauma OR sexual harassment OR sexual violence
Results: 115 studies – duplicates = 114 studies

Database: RAND.org

We searched RAND.org (RAND Corporation, undated) using the parameters and search terms detailed below.
Method: phrase searching
Sexual abuse OR sexual assault OR sexual harassment OR military sexual trauma
AND
Military OR treatment OR intervention
Results: 52 total hits, 1 relevant hit – duplicates = 1 study

Database: Discover.dtic.mil

We searched Discover.dtic.mil (DTIC, undated) using the parameters and search terms detailed below.
Method: phrase searching
Sexual abuse OR sexual assault OR sexual harassment OR military sexual trauma OR sexual
AND
Military OR treatment OR intervention
Results: 10 total hits, 2 relevant hits – duplicates = 2 studies

Database: Sapr.mil

We searched SAPR.mil using the parameters and search terms detailed below.
Method: Read through all of the sources under the Office of People Analytics/Defense Manpower Data Center; RAND Corporation; the Centers for Disease Control and Prevention; and the U.S. Commission on Civil Rights tabs (all are under the Research tab on the main header)
Results: 38 total hits, 0 relevant hits

Database: Google.com

We searched Google.com using the parameters and search terms detailed below.
Method: phrase searching

research related to military sexual trauma and treatment evaluation

Results: 30,100,000 total hits, 5 relevant hits – duplicates = 4 studies
70 records were reviewed out of the 30,100,000 hits before reaching a point of irrelevancy

Database: Research.va.gov

We searched Research.va.gov using the parameters and search terms detailed below.
Method: phrase searching

Sexual assault OR sexual harassment

Results: 113 total hits, 2 relevant hits – duplicates = 2 studies

Scoping Review 2 total citations = 1,620

Review 3: Associations Between Sexual Assault or Sexual Harassment and Mental Health Conditions (i.e., PTSD, Depression, and Substance Use Disorders)

Database: PubMed

We searched PubMed (National Library of Medicine, undated) using the parameters and search terms detailed below.
Parameters: 1980–present; English language
NOT: editorials or letters (using filters)
Search run: November 18, 2020

"Sexual assault*"[tiab] OR rape[tiab] OR raping[tiab] OR raped[tiab] OR rapist[tiab] OR "sexual harass*"[tiab] OR "sexual abuse"[tiab] OR "sexual aggression*"[tiab] OR "sexual coercion"[tiab] OR "sexual violence"[tiab] OR "sexual victimization"[tiab] OR "sexual trauma*"[tiab] OR "unwanted sexual contact*"[tiab] OR "hostile work environment*"[tiab] OR rape[Majr] OR "sexual harassment"[Majr]
AND

"PTSD"[tiab] OR "post traumatic stress*"[tiab] OR "posttraumatic stress*"[tiab] OR depress*[tiab] OR "substance use disorder*"[tiab] OR "substance abuse"[tiab] OR "substance misuse"[tiab] OR "Depression"[Majr] OR "Substance-Related Disorders"[Majr] OR "Stress Disorders, Post-Traumatic"[Majr]

Results: 6,176 studies – internal duplicate – commentary = 6,169 studies

Database: APA PsycInfo

We searched APA PsycInfo (APA, undated) using the parameters and search terms detailed below.

Method: phrase searching

Parameters: 1980–present; English language

Search Run: November 18, 2020

TI("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR "sexual violence" OR "sexual victimization" OR "sexual trauma*" OR "unwanted sexual contact*" OR "hostile work environment") OR AB("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR "sexual violence" OR "sexual victimization" OR "sexual trauma*" OR "unwanted sexual contact*" OR "hostile work environment*") OR MM "Rape"

AND

TI("PTSD" OR "post traumatic stress*" OR "posttraumatic stress*" OR depress* OR "substance use disorder*" OR "substance abuse" OR "substance misuse") OR AB("PTSD" OR "post traumatic stress*" OR "posttraumatic stress*" OR depress* OR "substance use disorder*" OR "substance abuse" OR "substance misuse") OR MM "Depression (Emotion)" OR MM "Substance Use Disorder" OR MM "Posttraumatic Stress"

NOT

PZ Dissertation OR PZ Chapter OR PT Book OR PZ editorial OR PZ letter

Results: 5,285 studies – duplicates, book reviews, and commentaries = 1,565 studies

Database: CINAHL

We searched CINAHL using the parameters and search terms detailed below.

Method: phrase searching

Parameters: 1980–present; English language

Search run: November 18, 2020

TI("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR "sexual violence" OR "sexual victimization" OR "sexual trauma*" OR "unwanted sexual contact*" OR "hostile work environment") OR AB("Sexual assault*" OR rape OR raping OR raped OR rapist OR "sexual harass*" OR "sexual abuse" OR "sexual aggression*" OR "sexual coercion" OR "sexual

violence” OR “sexual victimization” OR “sexual trauma*” OR “unwanted sexual contact*” OR “hostile work environment*”) OR (MM “Rape”)
AND
TI(“PTSD” OR “post traumatic stress*” OR “posttraumatic stress*” OR depress* OR “substance use disorder*” OR “substance abuse” or “substance misuse”) OR AB(“PTSD” OR “post traumatic stress*” OR “posttraumatic stress*” OR depress* OR “substance use disorder*” OR “substance abuse” OR “substance misuse”) OR (MM “Depression+”) OR (MM “Substance Use Disorders+”) OR (MM “Stress Disorders, Post-Traumatic+”)
NOT
PT Doctoral Dissertation OR PT Book OR PT editorial OR PT letter
Results: 3,092 studies – internal duplicates = 3,054 studies – duplicates and commentary = 432 studies

Database: CENTRAL (Wiley)

We searched CENTRAL (Cochrane Library, undated-a) using the parameters and search terms detailed below.
Parameters: 1980–present; English language
(remove ClinicalTrials.gov and ICTRP records)
Search run: November 18, 2020
(“Sexual assault*” OR rape OR raping OR raped OR rapist OR “sexual harass*” OR “sexual abuse” OR “sexual aggression*” OR “sexual coercion” OR “sexual violence” OR “sexual victimization” OR “sexual trauma*” OR “unwanted sexual contact*” OR “hostile work environment*”):ti,ab OR [mh rape] OR [mh “sexual harassment”]
AND
(“PTSD” OR “post traumatic stress*” OR “posttraumatic stress*” OR depress* OR “substance use disorder*” OR “substance abuse”):ti,ab OR [mh depression] OR [mh “substance related disorders”] OR [mh “stress disorders, post-traumatic”]
Results: 357 studies – internal duplicates = 279 studies – duplicates = 43 studies

Database: Cochrane Database of Systematic Reviews (Wiley)

We searched CDSR (Cochrane Library, undated-b) using the parameters and search terms detailed below.
Parameters: 1980–present; English language
Search run: November 18, 2020
(“Sexual assault*” OR rape OR raping OR raped OR rapist OR “sexual harass*” OR “sexual abuse” OR “sexual aggression*” OR “sexual coercion” OR “sexual violence” OR “sexual victimization” OR “sexual trauma*” OR “unwanted sexual contact*” OR “hostile work environment*”):ti,ab OR [mh rape] OR [mh “sexual harassment”]
AND

(“PTSD” OR “post traumatic stress*” OR “posttraumatic stress*” OR depress* OR “substance use disorder*” OR “substance abuse”):ti,ab OR [mh depression] OR [mh “substance related disorders”] OR [mh “stress disorders, post-traumatic”]

Results: 10 studies – duplicates = 6 studies

Database: Campbell Collaboration Library of Systematic Reviews

We searched the Campbell Collaboration Library of Systematic Reviews (Campbell Collaboration, undated) using the parameters and search terms detailed below.

Parameters: 1980–present

Search run: November 18, 2020 (We ran each line individually.)

intext:Sex OR intext:rape OR intext:sexual intext:ptsd

OR

intext:Sex OR intext:rape OR intext:sexual intext:posttraumatic

OR

intext:Sex OR intext:rape OR intext:sexual intext:post traumatic

OR

intext:Sex OR intext:rape OR intext:sexual intext:depression

OR

intext:Sex OR intext:rape OR intext:sexual intext:depressed

OR

intext:Sex OR intext:rape OR intext:sexual intext:depressive

OR

intext:Sex OR intext:rape OR intext:sexual intext:substance

Results: 4 studies

Database: ClinicalTrials.gov

We searched ClinicalTrials.gov (U.S. National Library of Medicine, undated) using the parameters and search terms detailed below.

Parameters: English; 1980–November 18, 2020

Status: Completed

Condition or Disease: PTSD OR “post traumatic stress” OR “post-traumatic stress” OR “posttraumatic stress” OR suicide OR self-harm OR depression OR “substance abuse” OR “substance misuse” OR “substance use”

AND

Other terms: sexual assault OR sexual trauma OR sexual harassment

Results: 75 studies

Database: WHO ICTRP

We searched WHO ICTRP (WHO, undated) using the parameters and search terms detailed below.

Parameters: English; 1980–March 12, 2021

Main page; with results

Sexual Assault OR sexual trauma OR sexual harassment OR sexual violence

Results: 115 studies – duplicates = 114 studies

Database: RAND.org

We searched RAND.org (RAND Corporation, undated) using the parameters and search terms detailed below.

Method: phrase searching

Sexual abuse OR sexual assault OR sexual harassment OR military sexual trauma

AND

Military OR treatment OR intervention OR PTSD OR depression

Results: 52 total hits, 1 relevant hit – duplicates = 1 study

Database: Discover.dtic.mil

We searched Discover.dtic.mil (DTIC, undated) using the parameters and search terms detailed below.

Method: phrase searching

Sexual abuse OR sexual assault OR sexual harassment OR military sexual trauma OR sexual

AND

Military OR treatment OR intervention OR PTSD OR depression AND alcohol

Results: 11 total hits, 2 relevant hits – duplicates = 2 studies

Database: SAPR.mil

We searched SAPR.mil using the parameters and search terms detailed below.

Method: Read through all of the sources under the Office of People Analytics/Defense Manpower Data Center; RAND Corporation; the Centers for Disease Control and Prevention; and the U.S. Commission on Civil Rights tabs (all are under the Research tab on the main header)

Results: 38 total hits, 0 relevant hits

Database: Google.com

We searched Google.com using the parameters and search terms detailed below.

Method: Phrase searching

research related to military sexual trauma and treatment evaluation

OR

research related to military sexual trauma and PTSD evaluation
OR
research related to military sexual trauma and depression evaluation
OR
research related to military sexual trauma and substance abuse evaluation
Results: 69,260,000 total hits, 10 relevant hits – duplicates = 9 studies
190 records were reviewed out of the 69,260,000 hits before reaching a point of irrelevancy

Database: Research.va.gov

We searched Research.va.gov using the parameters and search terms detailed below.
Method: Phrase searching
Sexual assault OR sexual harassment
Results: 113 total hits, 2 relevant hits – duplicates = 2 studies

Total Systematic Review 3 citations = 8,422 studies

Appendix B. Evidence Tables

In this appendix, we present evidence tables summarizing key study information for each review topic. Specifically, Table B.1 summarizes information from Review 1, while Table B.2 summarizes information from Review 2. Review 3 includes tables for each mental health condition examined (i.e., PTSD, depression, and substance use disorders) (Tables B.3–B.5).

Review 1: Psychological Interventions for Adult Victims of Sexual Assault or Sexual Harassment

Table B.1. Review 1: Psychological Interventions for Adult Victims in Military Settings (*n* = 10 studies)

Study Details	Population and Setting	Intervention/Treatment	Outcomes and Measurement	Results
Holliday et al., 2020 • Funding: VA • Country of study: United States • Study design: Follow-up cohort • Study aim: To "examine whether the reported experience of MST was associated with change in PTSD symptoms from VA PTSD RRTP treatment admission to four-month follow-up in a large, national sample of veterans" (p. 44)	• Population: "Veterans who initiated VA PTSD RRTP treatment during Fiscal Years (FY) 2015 and 2016" (p. 43) • Sample size: 7,918 • Mean age/range (years): NR • Gender (% female): 51% • Race/ethnicity: 49% White, Non-Hispanic; 51% minority • SAH type: MST • Exposure setting: Military	• Treatment name: VA PTSD RRTP reported experience of MST • Treatment type: Multisystem • Treatment setting: NR • Duration: NR • Comparator: No control	• Outcomes: PTSD • Follow-up periods: Baseline; posttreatment • Mental health measure: PCL-5	• Total sample: 5,154; 2,326 [multiple time points] • Results for relevant outcomes: "Compared to those who did not report experiencing MST, veterans who reported experiencing MST had greater initial reductions in PTSD symptoms, followed by a greater increase in PTSD symptom scores over time" (p. 44). • Quality assessment score: Serious risk
Katz, Cojucar, et al., 2014 • Funding: VA • Country of study: United States • Study design: Follow-up cohort • Study aim: To describe the Renew integrative treatment program and report pre-post outcome data	• Population: Female veterans with a history of homelessness and sexual trauma • Sample size*:* 132 • Mean age/range (years): 43.0, 22–65 • Gender (% female): 100% • Race/ethnicity: 54% White; 43% Black; 12% Hispanic	• Treatment name: Renew • Treatment type: Multisystem • Treatment setting: Outpatient within a VA housing program for homeless women • Duration: 52.5 4-hour sessions five times per week • Comparator: No control	• Outcomes: PTSD, anxiety, depression, somatization, self-esteem, life orientation, and life satisfaction • Follow-up periods: Baseline; posttreatment • Mental health measure: PTCI, BSI-18, PCL, RSES, LOT, SWL	• Total sample: 97 • Results for relevant outcomes: "Graduates showed a significant reduction in posttraumatic stress disorder (PTSD), psychiatric symptoms, and posttraumatic negative cognitions (up to 60% had reliable clinical change at the 95% confidence interval), and significant increases in self- esteem, optimism, and satisfaction with life with large to moderate effect sizes" (p. 163). • Quality assessment score: Serious risk

Study Details	Population and Setting	Intervention/Treatment	Outcomes and Measurement	Results
	• SAH type: Sexual trauma • Exposure setting: Lifetime			
Katz, Douglas, et al., 2014 • Funding: NR • Country of study: United States • Study design: RCT • Study aim: To examine the efficacy of holographic reprocessing (HR) and PE compared with a person-centered (PC) control group for female veterans with sexual trauma	• Population: Female veterans with a history of sexual assault • Sample size: 53 • Mean age/range (years): 42.0, 22–66 • Gender (% female): 100% • Race/ethnicity: 43% Caucasian; 20% African American; 12% Hispanic; 25% other/missing data • SAH type: Sexual assault • Exposure setting: Not reported	• Treatment name: HR • Treatment type: Skills-based • Treatment setting: NR • Duration: 10 sessions • Comparator: PC	• Outcomes: PTSD, depression, negative cognitions about self, negative cognitions about world, anxiety, somatization • Follow-up periods: Baseline; posttreatment • Mental health measure: PCL, BSI-18, PTCI	• Total sample: 37 • Results for relevant outcomes: "All variables yielded a significant main effect of time (e.g., decreased over time). . . . HR and PE did not differ from each other but both produced significant decreases in symptoms compared to PC. . . . HR and PE were superior to the nonspecific factors of supportive therapy delivered in PC treatment in reducing symptoms related to trauma. However, the dropout rate for HR was significantly lower than PE. . . . [A]ll three groups had pre-treatment PCL scores over the typical PTSD cutoff . . . [and] both HR and PE produced similar decreases" in score posttreatment (pp. 16–17). • Quality assessment score: High risk
Katz, 2016 • Funding: NR • Country of study: United States • Study design: Follow-up cohort • Study aim: To assess the efficacy of a condensed version of the Warrior Renew program delivered in a naturalistic VA outpatient setting	• Population: Female veterans with a history of MST • Sample Size: 58 • Mean age/range (years): 47.4, 41–55 • Gender (% female): 100% • Race/ethnicity: 34% White; 55.5% Black; 11% Hispanic • SAH type: MST • Exposure setting: Military	• Treatment name: Warrior Renew • Treatment type: Skills-based • Treatment setting: VA medical center • Duration: 2-hour sessions twice per week • Comparator: No control	• Outcomes: PTSD; negative cognitions about self, about the world; self-blame; anxiety; depression; somatization • Follow-up periods: Baseline; posttreatment • Mental health measure: PTCI, BSI-18, PCL-5	• Total sample: 32 • Results for relevant outcomes: "From pre- to posttreatment, results indicated significant reduction on total scales and all subscales of both posttraumatic negative thinking as measured by the PTCI, and symptoms of distress as measured by the BSI" (p. 369). "Warrior Renew appears to be a promising treatment to address MST" (p. 370). • Quality assessment score: Serious risk
Khan et al., 2020 • Funding: DoD • Country of study: United States	• Population: Post 9/11 veterans with a postdeployment PTSD diagnosis • Sample size: 9,711	• Treatment name: CPT • Treatment type: Trauma-focused	• Outcomes: PTSD • Follow-up periods: Baseline; posttreatment	• Total sample: 9,711 • Results for relevant outcomes: "Results suggest outcomes may be impacted by gender socialization when utilizing certain cognitive behavioral techniques.

Study Details	Population and Setting	Intervention/Treatment	Outcomes and Measurement	Results
• Study design: Retrospective cohort • Study aim: To examine "how gender and MST impact PTSD symptoms following cognitive processing therapy (CPT) and prolonged exposure (PE)" (p. 89).	• Mean age/range (years): 36.7, 20–74 • Gender (% female): 11.8% • Race/ethnicity: 71.3% White; 17.5% Black; 1.3% American Indian/Native Alaskan; 2.1% Asian; 1.3% Native Hawaiian/Pacific Islander; 1.3% multi-race; 13.1% Hispanic • SAH type: MST • Exposure setting: Military	• Treatment setting: VHA facility • Duration: 8 or more sessions over the course of 24 days • Comparator: No control	• Mental health measure: PCL, PCL-5	MST, regardless of gender, did not impact PTSD outcomes for either treatment. Both CPT and PE may thus be effective for veterans irrespective of MST history" (p. 89). • Quality assessment score: Serious risk
Loucks et al., 2019 • Funding: DoD • Country of study: United States • Study design: Follow-up cohort • Study aim: To "expand the use of [virtual reality exposure therapy (VRE)] to veterans with PTSD due to MST through an initial feasibility study that includes newly built virtual environments tailored to MST" (p. 56).	• Population: Military veterans who experienced MST during their time in service • Sample size: 15 • Mean age/range (years): 46.0, 32–72 • Gender (% female): 73.4% • Race/ethnicity: 66.7% Black • SAH type: MST • Exposure setting: Military	• Treatment name: BraveMind VRE therapy intent to treat • Treatment type: Trauma-focused • Treatment setting: Non-VA, mental health clinic that provides services to individuals who served in the U.S. military and their family members free of charge • Duration: 6–12 90-minute sessions once per week • Comparator: No control	• Outcomes: PTSD, depression • Follow-up periods: Baseline; posttreatment • Mental health measure: CAPS, PCL-5, PHQ-9	• Total sample: 9 • Results for relevant outcomes: "Results indicated dropout rates consistent with other PE treatment studies with military samples, and there were no reports of adverse effects or critical incidents in response to VRE implementation. . . . Overall, . . . findings provide initial evidence that VRE for MST-related PTSD can be feasibly implemented and that patients are able to tolerate this approach similarly to traditional exposure therapy for PTSD. . . . [T]he majority of participants no longer met diagnostic criteria for PTSD at the 3-month follow-up. Cohen's d effect sizes . . . were consistent with or higher than those found in other treatment studies examining the application of established evidence-based therapy for PTSD within military samples" (p. 61). • Quality assessment score: Serious risk

Study Details	Population and Setting	Intervention/Treatment	Outcomes and Measurement	Results
Surís et al., 2013 • Funding: VA • Country of study: United States • Study design: RCT • Study aim: To "evaluate the effectiveness of [CPT] in the treatment of self-reported and clinician-assessed [PTSD] related to [MST], along with depressive symptoms" (p. 28).	• Population: Veterans with a current diagnosis of PTSD related to MST • Sample size: 129 • Mean age/range (years): 46.1 • Gender (% female): 85% • Race/ethnicity: 44% White • SAH type: MST, narrowed to attempted or completed sexual assault that happened while on active duty • Exposure setting: Military	• Treatment name: CPT adapted for PTSD in veterans • Treatment type: Trauma-focused • Treatment setting: Outpatient, VA medical center • Duration: 12 sessions once or twice per week • Comparator: Present-centered therapy	• Outcomes: PTSD, major depression • Follow-up periods: Baseline; posttreatment; 2-month; 4-month; 6-month • Mental health measure: CAPS-B, CAPS-C, CAPS-D, CAPS-Total, PCL, QIDS	• Total sample: 89; 89; 89; 90 [multiple time points] • Results for relevant outcomes: "All three primary outcome measures [self-assessed PTSD, self-assessed depression, and clinician-assessed PTSD] improved significantly . . . across time in both treatment groups . . . (*d* = 0.30–1.02). . . . At posttreatment, veterans who received CPT had a significantly greater reduction in self-reported [*d* = –85], but not clinician-assessed, PTSD symptom severity compared to veterans who received [present-centered therapy]" (p. 28). • Quality assessment score: Some concerns
Tiet et al., 2015 • Funding: NR • Country of study: United States • Study design: Cohort (retrospective) • Study aims: To examine whether "gender and military sexual assault (MSA) were associated with psychiatric severity differences at initiation of treatment for [PTSD] and whether MSA and gender predicted psychiatric	• Population: Patients entering treatment at one of seven VA PTSD specialty intensive treatment programs at five sites across the United States. • Sample size: 816 • Mean age/range (years): NR • Gender (% female): 13% • Race/ethnicity: NR • SAH type: MST • Exposure setting: Military	• Treatment name: Specialty Intensive Treatment • Treatment type: Multisystem • Treatment setting: Domiciliary, residential rehabilitation, one-day hospital treatment, women's treatment rehabilitation • Duration: 15 to 149 days • Comparator: No control	• Outcomes: PTSD, depression • Follow-up periods: Baseline; posttreatment • Mental health measure: PCL-C, CES-D	• Total sample: 574 • Results for relevant outcomes: "Both male and female veterans showed improvements in symptoms. Compared to their assessment at treatment initiation, male patients showed significant reductions in PTSD, depression, and violent symptoms (*d* = −0.22 to −0.25), but significant increases in alcohol and drug severity (*d* = 0.16 to 0.27), and no difference in quality of life measures at the 4-month follow-up assessment. . . . Female patients showed significant reductions in PTSD and depression symptoms (*d* = −0.54 to −0.62), better quality of life (*d* = 0.26), but significant increases in drug severity index (*d* = 0.35) at the 4-month follow-up" (p. 95). • Quality assessment score: Serious risk

Study Details	Population and Setting	Intervention/Treatment	Outcomes and Measurement	Results
treatment outcomes" (p. 92).				
Weiss et al., 2018 • Funding: VA • Country of study: United States • Study design: Follow-up cohort • Study aim: To obtain initial evidence of effectiveness, acceptability, and feasibility" (p. 621) of Skills Training in Affective and Interpersonal Regulation as a stand-alone treatment to female veterans living in rural areas.	• Population: Female veterans with a history of MST living in rural areas • Sample size: 10 • Mean age/range (years): 51.3, 24–69 • Gender (% female): 100% • Race/ethnicity: 80% White; 10% Black; 10% Asian • SAH type: MST • Exposure setting: Military	• Treatment name: Skills Training in Affective and Interpersonal Regulation • Treatment type: Skills-based • Treatment setting: Participants were located in community-based outpatient clinics, treatment was delivered virtually • Duration: 10 sessions once per week • Comparator: No control	• Outcomes: PTSD, depression, emotion regulation, social engagement • Follow-up periods: Baseline; posttreatment • Mental health measure: PCL-5, BDI-II, Difficulties in Emotion Regulation Scale (DERS), WHO Disability Assessment Schedule 2.0—3 subscales, getting along with people, life activities, and participation in society	• Total sample: 10 • Results for relevant outcomes: "Symptoms of PTSD and depression were significantly reduced, emotion regulation skills significantly improved, and problems in social functioning approached a significant reduction, p = .052" (p. 623). Findings support "a skills-focused treatment to reduce PTSD and depression symptoms and improve functioning," to be delivered without difficulty via video teleconferencing. (p. 623). • Quality assessment score: Serious risk
Zalta et al., 2018 • Funding: National Institute of Mental Health • Country of study: United States • Study design: Follow-up cohort • Study aim: To "1) evaluate patterns of PTSD and depression symptom change over the course of the IOP, 2) examine sex and cohort type	• Population: Veterans with a history of military trauma (e.g., combat or exposure to war zone, military sexual trauma) and to have met the diagnostic criteria for PTSD. Two tracks: combat-related PTSD and MST-related PTSD • Sample size: 191 • Mean age/range (years): 41.4, 25–69	• Treatment name: IOP, MST track • Treatment type: Multisystem • Treatment setting: Non-VA mental health clinic that provides services to individuals who served in the U.S. military and their family members free of charge • Duration: 15 9-hour sessions over the course of 19 days	• Outcomes: PTSD, depression, posttraumatic cognitions • Follow-up periods: Baseline; posttreatment • Mental health measure: PCL-5 (month), PCL-5 (week), PHQ-9, PTCI	• Total sample: 176 • Results for relevant outcomes: "Pre-post analyses for completers (N = 176; 92.1% of sample) revealed large reductions in PTSD (d = 1.12 for past month symptoms and d = 1.40 for past week symptoms) and depression symptoms (d = 1.04 for past 2 weeks). Combat cohorts saw a greater reduction in PTSD symptoms over time relative to MST cohorts. Reduction in posttraumatic cognitions over time significantly predicted decreases in PTSD and depression symptom scores, which remained robust to adjustment for autocorrelation" (p. 1).

Study Details	Population and Setting	Intervention/Treatment	Outcomes and Measurement	Results
(combat vs. MST) as predictors of treatment response, 3) examine changes in posttraumatic cognitions as a predictor of treatment response, and 4) examine whether the relationship between changes in posttraumatic cognitions and treatment response differed by sex or cohort type (combat vs. MST)" (p. 3).	• Gender (% female): 36.6% • Race/ethnicity: 68.1% Caucasian; 17.8% African American; 0.5% Asian; 2.6% American Indian or Alaska Native; 1.6% Native Hawaiian or Pacific Islander; 9.4% other/missing data • SAH type: MST • Exposure setting: Military	• Comparator: No control		• Quality assessment score: Serious risk

NOTE: BDI = Beck Depression Inventory. BSI = Brief Symptom Inventory. CAPS = Clinician-Administered Posttraumatic Stress Disorder Scale. CES-D = Center for Epidemiological Studies-Depression Scale. CPT = cognitive processing therapy. DoD = U.S. Department of Defense. HR = holographic reprocessing. IOP = intensive outpatient program. LOT = Life Orientation Test. MST = military sexual trauma. NR = not reported. PC = person-centered. PCL = Posttraumatic Stress Disorder Checklist. PE = prolonged exposure. PHQ-9 = Patient Health Questionnaire–9. PTCI = Posttraumatic Cognitions Inventory. PTSD = posttraumatic stress disorder. QIDS = Quick Inventory of Depressive Symptomatology. RCT = randomized control trial. RRTP = residential rehabilitation treatment program. RSES = Rosenberg Self-Esteem Scale. SAH = sexual assault or harassment. SWL = Satisfaction with Life Scale. VA = U.S. Department of Veterans Affairs. VHA = Veterans Health Administration. VRE = virtual reality exposure therapy.

Review 2: Barriers and Facilitators to Accessing and Remaining in Care for Adults Who Have Experienced Sexual Assault or Sexual Harassment in Military Settings

Table B.2. Review 2: Barriers and Facilitators to Mental Health Access and Engagement in Care (*n* = 17)

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
Burns et al., 2014 • Funding: William and Flora Hewlett Foundation, Wallace A. Gerbode Foundation • Geographic setting: NR • Study design: Qualitative • Study aims: To conduct "in-depth interviews with servicewomen who had been deployed overseas . . . about their experiences with and perceptions of MST prevalence, reporting, and services" (p. 345).	• Eligibility criteria: "Women of any military status, who had been deployed overseas anytime from 2001 or later, and who were 18 years of age or older" (p. 346). • Sample size*:* 22 • Age: 31.8% 18–24; 31.8% 25–29; 31.8% 30 and older • Gender: 100% female • Race/ethnicity: 86.4% White, non-Hispanic; 9.1% Hispanic • Military branch(es): 54.5% Army; 18.2% Navy; 18.2% National Guard; 9.1% Marine Corps • Service era(s): NR	• SAH type: MST (sexual assault or rape during military service, including any type of sexual contact that is achieved or attempted without consent) • SAH exposure: 31.8% of participants experienced MST • Health care setting: New Mexico VA Health Care System • Data-collection method: Conducted 22 in-depth interviews via telephone	• Total *N* analyzed: 22 • Analysis methods: Analyzed data thematically in ATLAS.ti; 6.2 with modified grounded theory methods. Each transcript was coded twice to ensure intercoder reliability; summarized codes and organized them thematically with representative quotes extracted; initial codes a priori based on research questions. • Key access themes: (1) Experiences of stigma or shame with seeking care on base, (2) confidentiality and potential impact on career • Key retention themes: NR	• Limitations identified by author: (1) "[F]indings represent the views of a small, nonrepresentative, predominantly White, convenience sample and have limited generalizability," (2) "perceptions of women without first-hand experience of MST" were included, (3) the study "focused on women's experiences and thus [does] not necessarily reflect the perspectives of men who experience MST," and (4) the study may be subject to recall bias, with 59% of participants having completed their most recent deployment in 2005 or earlier (pp. 348–349). • Evidence gaps and/or recommendations for future research: "Although only 3.3% of men versus 21.7% of women reported unwanted sexual contact since joining the military by someone in the military, this

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
				proportion reflects a large absolute number of men who experience MST, and future qualitative research including this male population is needed" (pp. 348–349).
Cichowski et al., 2019 • Funding: NR • Geographic setting: New Mexico • Study design: Qualitative • Study aims: To "(1) examine the utilization of VHA services for MST, as well as outside services" and "(2) to offer specific recommendations for improving MST treatment for female veterans from the patient's perspective" (p. 41).	• Eligibility criteria: Veterans older than 18 who could speak and understand English; a positive screen for MST via a validated MST screening questionnaire • Sample size: 17 • Age: M = 52 • Gender: 100% female • Race/ethnicity: 41% non-Hispanic White; 29% Hispanic; 24% American Indian; 6% Black • Military branch(es): NR • Service era(s): NR	• SAH type: MST (i.e., sexual harassment that is threatening in character or physical assault of a sexual nature that occurred while the victim was in the military) • SAH exposure: 100% experienced MST • Data-collection method*:* Conducted five focus groups, lasting 3 hours each	• Total *N* analyzed: 17 • Analysis methods: Qualitative analysis was conducted in Dedoose using grounded theory; codes were grouped into themes and subsequently organized into emergent concepts; following constant comparative methodology, ideas were compared and combined between each focus group. • Key access themes: (1) Trauma prevents victims from obtaining care; (2) preferences for women providers in male-dominated VA; (3) unequal treatment of women veterans. • Key retention themes: NR	• Limitations identified by author: (1) "The female veterans who agreed to participate in the focus group may not be representative of the entire population, particularly as survivors may be reluctant to talk about their MST experience," (2) "[t]he participants in our focus groups were most commonly 2 decades past the MST and their experience with therapy may differ from that of women more recently traumatized and engaged in therapy. However, the fact that many of these females were still receiving some form of therapy 20 years after the traumatic event deserves attention," (3) "[r]ecall bias may have affected how female veterans described their experiences with MST treatment," (4) "[w]e did not inquire about the timing of therapy and

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
				whether they sought VA care first, followed by community care, or vice versa," and (5) "although the data were analyzed separately by 3 investigators, biases in data analysis may arise with qualitative methods" (p. 46). • Evidence gaps and/or recommendations for future research: "Our data show there is still substantial room for improvement in the therapies and in the physician-level care for MST. While each treatment experience was unique, the collective agreement was that multimodal therapy was beneficial" (p. 46).
Farmer et al., 2020 • Funding: VHA, Office of Research and Development, Health Services Research and Development, VA Office of Academic Affiliations and Health Services Research and Development Service Research • Geographic setting: United States • Study design: Cross-sectional • Study aims: To (1) examine "the proportions	• Eligibility criteria: Inclusion: An "*International Classification of Diseases*, 9th edition, (ICD-9) diagnosis of PTSD . . . present for at least one outpatient encounter in the year before the survey . . . and a self-reported perceived need for mental health care in the past year" (p. 368). • Sample size: 986 • Age: 42.1% 18–44, 51.7% 45–64, 6.2% 65 or older • Gender: 100% female	• SAH type*:* MST, SA • SAH exposure: 80.4% experienced MST or SA • Data-collection method: 6,287 participants completed a cross-sectional telephone survey	• Total *N* analyzed: 986 • Analysis methods: Logistic regressions "to model the odds of any psychotherapy use," negative binomial regressions "to model the number of psychotherapy visits in the year before the survey among women with at least one outpatient psychotherapy visit," and generalized estimating equations "to adjust variance estimation and standard	• Limitations identified by author: (1) "[S]tudy findings cannot be generalized to women outside VHA . . . [however, findings] highlight important information about psychotherapy among women VHA users that past studies have not reported, because women make up only a small proportion of study samples; [(2)] because psychotherapy use was

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
of women who used psychotherapy, pharmacotherapy, or both, (2) retention in psychotherapy among women who used any psychotherapy services, and (3) individual factors . . . related to psychotherapy use and retention" (p. 367).	• Race/ethnicity: 65.9% White; 21.7% African American/black; 12.4% other • Military branch(es): NR • Service era(s): 28.1% OEF/OIF		errors for clustering within facilities" (p. 369). • Key access themes: (1) Increased psychotherapy use compared with other types of trauma and (2) race [not MST-specific] • Key retention themes: (1) History of MST showed higher psychotherapy retention, (2) care delivered not according to patient needs and preferences [not MST-specific], and (3) gender-related factors [not MST-specific]	calculated only for the year before the survey, this study may not have fully captured psychotherapy use intensity by not accounting for psychotherapy use that could have occurred before the observation period;" (3) varying definitions regarding "a minimally adequate dose of psychotherapy in studies of VHA psychotherapy use;" this study did not take into account session frequency or individual patient characteristics; (4) "psychotherapy visits may not have represented one of the evidenced-based treatments (EBTs) recommended for PTSD" (pp. 371–372). • Evidence gaps and/or recommendations for future research: (1) "Methodological work to define and describe episodes of PTSD care could help to inform designs for studies of intensity and quality of care;" (2) "ongoing progress both in enhancing methods to reliably ascertain evidence-based trauma-focused psychotherapy from administrative

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
				data . . . as well as efforts to identify a broader range of psychotherapies that may effectively treat PTSD" (pp. 371–372)
Gilmore et al., 2020 • Funding: DoD • Geographic setting: Southeastern United States • Study design: Prospective cohort study • Study aims: To examine the "factors associated with treatment dropout among women veterans with MST-related PTSD enrolled in PE both in person or via telemedicine" (p. 464)	• Eligibility criteria: Inclusion: Female, 21 and older, screened positive for MST, met DSM-5 criteria for PTSD or subthreshold PTSD • Exclusion: "[A]ctive psychosis or dementia, suicidal ideation with intent, and alcohol and/or substance use disorders" (p. 464) • Sample size: 136 • Age: 43.4 • Gender: 100% female • Race/ethnicity: 26.5% White; non-Latinx • Military branch(es): NR • Service era(s): NR	• SAH type: MST (i.e., sexual assault or repeated, threatening sexual harassment experienced while in the military) • SAH exposure: 100% experienced MST • Data-collection method: Participants "completed the baseline assessment before enrollment;" 136 participants "were then randomly assigned (1:1) to one of the two individual exposure therapy treatment conditions: telemedicine or standard in-person delivery. After treatment,	• Total *N* analyzed: 136 • Analysis methods: "A logistic regression was computed with treatment dropout as the outcome. Main predictors included treatment condition (telemedicine vs. in person) and difficulties with emotion regulation. . . . To examine correlates of reasons for treatment dropout, the same predictors (treatment condition, difficulties with emotion regulation, age, race/ethnicity, marital status, theater, baseline PTSD symptoms, and baseline diagnosis of depression) were examined as associated with reasons for dropout" (p. 465). • Key access themes: NR • Key retention themes: (1) The majority of dropout reasons were logistics-related or distress, (2) emotional regulation issues affect the ability to stay in treatment, (3) treatment modality had no effect on retention.	• Limitations identified by author: (1) "[S]elf-report measures were used to assess emotion regulation, and the questions on these measures were not specific to emotion regulation in the presence of trauma cues;" (2) the study "did not assess trauma-related cognitions;" (3) "treatment dropout was dichotomized in the current study, and those who began exposure components of treatment were in the same category as those who did not;" (4) "only women veterans were included;" and (5) the study "excluded individuals with substance use disorders and did not fully assess childhood exposure to potentially traumatic events" (p. 467). • Evidence gaps and/or recommendations for future research: Future work could (1) examine "emotion regulation using behavioral

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
		[participants] completed a post-treatment assessment" (p. 465).		assessments as well as assessing emotion regulation specific to tolerating trauma cues within PE" or (2) "examine both trauma-related cognitions and emotion dysregulation to assess if emotion dysregulation remains a predictor of treatment dropout after controlling for trauma-related cognitions" (p. 467).
Hahn, Turchik, and Kimerling 2020 • Funding: VA, VHA, Office of Research and Development, the National Center for PTSD, the National Institute of Mental Health, and the National Institute on Drug Abuse • Geographic setting: United States • Study design: Cross-sectional • Study aims: "[T]o identify classes of negative beliefs about MST-related mental health care among a national sample of male and female veterans who screened positive for MST within the VHA" (p. 395).	• Eligibility criteria: Inclusion: "[V]eteran VHA users within 3 months of a positive screen for MST, . . . veterans with perceived need for care, [and] a valid mailing address in the medical record" Exclusion: "[C]urrent diagnoses indicating cognitive impairment (i.e., dementia, brain injury), legal blindness, or an indication of a conservator or legally authorized representative" (p. 396) • Sample size: 1,185 • Age: NR • Gender: 67.2% female • Race/ethnicity: White (59.7% female, 65.1% male); Black (29.9% female, 23.4% male); American Indian/Alaska Native or Native Hawaiian/other Pacific Islander or other (10.4% female, 11.5% male) • Military branch(es): NR	• SAH type: MST • SAH exposure: 100% experienced MST • Data-collection method: 8,409 surveys were administered by mail; 2,220 participants returned the survey.	• Total *N* analyzed: 1,185 • Analysis methods: "Multiple-group latent class analysis (LCA) was conducted; . . . [the method classified] individuals into mutually exclusive groups based on patterns of responses to discrete observed variables." LCA helped determine whether "patterns of item-response probabilities differed between men and women and compar[ed] latent class prevalence across men and women. . . . Next, the four-class model was run again with the inclusion of demographic variables." Lastly, the study authors "calculated a series of chi-square tests to explore variation across classes with regard to the proportions	• Limitations identified by author: (1) "To conduct the LCA with the current sample size, we dichotomized indicators and reduced items to 15 indicators. Although these decisions were based on previous research, this approach precludes exploration of the variation in the severity of treatment beliefs within each class. It is possible that relevant mental health beliefs were not or adequately captured by the dichotomous indicators. The LCA focused on negative beliefs about MST-related mental health care" (p. 402). • Evidence gaps and/or recommendations for future research: (1) "To further describe classes

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
	• Service era(s): 28.1% female and 10.5% male served in Afghanistan and Iraq		of veterans who reported clinically meaningful mental health symptoms, . . . barriers to care, . . . and care experiences" (p. 397). • Key access themes: (1) Potential stigma, (2) negative mental health beliefs, (3) logistical barriers (e.g., transportation, work, child care, scheduling) • Key retention themes: N/A	of perceived barriers, researchers should also focus on other factors, including institutional barriers (e.g., limited hours) to treatment. As responders were more likely to identify as non-Hispanic and White compared to other racial and ethnic groups, there may be additional classes of perceived barriers among racial and ethnic minority veterans that were not captured in the current results. Future research is needed to test the associations between class association and treatment utilization; [and (2) in] the current study, we observed several noteworthy patterns of negative beliefs about MST-related mental health care, including unique differences in patterns of barriers for men and women. It is essential to further research the typologies of negative mental health beliefs and their associations with veterans' receipt of MST mental health care" (p. 402).
Holder et al., 2019 • Funding: VA Rehabilitation Research	• Eligibility criteria: Inclusion: "[V]eteran status with a diagnosis of MST-related	• SAH type: MST • SAH exposure: 100%	• Total *N* analyzed: 56 • Analysis methods: "Dropout was defined	• Limitations identified by author: (1) "[R]esults may not generalize to

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
and Development Service, Office of Academic Affiliations, Advanced Fellowship Program in Mental Illness Research and Treatment • Geographic setting: Southwestern United States • Study design: RCT • Study aims: To identify sociodemographic and psychosocial predictors of dropout from CPT among veterans with MST-related PTSD using multiple operational definitions of *dropout*, with an emphasis on generating hypotheses about dynamic predictors of dropout	PTSD, . . . MST occurred at least 3 months prior to baseline assessment, . . . MST was identified as the most distressing PTSD-related trauma, . . . at least one clear memory of the MST, and . . . no changes were made to psychiatric medication in the 6 weeks before baseline assessment" (p. 88). Exclusion: "[S]ubstance dependence/abuse in the 3 months before baseline assessment, . . . current psychotic symptoms, . . . unstable bipolar disorder, . . . severe cognitive impairment, . . . concurrent enrollment in a psychotherapy for PTSD, . . . involvement in a violent intimate partner relationship, and/or . . . suicidal/homicidal intent warranting immediate intervention" (p. 88). • Sample size: 129 • Age: 44.6 • Gender: 100% female • Race/ethnicity: 44.6% Black, non-Hispanic; 32.1% White, non-Hispanic; 23.2% other • Military branch(es): NR • Service era(s): NR	experienced MST • Data-collection method: 60 female veterans randomized to the CPT condition were expected to receive a total of 12 1-hour psychotherapy sessions.	continuously (i.e., number of sessions attended). . . . A multiple linear regression analysis was conducted using a stepwise regression method" (pp. 87, 90). "Number of sessions attended was entered as the outcome variable. Predictor variables in this model included demographic factors (i.e., age, education, racial-ethnic self-identification), presence or absence of PTSD-[related service connection], psychiatric symptom severity, . . . [negative cognitions], . . . treatment expectations, . . . and CPT fidelity. . . . Dropout was also operationalized dichotomously (i.e., 0 = attended fewer than six sessions, 1 = attended six or more sessions). . . . Baseline characteristics were compared between dropout groups using chi-square analyses for categorical variables and independent samples *t*-tests for continuous variables. A backward stepwise logistic regression was conducted, with dropout entered as the outcome variable" (p. 90).	male veterans, non-veterans, naturalistic treatment settings, settings other than the VA, veterans with PTSD related to traumas other than MST, other trauma- focused EBTs, or non-trauma-focused EBTs; . . . [(2) v]eterans may experience logistical barriers (e.g., transportation, child care) to attending mental health treatment sessions at the VA and these factors were not investigated directly in this study; . . . [and (3) the] statistical approaches utilized for this study (i.e., stepwise linear and backward stepwise logistic regression analyses) are data-driven" (p. 92). • Evidence gaps and/or recommendations for future research: "Future studies could benefit from collecting information regarding reasons for dropout as well as how these barriers relate to [negative cognitions] and treatment expectations, as clarity regarding the relationship between logistical barriers and psychosocial predictors may help with

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
			• Key access themes: N/A • Key retention themes: Higher negative cognitions about self-blame predicted higher CPT session attendance, and lower negative cognitions about self predicted attending 6 or more sessions when defined dichotomously (i.e., attending six or more sessions).	developing targeted methods to reduce dropout. While the present study focused on dropout from CPT, dropout from non-trauma-focused psychotherapy (e.g., PCT) is also worthy of investigation to determine whether predictors of dropout generalize across treatment approaches" (p. 92).
Holland, Caridad Rabelo, and Cortina, 2016 • Funding: NR • Geographic setting: United States • Study design: Cross-sectional • Study aims: To "examine how barriers to accessing mental health care may exacerbate symptoms of depression and PTSD" among male and female active-duty personnel (p. 255).	• Eligibility criteria: Inclusion: Active-duty members from the Army, Navy, Marine Corps, Air Force, and Coast Guard, who have at least 6 months of service at the time the questionnaire is first fielded and are below flag rank • Sample size: 26,505 • Age: NR • Gender: 40.2% female • Race/ethnicity: NR • Military branch(es): 26.3% Air Force; 25.3% Army; 9.3% Coast Guard; 19.0% Marine Corps; 20.1% Navy • Service era(s): NR	• SAH type: MST • SAH exposure: 2% experienced MST • Data-collection method: 90,321 surveys were administered online and on paper.	• Total *N* analyzed: 26,505 for descriptives; 542 for hypothesis 1 and 1,016 for hypothesis 2 • Analysis methods: For MST survivors, two linear regressions were conducted, "with depressive symptoms or PTSD symptoms as the dependent variable," while the "[p]erceived logistical access barriers and public stigma were entered as independent variables;" and sex/gender and deployment status were controlled for (p. 256). For nonvictims, one linear regression was conducted, with "perceived logistical access barriers and public stigma were entered as independent variables;" sex/gender	• Limitations identified by author: (1) The study was a "secondary analysis of cross-sectional, correlational data," so the authors were "unable to draw definitive conclusions about the directionality of [their] findings" (e.g., "participants who suffer from PTSD and depression may be more likely to experience feelings of helplessness, which then increase perceptions of help-seeking barriers; [a]t the same time, a cyclical relationship is possible, where perceived barriers exacerbate mental health symptoms which then reinforce those perceptions"); (2) "it would have been

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
			and deployment status were controlled for (p. 256). • Key access themes: Survivors and nonvictims of MST encountered stigma-related barriers more often than logistical barriers. • Key retention themes*:* N/A	beneficial to consider how participants' actual use of MST resources/services affects their perceptions of barriers. For example, did sexual assault survivors use any MST and/or mental health resources, and if so, how did those experiences affect their perceptions of both logistical and stigma barriers?" and (3) " the measure of sexual assault assessed experiences only in the past year. Given the rates of sexual assault in the military, and sexual violence more generally, it is likely that some of [the] 'nonvictims' had faced sexual assault or abuse in the past" (p. 258). • Evidence gaps and/or recommendations for future research: (1) "It would . . . be beneficial for future work to examine rape-specific stigma in the military (and other contexts), and how this distinct barrier affects MST disclosure, help-seeking, and mental health outcomes;" (2) there is a need "to study the relationships between perceived

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
				barriers to mental health care and psychological outcomes for MST survivors over time. Longitudinal research is needed to elucidate causal relationships between these variables;" (p. 258) and (3) there is a need to add questions or release additional publicly available data from the Workplace and Gender Relations Survey of Active Duty Members.
Kehle-Forbes et al., 2017 • Funding: VA, VHA, Office of Research and Development, Health Services Research & Development grant, Career Development Award • Geographic setting: United States • Study design: Qualitative • Study aims: To "obtain a rich understanding of gender-specific challenges and successes encountered by midlife (e.g., Vietnam and post-Vietnam era) women veterans with PTSD and/or a history of MSA in using VHA services 1-to-2 years after the issuance of the mandate for gender-	• Eligibility criteria: Inclusion: Eligible "if they returned a questionnaire fielded as part of a third-wave of data collection [administered 2010–2011] . . . indicated their willingness to participate in an in-depth qualitative interview; . . . had no change in their VA PTSD disability benefits since the first-wave survey of this cohort (1998–2000); and . . . demonstrated a clinically meaningful improvement or worsening in their PTSD symptoms and their work, role, and social functioning since the second-wave survey of the cohort (2004–2006) as the primary goal of the interviews was to explore factors associated with	• SAH type: MST • SAH exposure: 64.9% experienced MST • Data-collection method: 48 interviews "were conducted via telephone by professional health survey research interviewers" (lasting 70–90 minutes, audio-recorded) (p. 2).	• Total *N* analyzed: 37 • Analysis methods: "[A]udio-recordings were transcribed verbatim; [data were] analyzed using a modified grounded-theory approach. Following bottom-up, systematic coding strategies, two investigators . . . sorted text segments into categories and applied pattern and thematic codes and sub-codes derived from first impressions, common phrases, and common ideas that emerged from the data. Both analysts read and coded all transcripts and met periodically to collaboratively develop and refine codes, and to	• Limitations identified by author: (1) "While women with PTSD and history of MSA are a large and important consumer subset for VHA, the women in [the] sample represent only the subset of these veterans who have filed PTSD disability claims;" (2) the study "did not include veterans from [OIF/OEF/OND];" (3) "participants were not directly asked about gender-specific VHA experiences; their comments were unsolicited and emerged during discussions of the recent trajectories of their PTSD symptoms. It cannot be assumed that

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
sensitive primary care services" (p. 2).	improvement and worsening" (p. 2). • Sample size: 48 • Age: 54.7 • Gender: 100% female • Race/ethnicity: NR • Military branch(es): NR • Service era(s): 45.9% Vietnam; 54.1% post-Vietnam		condense codes into higher-order abstract concepts (e.g., themes and domains)" (p. 3). • Key access themes: N/A • Key retention themes: (1) "Many VHA services fell short of meeting women veterans' needs;" and (2) "VHA's predominately male environment was unwelcoming to women" (pp. 3, 4).	those who did not discuss it spontaneously lacked opinions or relevant experience; the themes that emerged may have been different had all women been systematically asked about gender-specific VHA experiences;" and (4) the study "did not specifically ask these women to compare their VHA care to non-VHA care. "These women's non-VHA care experiences might have been as negative, or even more negative, than what they reported for the VHA" (p. 7). • Evidence gaps and/or recommendations for future research: "More direct research with women veterans should be done to assess their impressions of VHA and non-VHA care" (p. 7).
McBain, Garneau-Fournier, and Turchik, 2020 • Funding: VA Health Services Research & Development, Career Development Award • Geographic setting: United States • Study design: Cross-sectional • Study aims: To "identify the percentage of veterans who endorsed a	• Eligibility criteria: Inclusion: "[B]eing enrolled in VHA health care, having screened positive for MST between August 2013 and March 2014, and having received at least one VHA outpatient service during that same time" (p. 5) Exclusion: Veterans who "were legally conserved, cognitively impaired, legally blind, and/or listed as	• *S*AH type: MST (A physical assault of a sexual nature, battery of a sexual nature, or sexual harassment that occurred while the veteran was serving on active duty, active duty for	• Total *N* analyzed: 1,591 • Analysis methods: "Six one-way analyses of variance (ANOVAs) were conducted to examine how veterans' gender preference and provider gender match status related to veterans' ratings of perceived provider barriers, perceived provider competence, and	• Limitations identified by author: (1) The study "only included veterans who identified their gender as 'male' or 'female,' [so] results do not account for the experiences of transgender and nonbinary veterans; . . . [(2) a]lthough the study drew from a

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
provider gender preference and did not receive a VA provider of their gender preference when discussing MST" (p. 4).	homeless (due to vulnerability and lack of a mailing address) (p. 5). • Sample size: 2,220 • Age: 49.0, 21–89 • Gender: 70.6% female • Race/ethnicity: 67.7% White, 22.2% Black, 1.4% Asian, 8.8% other • Military branch(es): 49.8% Army • Service era(s): 79.0% Vietnam	training, or inactive duty training) • SAH exposure: 100% experienced MST • Data-collection method: 8,681 veterans were invited to complete a survey	comfort with provider. If provider preferences were significant, each ANOVA was followed by an analysis of covariance (ANCOVA) to test the relationship, while controlling for demographic factors (i.e., age, race, ethnicity, sexual orientation, relationship status, service era, military status, military rank), mental health factors (i.e., depression, PTSD), and premilitary sexual trauma" (p. 9). • Key access themes: (1) Men mostly preferred a female provider or had no preference. Most women preferred a woman provider. Less than half of veterans were matched with their preferred provider. (2) Men and women associated perceived provider barriers and comfort with provider gender preference. Women also associated provider competence with provider gender preference. • Key retention themes: NA	representative national sample, there were demographic differences among those who chose to participate in the study and this may affect its generalizability; . . . [(3) results might] not be generalizable to veterans seeking care outside of VHA or those who have not reported their MST; . . . [(4) the use of] cross-sectional data [limits] the ability to draw conclusive causal relationships among study variables; . . . [(5) sole reliance on] self-report data rather than actual observed interactions between veterans and providers; . . .[(6) the study] did not assess the extent to which MST was discussed and addressed, or the strength of provider gender preferences; . . . [(7)] study-specific measures assessing patient comfort, perceived provider barriers, and perceived competence asked participants to aggregate their experiences with VHA providers if they had discussed MST with multiple providers [so it

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
				is] unclear whether participants' responses represented an experience with one provider with whom the participant had a particularly salient experience or a generalization of multiple experiences with providers" (p. 16). • Evidence gaps and/or recommendations for future research: "Future studies should examine veterans' gender preferences specifically within the context of MST-related treatment" (p. 16).
Monteith et al., 2020 • Funding: VA and the Rocky Mountain Mental Illness Research, Education, and Clinical Center • Geographic setting: Regional Mountain West • Study design: Qualitative • Study aims: To (1) "describe MST survivors' . . . perceptions of VHA care, [(2) identify their] concerns about VHA care, and [(3) elicit their] suggestions for how VHA can" support MST survivors in their recovery (p. 178).	• Eligibility criteria: Inclusion: veterans with histories of MST; exclusion: "inability to provide consent, severe cognitive impairment, and current severe psychiatric symptoms precluding participation (e.g., active psychosis, imminently suicidal)" (p. 180). • Sample size: 50 • Age: 46.8, 18–65 • Gender: 64% female • Race/ethnicity: 52% Caucasian; 28% African American; 6% Native American; 14% multiracial • Military branch(es): 74% Army; 12% Air Force; 14% Navy; 6% Marine Corps; 2% Coast Guard	• SAH type: Military sexual harassment, military sexual assault • SAH exposure: 98% experienced military sexual harassment; 72% experienced military sexual assault • Data-collection method: Semistructured interviews ("audio-recorded, transcribed, and checked for	• Total *N* analyzed: 50 • Analysis methods: Qualitative analysis; "[t]wo reviewers independently analyzed each transcript using . . . thematic analysis to identify and analyze patterns in the data. . . . Analysis involved six stages: (1) familiarizing with the data; (2) generating initial codes; (3) searching for themes; (4) reviewing themes; (5) defining and naming themes; and (6) producing themes in a report" (p. 181). • Key access themes: (1) "Negative perceptions	• Limitations identified by author: (1) "[G]eneralizability is limited, particularly considering the small sample sizes for specific subgroups (e.g., women who solely experienced sexual harassment, men who experienced sexual harassment or sexual assault); [(2) generalizability also might be limited because] all participants were presently enrolled in VHA care within the same regional healthcare system in the Mountain West and had utilized VHA outpatient care in the past year;

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
	• Service era(s): 20% Vietnam; 52% post-Vietnam, 20% Desert Storm; 44% OEF/OIF/OND	accuracy") were conducted (p. 180). "Information regarding utilization of VHA care in the year prior to participation was obtained from [the VA Corporate Data Warehouse]" (p. 181).	and reluctance to use VHA care;" (p. 182) (2) "[d]istrust of VHA;" (p. 182) (3) "[p]rivacy of sensitive information;" (p. 183) and (4) "[p]erceived stigma and shame" (p. 183) • Key retention themes: (1) Lack of trustworthiness and compassion from VHA providers; (2) survivors do not want to continue care when required to change providers; and (3) gender-related distress.	[(3) the] sampling technique also has the potential for self-selection bias as MST survivors who were uncomfortable discussing their experiences with VHA researchers may not have volunteered to participate; [(4) the] wording of the qualitative interview questions may have implicitly biased participants' responses; and [(5) the] degree to which MST actually influenced the presence or absence of certain themes cannot be determined" (p. 186). • Evidence gaps and/or recommendations for future research: (1) Examine results "with a larger sample—including Veterans not enrolled in or utilizing VHA care;" (2) "examine whether themes identified . . . relate to veterans' actual utilization of different types of VHA care (e.g., MST-related, medical, mental health);" (3) examine the association between perceptions of the military institutional response to MST with willingness to seek care from VHA and military

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
				institutions, while examining the role of trust in this association;" (4) "examine the specific locations of women's facilities within different VHA settings . . . in relation to MST survivors' utilization of care provided in those settings, as well as women's desire for care provided through modalities such as telehealth;" and (5) "test potential explanations as to why survivors of military sexual assault may have worse perceptions and additional concerns about VHA care. It will also be important to examine if concerns about provider trust and compassion affect military sexual assault survivors' decisions to disclose MST, their interactions with VHA providers, and engagement in trauma-focused treatment" (pp. 186–187).
Murray-Swank, Dausch, and Ehrnstrom, 2018 • Funding: VA, VHA, Office of Rural Health grant • Geographic setting: Eastern Colorado	• Eligibility criteria: Inclusion: A "'rural' or 'highly rural' zip code, availability to attend one retreat, and psychological capacity to participate in a residential, wellness-based program"	• SAH type: MST • SAH exposure: 68% experienced MST • Data-collection method: All	• Total *N* analyzed: 101 • Analysis methods: Conducted "descriptive statistics on clinical outcomes and independent samples *t*-tests to examine group	• Limitations identified by author: (1) The "sampling strategy limits the generalizability of the results in important ways, and it remains unknown how these

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
• Study design: Cross-sectional • Study aims: To (1) "examine diverse aspects of mental health in rural women Veterans who elected to attend a wellness retreat, including psychological distress, PTSD, insomnia, [MST], and suicidality . . . [and to (2)] evaluate perceived barriers to seeking mental health assistance, including VA-specific concerns and internalized stigma about seeking services" (p. 104)	(p. 104). Exclusion: "[A]cute medical health conditions (e.g., need for oxygen, severe heart condition), acute suicidality (within past month), and current drug and/or alcohol abuse" (p. 104). • Sample size: 371 • Age: 48.6, 22–64 • Gender: 100% female • Race/ethnicity: 80% White; 10% Hispanic/Latina; 9% Black/African American; 1% Native American/Alaska Native; 1% Asian/Pacific Islander • Military branch(es): Army (41% active duty, 15% reserves, 12% National Guard); Air Force (35% active duty, 7% reserves, 4% National Guard); Navy (16% active duty, 6% reserves); Marine Corps (3% active duty, 1% reserves) • Service era(s): 10% Vietnam; 42% post-Vietnam/ peacetime, 55% Desert Storm/Desert Shield; 36% OEF/OIF/OND	assessment measures were mailed to each veteran to complete; 101 participants completed the assessment measures and returned them in a stamped envelope.	differences. Missing data were handled by excluding cases with any missing values by analysis and conducting pairwise deletions (ranging from 0–2 depending on analysis) (p. 106). • Key access themes: "Perceived stigma and barriers to seeking mental health services:" accessibility and availability, internalized stigma, distrust, and logistics (p. 107). • Key retention themes: N/A	results would translate to the entire population of rural women Veterans. Women interested in a wellness retreat may experience more difficulties because they are responding to a program invitation to enhance well-being and reduce stress. . . . [H]igh reports of MST and PTSD indicate this might be the case. [(2) T]he recruitment strategy generated a 18% response rate in a specific rural geographic locale, and it remains unknown how these results would translate to diverse rural regions and again to the entire population of rural women Veterans" (p. 111). • Evidence gaps and/or recommendations for future research: "[B]oth prevention efforts and response to suicide are imperative in rural settings and future research is strongly warranted among Veteran women" (p. 112).
Sexton et al., 2020 • Funding: VA Ann Arbor Healthcare System Mental Health Service	• Eligibility criteria: NR • Sample size: 197 • Age: 44.9 • Gender: 73.6% female	• SAH type: MST (sexual assault or severe sexual	• Total *N* analyzed: 195 • Analysis methods: "Associations between patient gender, provider	• Limitations identified by author: (1) The study "used a sample of treatment-seeking

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
and the University of Michigan, Department of Psychiatry • Geographic setting: Midwestern United States • Study design: Retrospective cohort study • Study aims: To (1) "evaluate MST survivors' gender preferences among a larger sample of veterans accepting referrals for MST-specific care . . . and [(2)] examine relationships between identified preferences, if any, and attendance at consultation appointments" (p. 8).	• Race/ethnicity: 69.2% White; 24.4% African American; 2.3% American Indian; 1.7% Latino/Latina • Military branch(es): 15.2% Air Force; 49.3% Army; 5.1% Marine Corps; 30.4% Navy • Service era(s): 14.7% Vietnam; 20.6% post-Vietnam; 24.1% Persian Gulf; 40.6% OIF/OEF/OND	harassment experienced during military service) • SAH exposure: 100% experienced MST • Data-collection method: 197 "veterans were asked their preferences (if any) for the gender of their assessing and treating clinician(s)" and were then scheduled "for a diagnostic evaluation and treatment-planning interviews." The MST coordinators "monitored whether consultation evaluations were attended and cross-checked this information with the medical record" (p. 9).	gender preference, and evaluation attendance were examined using chi-square analyses. Logistic regression was used to evaluate the potential main effects of patient gender, gender preference, and PC-PTSD and the interaction of patient gender and gender preference with evaluation attendance. Phi coefficients were used to characterize the magnitude of significant effects" (p. 10). • Key access themes: Reporting a gender preference for providers was associated with a higher attendance rate than not reporting a gender preference. • Key retention themes: N/A	veterans that should be highly generalizable . . . [but was] limited in the number requesting a male provider;" (2) the authors were "unable to follow up with those who did not attend to determine what factors may have contributed;" (3) the study was limited in the "ability to collect other variables that may have influenced attendance, such as readiness for treatment, psychosocial stressors, or history of treatment seeking outside [the] VHA clinic. Although [the authors] included [Primary Care-PTSD] score, this is only a screening measure, and full indices of symptom severity were unavailable for those who did not attend the appointment;" and (4) "participants were limited to veterans who disclosed MST to their provider and accepted a mental health referral for care" (p. 12). • Evidence gaps and/or recommendations for future research: (1) "[H]ow gender preference may relate to use and completion of evidence-based

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
				psychopharmacology and psychotherapy resources for MST-related conditions as well as potential relationships with clinical outcomes;" and (2) "[a]lthough certainly not all MST survivors have mental health symptoms significant enough to warrant treatment, future studies are also needed to determine ways in which more veterans with active MST-related symptoms can be engaged in care and to identify barriers to accepting a referral for treatment" (p. 12).
Turchik et al., 2013 • Funding: VA Advanced Fellowship Program in Mental Illness Research and Treatment, VA Office of Academic Affiliations, National Center for Posttraumatic Stress Disorder, and the VA Palo Alto Health Care System • Geographic setting: California • Study design: Qualitative • Study aims: To (1) "elucidate potential barriers to accessing [MST]-related care for male veterans . . . [and (2)] explore whether	• Eligibility criteria: Inclusion: Male veterans who were positive for MST, with "at least one VHA outpatient encounter in [fiscal year (FY)] 2009 or FY 2010 at VA Palo Alto Health Care System, and having not received any MST-related mental health care from VA Palo Alto Health Care System since FY 2006 when VA began tracking MST-related care." Exclusion: Veterans who "did not have a valid mailing address or if their medical diagnoses indicated they were legally blind and/or	• SAH type: MST (sexual harassment or sexual assault that might have occurred during a veteran's military service; unwanted sexual experiences in the military) • SAH exposure: 100% experienced MST • Data-collection method: Conducted 21, 45-minute	• Total *N* analyzed: 20 • Analysis methods: "A grounded theory approach was used for qualitative data analysis. . . . After data collection, the qualitative data [were] coded into themes; the themes [were] then grouped into similar categories" from which overall theories were formed (p. 216). • Key access themes: (1) Stigma-related, personal discomfort or internalized beliefs about seeking care for MST, concerns about social perceptions or consequences; (2)	• Limitations identified by author: The study (1) "consists of data from a sample of only 20 male veterans from one health care facility and may not be generalizable to other male veterans who have experienced MST and use VHA care. [(2)] Many of the interview questions were phrased in an indirect rather than direct manner (e.g., 'How do you think men would feel . . .' instead of 'How do you feel . . .'), which may have affected their

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
veterans have preferences regarding the gender of clinicians providing MST-related care" (p. 213).	had a severe hearing impairment" (p. 215). • Sample size: 21 • Age: 62.2 • Gender: 0% female • Race/ethnicity: 80% White; 5% Black; 10% Hispanic; 5% Asian/Pacific Islander • Military branch(es): 10% Air Force; 60% Army; 10% Navy; 20% Marine Corps • Service era(s): 25% Korean War; 55% Vietnam War; 10% post-Vietnam; 10% Persian Gulf War/OEF/OIF	semistructured in-person interviews	privacy or confidentiality concerns; (3) sensitivity and reactions of providers; (4) fear of not being believed; (5) gender-related barriers; (6) knowledge barriers (pp. 217–219). • Key retention themes: N/A	responses and led participants to provide fewer details about their own experiences. . . . [(3) The authors] only interviewed men who had not received any VHA MST-related mental health services, so it is unknown whether the perceived and actual barriers and preferences of men who have received services may differ from those who have not" (pp. 220–221). • Evidence gaps and/or recommendations for future research: (1) "Further quantitative research is needed to further clarify barriers and preferences that may impact men's access and utilization of MST-related services. . . . [this] should compare barriers between men and women, as similarities and differences in perceived barriers can inform interventions to assure access to sexual trauma-related mental health care . . . [(2) There is a need to identify] factors that facilitate access to care for veterans who report MST" (p. 221).

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
Turchik et al., 2014 • Funding: VA Advanced Fellowship Program in Mental Illness Research and Treatment, VA Office of Academic Affiliations, National Center for PTSD, and the VA Palo Alto Health Care System • Geographic setting: California • Study design: Qualitative; prospective cohort study • Study aims: To (1) collect "qualitative data from male veterans who have experienced MST in order to design a gender-targeted psychoeducational MST brochure, [(2)] quantitatively compare men's ratings of a gender-targeted versus a gender-neutral psychoeducational brochure on MST, and [(3)] examine the effects of a psychoeducational mail-based pilot intervention on mental health care use and MST-related mental health care use over a 6-month time period following the intervention" (p. 241).	• Eligibility criteria: Inclusion: Male veterans who "screened positive for MST at any time during VHA care, . . . received at least one VHA outpatient encounter . . . in FY 2009 or FY 2010 at VA Palo Alto Health Care System, and [had] not received any MST-related mental health care from VA Palo Alto Health Care System since FY 2006" (p. 242). Exclusion: Veterans who are incapacitated, legally blind, with severe hearing impairment, or living more than 25 miles from facility. • Sample size: Interview: 50; psychoeducational mail-based pilot intervention: 272 • Age: 63.4 • Gender: 0% female • Race/ethnicity: 74.5% White; 11.8% Black; 0.7% American Indian; 4.6% Asian or Pacific Islander; 8.5% missing/ unknown • Military branch(es): 51% Army; 31.4% Navy; 2.6% Marine Corps; 2.6% Coast Guard; 12.4% Air Force • Service era(s): 3.3% World War II; 19.6% Korean War; 5.2% between Korean and Vietnam; 51.0% Vietnam War; 9.8% post-Vietnam War; 11.1% Persian Gulf War/OEF/OIF	• SAH type: MST (threatening sexual harassment or sexual assault that occurred during military service) • SAH exposure: 100% experienced MST • Data-collection method: Conducted 20 45-minute interviews. The interview also asked participants to read and comment on the gender-neutral and gender-targeted brochures; 272 participants were randomized to one of three conditions and asked to (1) read and comment on the brochure and (2) complete a 10-minute survey.	• Total *N* analyzed: Interview: 20; psychoeducational mail-based pilot intervention: 153 • Analysis methods: NR • Key access themes: (1) Gender-targeted brochures had more of an impact on the participants compared with the gender-neutral brochures; (2) participants' ratings of the words or texts and photos or graphics did not differ between groups; however, participants with the gender-targeted brochure felt that they addressed issues important to male veterans and gave them a better overall rating compared with gender-neutral brochures; and (3) the brochure condition had no effect on mental health visits in the following 6 months. • Key retention themes: N/A	• Limitations identified by author: (1) "[T]he sample size may have made it difficult to detect modest differences in treatment use;" (2) it may be that "6 months was not an adequate follow-up period to see differences emerge across the three groups;" (3) the results "may not be generalizable to veterans outside [the VA Palo Alto Health Care System] and/or to veterans seeking care outside the VA;" (4) there is a need for treatment that was not assessed, "and it is also possible that some participants already received past treatment that was not captured;" and (5) the authors "used random assignment, so while differences in perceived need were presumably similarly distributed across groups, not accounting for perceived need may have weakened the ability to detect differences in utilization" (p. 247). • Evidence gaps and/or recommendations for future research: (1)

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
				"Research is needed to examine veterans' preferences regarding how they would like to receive information regarding MST so that information can be adapted and presented in these modalities;" (2) "[f]urther examination of the barriers and facilitators of seeking help for sexual trauma is also needed to inform intervention efforts;" and (3) "future research should examine perceived need for care, an important variable to examine as many veterans who experience MST may not want or need services" (p. 247).
Valentine et al., 2020 • Funding: The Mental Health Service at VA Ann Arbor Healthcare System and the Department of Psychiatry, University of Michigan • Geographic setting: USA • Study design: Prospective cohort study • Study aims: To compare the rates of veteran retention in PTSD treatment for MST that is delivered remotely or in-person	• Eligibility criteria: Inclusion: PTSD that resulted from MST. Exclusion: People with "active psychotic or bipolar disorder and were not deemed at high risk for harm to themselves or others" (p. 445) • Sample size: 171 • Age: 44.4 • Gender: 73.5% female • Race/ethnicity: 68.5% Caucasian non-Hispanic was the most represented ethnicity; 22.8% African American; 3.5% Latinx • Military branch(es): 15.4% Air Force; 46.3% Army;	• SAH type: Military sexual assault • SAH exposure: 100% experienced MST • Data-collection method: 171 participants were offered Clinical Video Technology (CVT) or in-person and CPT or PE. Session attendance data were used to	• Total *N* analyzed: 171 • Analysis methods: Chi-square, mean, and percentage analyses as appropriate; "Pearson's *r*, Pearson's phi, and point-biserial correlations as warranted depending on the categorical or linear nature of the variables" (p. 446). • Key access themes: Participants were more likely to complete treatment delivered in person versus via CVT • Key retention themes: N/A	• Limitations identified by author: (1) Authors should consider "other variables that may be related to treatment completion, such as symptom changes through treatment, motivation, barriers to care, and treatment expectancies;" (2) "the number of CVT-enrolled veterans who selected home-based services was quite low . . . so [the authors were] not able to investigate engagement behaviours

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
	1.2% Coast Guard; 9.9% Marine Corps; and 27.2% Navy • Service era(s): 13.6% Vietnam; 25.9% post-Vietnam; 24.7% Persian Gulf; 35.8% OIF/OEF	determine speed to drop out.		between home-based and CBOC-based CVT;" and (3) "due to the longitudinal nature of this research, there was a change in the version of the CAPS used in this study, which limited [the] ability to attend to severity in [the] analyses; although the CAPS-IV severity was similar between groups and accounted for the majority of veterans seen in this study, there were some differences noted between groups on the CAPS-5, which incorporates symptom changes in the diagnostic criteria and also changes the separate emphasis of symptom frequency and severity" (p. 449). • Evidence gaps and/or recommendations for future research: (1) The authors were "not able to speak to the particular reasons that veterans elected to discontinue care; this is a particularly salient area for future research that may facilitate our ability to reduce attrition risk;" and (2) results, consistent with literature, "suggest there may be some unique factors associated with

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
				the experience of MST, MST-delivered trauma care, or survivor characteristics that are related to reduced retention" (p. 449).
Waitzkin et al., 2018 • Funding: Robert Wood Johnson Center for Health Policy at the University of New Mexico • Geographic setting: United States, Afghanistan, South Korea, Germany • Study design: Qualitative; cross-sectional • Study aims: To "determine the personal characteristics of military personnel who receive care from a civilian network of volunteer professionals; to ascertain the mental health diagnoses of these military personnel; to analyze the characteristics most closely associated with mental health disorders, suicidal ideation, and absence without leave; and to clarify the experiences that led military personnel to seek care outside military institutions" (p. e233).	• Eligibility criteria: NR • Sample size: 233 • Age: 48.6, 26–64 • Gender: 100% female • Race/ethnicity: 80% White; 10% Hispanic/Latina; 9% Black/African American; 1% Native American/Alaska Native; 1% Asian/Pacific Islander • Military branch(es): Army (41% active duty, 15% reserves, 12% National Guard); Air Force (35% active duty, 7% reserves, 4% National Guard); Navy (16% active duty, 6% reserves Marine Corps (3% active duty, 1% reserves) • Service era(s): 10% Vietnam; 42% post-Vietnam/peacetime, 55% Desert Storm/Desert Shield; 36% OEF/OIF/OND	• SAH type: MST • SAH exposure: 22% experienced MST • Data-collection method: Conducted 233 brief interviews immediately after referral (intake interview) and conducted follow-up interviews at 2 weeks and 2 months	• Total *N* analyzed: 23 • Analysis methods: Logistic regression analyses and bootstrap logistic regression; compared results from bootstrap and nonbootstrap analyses; for qualitative analysis, focused on experiences and reasons for seeking care, coded notes from intake interviews, using "open coding" to clarify general themes and "focused coding" to determine which themes were repeated (p. e234). • Key access themes: Not approved for disability benefits • Key retention themes: N/A	• Limitations identified by author: (1) The inability to conduct an RCT "or similar methodology using a control group . . . limited [the authors'] ability to reach definitive conclusions about the impact of [the] work on the processes and outcomes of care;" (2) because "clients are principally referred by the [GI Rights Hotline, the] findings may . . . not fully reflect the broader population of military personnel who seek civilian services through other channels;" and (3) "Army personnel comprised a majority of [the] sample, so the conclusions may not be generalizable to other military branches" (pp. e238–e239). • Evidence gaps and/or recommendations for future research: "An evaluative strategy that reconciles ethical concerns with study design remains a

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
				challenge for future research" (p. e238).
Wolff and Mills, 2016 • Funding: NR • Geographic setting: NR • Study design: Cross-sectional; qualitative • Study aims: To (1) "describe the experiences of a small group of women MST survivors who joined the military from World War II through the Afghanistan and Iraq conflicts;" and to (2) explore the "veterans' difficulties with reporting incidents of MST, and their challenges to obtaining appropriate health care" (p. 841).	• Eligibility criteria: NR • Sample size: 443 • Age: NR • Gender: 100% female • Race/ethnicity: NR • Military branch(es): 26.9% Air Force; 34.6% Army; 3.8% Marine Corps; 34.6% Navy • Service era(s): 46.2% pre-1973 (World War II, Korea, Vietnam, Cold War); 13.5% 1973–1978 (Vietnam, Lebanon, Cold War); 30.7% 1979–1992 (Cold War, Central America, Grenada, Persian Gulf); 9.6% post-1992 (Middle East, Africa, Somalia, Bosnia, Haiti, Afghanistan, and Iraq) • Other: 36.5% officer; 63.5% enlisted	• SAH type: MST • SAH exposure: 91.6% of interviewees, 44.2% of those who completed the questionnaire • Data-collection method: "373 veterans out of 443 participants completed a questionnaire and/or were interviewed" (p. 842).	• Total *N* analyzed: 52 • Analysis methods: "Responses from the open-ended questions on the questionnaire and interviews were coded using Hyperresearch software. . . . Data were analyzed using grounded theory techniques to identify themes that emerged from the data and for constant comparison between interview and questionnaire answers" (p. 842). • Key access themes: (1) Veterans had positive, mixed, and negative experiences reporting sexual harassment while in the military; and (2) barriers to reporting • Key retention themes: (1) Facilitators to remaining engaged in services; and (2) barriers to receiving services.	• Limitations identified by author: (1) This is a small, mixed-methods study, so "results cannot be generalized to the larger population of women veterans;" (2) "[d]ata could be biased because of selective memory, confusing particulars of events, or the complexities of living with trauma, including pain associated with retelling of events;" (3) the "sample was selected from a group of veterans currently in a Veterans' peace organization rather than a random selection;" (4) "participants are fairly homogeneous regarding differences of race/ethnicity, class, and sexual orientation;" and (5) "[s]ome interviewees may have taken the survey before their interview, which may have had an influence on their answers" (pp. 846–847). • Evidence gaps and/or recommendations for future research: "There is an urgent need for services and research focused on MST and other traumas

Study Details	Population	Research Parameters	Analytic Methods and Results	Limitations and Gaps or Recommendations
				associated with military service for veterans who joined before 2001, to learn about their needs and how they are coping with the long-term impact of MST" (p. 847).

NOTE: CAPS = Clinician-Administered Posttraumatic Stress Disorder Scale. CPT = cognitive processing therapy. CVT = Clinical Video Technology. DoD = U.S. Department of Defense. DSM = *Diagnostic and Statistical Manual of Mental Disorders*. ICD-9 = *International Classification of Diseases*, 9th edition. MSA = military sexual assault. MST = military sexual trauma. N/A = not applicable. NR = not reported. OEF = Operation Enduring Freedom. OIF = Operation Iraqi Freedom. OND = Operation New Dawn. PE = prolonged exposure. PTSD = posttraumatic stress disorder. RCT = randomized control trial. SA = sexual assault. SAH = sexual assault or harassment. VA = U.S. Department of Veterans Affairs. VHA = Veterans Health Administration. VRE = virtual reality exposure therapy.

Review 3: Associations Between Sexual Assault or Sexual Harassment and Mental Health Conditions (i.e., PTSD, Depression, and Substance Use Disorders)

Table B.3. Review 3: Associations Between Sexual Assault and Sexual Harassment and PTSD (*n* = 23)

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
Arata, 1999 • Funding: University of South Alabama Research Council • Country of study: United States • Study design: Retrospective cohort study • Study aims: To explore "the role of repeated sexual victimization in producing increased risk for mental disorders" (p. 1).	• Population: Female undergraduates in an introductory psychology class who experienced different levels of victimization and nonvictims • Sample size: 92 • Mean age/range (years): 24.0, 19–48 • Gender (% female): 100% • Race/ethnicity: 71% White; 17% Black; 2% Hispanic; 6% Asian; 3% other	• Type: Sexual assault, child sexual assault • Setting: NR • Timing: Adulthood	• PTSD measure: DSMIII-R, SCID–nonpatient edition with a PTSD supplement • Comparator: Participants with no reported history of sexual victimization • Matched control: No • Adjustors: N/A	• Total sample: 92 • Results for relevant outcomes: Adult-only and child-only victims were no more likely to have a lifetime diagnosis of PTSD than were nonvictims who had a history of nonsexual trauma. • Quality assessment score: 3
Clancy et al., 2006	• Population: Male "veterans who were	• Type: Childhood	• PTSD measure: CAPS, BDI	• Total sample: 422

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
• Funding: National Institute of Mental Health, National Cancer Institute, VA Merit Awards • Country of study: United States • Study design: Retrospective cohort study • Study aims: To "examine the prevalence of traumatic events, in addition to combat, in a veteran population and to determine how these other traumatic events may be related to levels of psychological symptom severity" (p. 1,347).	diagnosed with PTSD [during an evaluation] at a VA Medical Center" specialty outpatient PTSD clinic (p. 1,346). • Sample size: 422 • Mean age/range (years): 54.0 • Gender (% female): 0% • Race/ethnicity: 41% White; 55% African American; 1% American Indian; 2% Hispanic; 1% other	sexual abuse, sexual abuse as an adult • Setting: Multiple, including military • Timing: Before, during, or after military service	• Comparator: No sexual abuse history • Matched control: No • Adjustors: N/A	• Results for relevant outcomes: The "younger age, greater combat exposure, and attack after military service were related to increased PTSD severity" (p. 1,350). • Quality assessment score: 2
Cloitre, Scarvalone, and Difede, 1997 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study • Study aims: To "assess not only the diagnostic status, but also the self and interpersonal functioning of women with a history of both child and adulthood assault compared to women who were assaulted only in adulthood and to	• Population: Women who reported a history of sexual abuse in childhood and at least one sexual assault in adulthood, women who reported at least one sexual assault in adulthood, and a control group who reported no history of childhood abuse or adult assault • Sample size: 56 • Mean age/range (years): 33.5, 18–65 • Gender (% female): 100%	• Type: Sexual assault, child sexual assault • Setting: NR • Timing: Adulthood	• PTSD measure: SCID I and II • Comparator: Women who experienced no prior assault. "Exclusion criteria for all study participants were current or past history of schizophrenia, current or past history of organic brain syndrome, presence of eating disorder or borderline personality disorder, and acute suicidal risk" (p. 439). • Matched control: No • Adjustors: N/A	• Total sample: 56 • Results for relevant outcomes: Compared with the control group, the retraumatization group "had higher rates of PTSD, χ^2 (1, N = 36) = 17.01"~ c .001. Similarly, when compared with the control group, the adult-only assault group "was also more likely to have higher rates of PTSD, χ^2 (1, N = 26) = 11.74, p = < .001" (p. 444). • Quality assessment score: 3

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
women who were never assaulted" (p. 439).	• Race/ethnicity: 76% White			
Copeland et al., 2011 • Funding: NR • Country of study: Sweden • Study design: Case-control • Study aims: To "test psychiatric mediators and genetic moderators of the effect of sexual abuse on later alcohol dependence. The study also tested differences between alcohol dependent women with or without a history of sexual abuse on variables that might affect treatment planning" (p. 183).	• Population: Women "seeking treatment for alcohol dependence at two Stockholm, Sweden outpatient clinics" from December 2003 to April 2007 (p. 185). • Sample size: 389 • Mean age/range (years): 45.1 • Gender (% female): 100% • Race/ethnicity: Northern European	• Type: Sexual assault, sexual harassment • Setting: NR • Timing: Lifetime	• PTSD measure: SCID • Comparator: All females presenting for routine gynecological health examinations were given study information and asked if they could be contacted later. • Matched control: No • Adjustors: NR	• Total sample: 369 • Results for relevant outcomes: "The association of sexual abuse with alcohol dependence was limited to the most severe category of sexual abuse involving anal or vaginal penetration. Of the five psychiatric disorders tested, anxiety, anorexia nervosa, and bulimia met criteria as potential mediators of the abuse-alcohol dependence association. Severe sexual abuse continued to have an independent effect on alcohol dependence status even after accounting for these potential mediators. None of the candidate genetic markers moderated the association between sexual abuse and alcohol dependence. Of alcohol dependent participants, those with a history of severe abuse rated higher on alcoholism severity, and psychiatric comorbidities," including PTSD (p. 183). • Quality assessment score: 4
Davis et al., 2020 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study	• Population: 18-to-20–year-olds from a cohort of individuals recruited from middle schools in Southern California • Sample size: NR	• Type: Sexual assault, sexual harassment • Setting: NR • Timing: 12 months or	• PTSD measure: Primary Care PTSD scale (PC-PTSD-5) • Comparator: Respondents who had a low sexual violence score and low depression and anxiety scores • Matched control: No • Adjustors: Participant sex, race/ethnicity, age, mother's	• Total sample: 2,416 • Results for relevant outcomes: People who experienced sexual violence in the past year without concurrent depression or anxiety symptoms had higher counts of PTSD symptoms

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
• Study aims: To study the effects of co-occurring sexual violence and depression or anxiety symptoms on youths and their functioning one year later	• Mean age/range (years): NR • Gender (% female): NR • Race/ethnicity: NR	less before assessment	education level, college status, and sexual orientation	than those who had experienced neither. People who experienced both sexual violence and depression and anxiety had the highest PTSD symptom counts. • Quality assessment score: 5
Dunmore, Clark, and Ehlers, 1999 • Funding: The Medical Research Council of the United Kingdom, the Wellcome Trust • Country of study: United States • Study design: Retrospective cohort study • Study aims: To identify "the cognitive factors . . . associated with the development" and persistence of PTSD after physical or sexual assault (p. 811).	• Population: "Individuals who had experienced a physical or sexual assault as an adult" (p. 811). • Sample size: 92 • Mean age/range (years): NR • Gender (% female): NR • Race/ethnicity; NR	• Type: Sexual assault • Setting: Own home, public place, empty street or secluded alley, and any other location • Timing: 3 months or less before assessment	• PTSD measure: PTSD Symptom Scale • Comparator: Physical assault victims • Matched control: No • Adjustors: NA	• Total sample: 92 • Results for relevant outcomes: "Cognitive factors associated with both onset and maintenance of PTSD were: appraisal of aspects of the assault itself; . . . appraisal of the sequelae of the assault; . . . dysfunctional strategies . . . and global beliefs impacted by assault. Cognitive factors that were associated only with the onset of PTSD were: detachment during assault; failure to perceive positive responses from others and mental undoing" (p. 809). • Quality assessment score: 5
Faravelli et al., 2004 • Funding: NR • Country of study: Italy • Study design: Retrospective cohort study • Study aims: To assess "the psychopathological consequences of a single rape in adult women who did not experience any form of sexual abuse during childhood or	• Population: Young "women who were the victims of rape as decided by a court of law" and "women in the general population who had experienced a life-threatening trauma (except any form of sexual abuse)" (p. 1,483). • Sample size: 72	• Type: Sexual assault • Setting: NR • Timing: 4 to 9 months before assessment	• PTSD measure: Florence Psychiatric Interview • Comparator: Women "in the general population who had experienced a life-threatening trauma (except any form of sexual abuse)" (p. 1,483). • Matched control: Yes, sociodemographic • Adjustors: NR	• Total sample: 72 • Results for relevant outcomes: "Compared with the nonraped group, the following psychiatric diagnoses were found with significantly greater prevalence among the raped women: PTSD (*N* = 38, 95%, versus *N* = 15, 47%)" (pp. 1,483–1,484). • Quality assessment score: 4

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
adolescence and where the occurrence of rape was established with certainty by police" (p. 1,483).	• Mean age/range (years): 34.5 • Gender (% female): 100% • Race/ethnicity: NR			
Gilboa-Schechtman and Foa, 2001 (Study 1) • Funding: National Institute of Mental Health • Country of study: United States • Study design: Prospective cohort study • Study aims: To compare patterns of recovery among victims of sexual compared with non-sexual assault	• Population: Female victims of sexual or nonsexual assault within the last month who were literate in English and had no prior diagnosis or presence of organic mental disorder • Sample size: 157 • Mean age/range (years): 30.1 • Gender (% female): 100% • Race/ethnicity: 57% African American; 43% White	• Type: Sexual assault • Setting: NR • Timing: 30 days or less before assessment	• PTSD measure: DSM-III diagnosis using Impact of Event Scale, interviewer rating of severity • Comparator: Victims of nonsexual assault with no presence of prior diagnosis of mental disorder • Matched control: No • Adjustors: N/A	• Total sample: 101 • Results for relevant outcomes: "The magnitude of the emotional reaction to sexual assault was larger than the magnitude of the emotional reaction to nonsexual assault" in PTSD recently after exposure (p. 396). Delayed peak reaction was associated with greater severity of later PTSD. • Quality assessment score: 5
Gilboa-Schechtman and Foa, 2001 (Study 2) • Funding: National Institute of Mental Health • Country of study: United States • Study design: Prospective cohort study • Study aims: To compare patterns of recovery among victims of sexual compared with non-sexual assault	• Population: Female victims of sexual or nonsexual assault within the last month who were literate in English and had no prior diagnosis or presence of organic mental disorder • Sample size: 108 • Mean age/range (years): 31.5 • Gender (% female): 100% • Race/ethnicity: 29% African American; 68% White; 3% Hispanic	• Type: Sexual assault • Setting: NR • Timing: On average, 11 days before assessment	• PTSD measure: PTSD Symptom Scale, interview • Comparator: Victims of nonsexual assault with no presence of prior diagnosis of mental disorder • Matched control: No • Adjustors: N/A	• Total sample: 108 • Results for relevant outcomes: "The magnitude of the emotional reaction to sexual assault was larger than the magnitude of the emotional reaction to nonsexual assault" in PTSD (p. 396). This was true both recently after exposure and 3 months after exposure. • Quality assessment score: 6

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
Kang et al., 2005 • Funding: NR • Country of study: United States • Study design: Case control • Study aims: To evaluate "the impact of reported sexual trauma during this deployment on the risk of [PTSD] after the war" (p. 191).	• Population: Gulf War veterans and non–Gulf War veterans • Sample size: 11,441 • Mean age/range (years): 39.1 • Gender (% female): 100% • Race/ethnicity: 46.7% White	• Type: Sexual assault, sexual harassment • Setting: Military • Timing: While in the Persian Gulf	• PTSD measure: PCL • Comparator: Participants not exposed to sexual assault or sexual harassment • Matched control: Yes • Adjustors: N/A	• Total sample: 11,441 • Results for relevant outcomes: "Despite the much less frequent reporting of both sexual harassment and assault among males compared with females, the association with PTSD was significant among both genders" (p. 193.) "The adjusted odds ratio (aOR) for PTSD associated with a report of sexual assault was 5.41 (95% confidence interval [CI], 3.19–9.17) in female veterans and 6.21 (95% CI, 2.26–17.04) in male veterans" (p. 191). • Quality assessment score: 3
Layman, Gidycz, and Lynn, 1996 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study • Study aims: To "examine differences between acknowledged and unacknowledged rape victims with respect to situational factors, global psychopathology, psychological defenses, dissociation, self-blame, sexual functioning, [PTSD], history of childhood sexual assault, and a	• Population: "[C]ollege women from introductory psychology classes at Ohio University" (p. 124). • Sample size: 591 • Mean age/range (years): 19.2 • Gender (% female): 100% • Race/ethnicity: 94% White; 4% Black; 1% Hispanic; 1% Asian or Pacific Islander	• Type: Sexual assault • Setting: NR • Timing: Adulthood	• PTSD measure: PTSD/MMPI-2: PTSD items of the Minnesota Multiphasic Personality Inventory; PTSD/SCID: PTSD module of the SCID • Comparator: Non–sexual assault victims • Matched control: No • Adjustors: N/A	• Total sample: 83 • Results for relevant outcomes: "[A]cknowledged victims reported more PTSD symptoms than unacknowledged victims, who in turn reported more symptoms than nonvictims. Two rape victims (one unacknowledged, one acknowledged) met the criteria of the third revised *Diagnostic and Statistical Manual of Mental Disorders* . . . for a current diagnosis of PTSD (3% of rape victims); no victims met criteria for a past diagnosis of PTSD. PTSD symptoms were found to decrease over time, with victims reporting an average of 7.2 symptoms immediately after the assault

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
depressive attributional style" (p. 124).				to 3.6 reported during the past month" (p. 129). • Quality assessment score: 3
Lombardo and Pohl, 1997 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study • Study aims: To determine "the lifetime prevalence of sexual abuse and its association with adult psychopathology in a female psychiatric outpatient population" (p. 534).	• Population: Female adult psychiatric outpatients who did not have past or current psychotic symptoms • Sample size: 38 • Mean age/range (years): 43.7 • Gender (% female): 100% • Race/ethnicity: 76% White; 24% African American	• Type: Sexual assault • Setting: NR • Timing: Lifetime	• PTSD measure: The SCID, Patient Version, 5-point self-rating scale based on DSM-III-R criteria • Comparator: Nonsexual assault victims, "[p]resence or absence of sexual abuse history was not a criterion for participation" (p. 534). • Matched control: No • Adjustors: N/A	• Total sample: 38 • Results for relevant outcomes: "Anxiety disorders and affective disorders were the most frequent axis I disorders among the sexually abused patients. No significant relationship was found between abuse and severity of PTSD scores" (p. 534). • Quality assessment score: 3
Maguen et al., 2012 • Funding: DoD Concept Award Grant, VA Health Sciences Research and Development Career Development Award, and National Institutes of Health grant • Country of study: United States • Study design: Retrospective cohort study • Study aims: To examine "correlates of [PTSD], including [MST], in Iraq and Afghanistan veterans. [The study authors] also compared mental health comorbidities by	• Population: OEF/OIF veterans • Sample size: 213,803 • Mean age/range (years): 16–71 • Gender (% female): NR • Race/ethnicity: 49% White, 25% Black, 15% Hispanic, 11% other (women); 66% White, 12% Black, 15% Hispanic, 7% other (men)	• Type: MST • Setting: Military • Timing: NR	• PTSD measure: ICD-9 Clinical Modification (ICD-9-CM) codes (309.81) • Comparator: Veterans who received a PTSD diagnosis but did not have a history of MST • Matched control: No • Adjustors: N/A	• Total sample: 74,493 • Results for relevant outcomes: "Female OEF/OIF veterans with PTSD (*n* = 7,255) were more likely than their male counterparts to have clinical presentations of comorbid depression, other anxiety disorders, and eating disorders. Of women with PTSD, 70% also were diagnosed with depression. . . . Among female OEF/OIF veterans with PTSD, MST was significantly associated with comorbid depression, substance use, anxiety, alcohol use, and eating disorders. Male OEF/OIF veterans with PTSD and a history of MST were more likely to have clinical presentations of comorbid

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
gender among veterans with PTSD, with and without MST" (p. e61).				depression, and substance use, but did not differ on the other comorbid diagnoses" (p. e64). • Quality assessment score: 3
McCallum et al., 2015 • Funding: NR • Country of study: United States • Study design: Prospective cohort study • Study aims: To examine sexual stressors causing PTSD issues with a comprehensive, longitudinal lens among the National Guard	• Population: "National Guard soldiers included two brigade combat teams deployed to Iraq (2006–2007) and Afghanistan (2007–2008)" (p. 308). • Sample size: 749 • Mean age/range (years): 30.0, 18–59 • Gender (% female): 11.4% • Race/ethnicity: 86% Caucasian	• Type: MST • Setting: Military • Timing: 2006–2008	• PTSD measure: PCL • Comparator: NR • Matched control: No • Adjustors: NR	• Total sample: 528 • Results for relevant outcomes: "[R]eports of sexual harassment during deployment was associated with greater postdeployment [posttraumatic stress symptoms] (p = .018) and depression symptoms (p = .016)" (p. 310). • Quality assessment score: 6
Messman-Moore, Brown, and Koelsch, 2005 • Funding: Committee for Faculty Research and the College of Arts & Sciences at Miami University • Country of study: United States • Study design: Prospective cohort study • Study aims: To examine "the role of two clusters of symptoms in relation to sexual revictimization" (p. 255).	• Population: Women "attending a midsized public university in the Midwest" (p. 255). • Sample size: 330 • Mean age/range (years): 19.2, 18–22 • Gender (% female): 100% • Race/ethnicity: 90% White; 1.8% Black; 0.6% Hispanic; 1.2% Native American; 2.1% Asian American; 2.4% biracial; 0.9% other	• Type: Sexual assault • Setting: NR • Timing: Adulthood, and in the past 10 weeks	• PTSD measure: Trauma Symptom Inventory • Comparator: Women who experienced no sexual victimization before and during the study • Matched control: No • Adjustors: NR	• Total sample: 254 • Results for relevant outcomes: Both [posttraumatic symptomatology] and [self-dysfunction] were associated with a history of child and adult sexual victimization" (p. 253). • Quality assessment score: 5
Millegan, 2016 • Funding: DoD	• Population: Male service members who had not	• Type: Sexual assault,	• PTSD measure: PCL-C, positive screen (those scoring enough to meet DSM-IV-TR criteria for PTSD)	• Total sample: 37,711; 30,059 [multiple time points]

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
• Country of study: United States • Study design: Retrospective cohort study • Study aims: To investigate the "association of recent sexual trauma (last 3 years) with health and occupational outcomes" among men in the military (p. 132).	separated or retired before 2004 • Sample size: 75,555 • Mean age/range (years): 35.8, 18–69 • Gender (% female): 0% • Race/ethnicity: 75% White; 8.3% Black; 16.7% other	sexual harassment • Setting: NR • Timing: 3 years or less before assessment	• Comparator: Military men who screened negative for sexual assault and sexual harassment in the past 3 years • Matched control: No • Adjustors: "[B]irth year, education status, race and ethnicity, marital status, previous sexual trauma, recent deployment experience, military pay grade, military component status, service branch, military occupation, heavy alcohol use, problem drinking, tobacco use, body mass index, and physical and mental component summary scores" (p. 138).	• Results for relevant outcomes: "In multivariable models, sexual harassment or assault, respectively, was associated with . . . [PTSD: adjusted odds ratio (AOR)] = 2.50, 95% CI [1.87, 3.33], AOR = 6.63, 95% CI [3.65, 12.06]" (p. 132). • Quality assessment score: 6
Ouimette et al., 1996 • Funding: VA Medical Research Service Award • Country of study: United States • Study design: Retrospective cohort study • Study aims: To examine "trauma characteristics and symptoms related to a dual diagnosis of PTSD–alcohol abuse in women who served in the military or volunteered in service organizations during the Vietnam Era. . . . [The authors] sought to improve on prior research [about veterans with PTSD and alcohol abuse by: using] a structured interview for PTSD	• Population: Women "who served overseas during the Vietnam era (1964–1975)" (p. 337). • Sample size: 55 • Mean age/range (years): 48.5, 37–62 • Gender (% female): 100% • Race/ethnicity: 96% Caucasian; 2% African American; 2% Native American/Alaskan	• Type: Sexual assault, child sexual assault, MST • Setting: NR • Timing: Adulthood	• PTSD measure: Life Stressor Checklist, the Women's Wartime Exposure Scale–Revised, Mississippi Scale for Combat-Related PTSD, the Dissociative Experiences Scale, SCID-II, the Michigan Alcoholism Screening Test • Comparator: N/A • Matched control: NR • Adjustors: NR	• Total sample: 53 • Results for relevant outcomes: Women with PTSD and alcohol abuse were more likely to have experienced sexual assault as an adult and had "a particularly severe level of symptoms relative to women with only PTSD and controls" (p. 335). • Quality assessment score: 3

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
[diagnoses, using two] instruments designed for assessing trauma . . . that sensitively measure a range of relevant stressors during military service and over the lifespan," and expanding the sample to individuals not seeking help" (p. 336).				
Rosellini et al., 2017 • Funding: DoD, Defense Health Program • Country of study: United States • Study design: Retrospective cohort study • Study aims: "To examine associations of administratively recorded sexual assault victimization during military service with subsequent mental health and negative career outcomes among US Army women controlling for nonrandom victimization exposure" (p. 732).	• Population: Female U.S. Army soldiers serving at some point between 2004 and 2009. • Sample size: 25,428 • Mean age/range (years): NR • Gender (% female): 100% • Race/ethnicity: NR	• Type: Sexual assault • Setting: Military, active duty • Timing: 12 or less months before assessment	• PTSD measure: Treatment-based measurement based on ICD-9-CM codes, including any PTSD treatment (308.0–308.9 and 309.81), special PTSD treatment, and mean number of treatment days. Results for any PTSD treatment are reported. • Comparator: Matched control group without any record of sexual assault victimization. • Matched control: Yes, nearest-neighbor propensity score matching of five controls to every one case on previously documented predictors of sexual victimization. • Adjustors: Control variables selected from a list of 741 historical administrative data system variables using a machine learning algorithm. These included sociodemographic, army career, clinical, prior crime experiences, and contextual factors.	• Total sample: 25,428 • Results for relevant outcomes: "Women with administratively recorded sexual assault had significantly elevated odds ratios (ORs) . . . of [PTSD] treatment (any; OR = 6.3 . . . specialty, OR = 7.7; [and inpatient treatment,] OR = 6.8)" (p. 732). • Quality assessment score: 5
Roth et al., 1997 • Funding: National Institute of Mental Health	• Population: Participants reported experiencing sexual abuse	• Type: Sexual assault • Setting: NR • Timing: Lifetime	• PTSD measure: SCID-patient version, Diagnostic Interview Schedule, Structured Interview for Disorders of Extreme Stress	• Total sample: 195 • Results for relevant outcomes: Sexually abused women, especially those who also experienced physical

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
• Country of study: United States • Study design: Retrospective cohort study • Study aims: To assess "which factors (i.e., chronicity, age of onset, and type of abuse) significantly increase the risk of a [complex PTSD] diagnosis" (p. 542).	• Sample size: 195 • Mean age/range (years): 33.2, 12–75 • Gender (% female): 91% (sexual assault group) • Race/ethnicity: 89% White; 9% Black; 2% other		• Comparator: Physical assault victims • Matched control: No • Adjustors: NR	abuse, had a higher risk of developing [complex PTSD], although [complex PTSD] symptoms occurred at a high base rate among physically abused women" (p. 539). In subgroup analysis, sex abuse and sexual/physical abuse were significantly associated with complex PTSD in women but not men. • Quality assessment score: 3
Tannahill et al., 2020 • Funding: VA • Country of study: United States • Study design: Retrospective cohort study • Study aims: To "assess if men and women veterans have different rates of PTSD and depression diagnoses, and suicidal ideation/behavior following MST" (p. 216).	• Population: VHA-enrolled OEF and OIF veterans • Sample size: 435,690 • Mean age/range (years): 30.8 (women); 32.1 (men) • Gender (% female): NR • Race/ethnicity: (Women) 56.1% White, 26.9% Black, 10.6% Hispanic; (Men) 62.6% White, 19.2% Black, 11.8% Hispanic	• Type: MST • Setting: Military • Timing: When participants were in the military	• PTSD measure: ICD-9-CM codes (309.81) classified into Healthcare Utilization and Costs Project Clinical Classification Software categories • Comparator: VHA-enrolled OEF and OIF veterans who screened negative for MST in adulthood • Matched control: No • Adjustors: "MST, gender, age, race, military branch, combat exposure, and the interaction of MST and gender" (p. 217).	• Total sample: 435,690 • Results for relevant outcomes: "Women with MST had a larger increased risk for a PTSD diagnosis (predicted probability = 0.56, 95% confidence interval [CI] [0.56, 0.56]) and comparable risk for a depression diagnosis (predicted probability = 0.63, 95% CI [0.63, 0.64]) compared to men with MST" (p. 215). • Quality assessment score: 8
Thompson et al., 2003 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study • Study aims: "Three hypotheses were tested: (1) the sexual trauma groups will exhibit significantly	• Population: Female victims of childhood sexual abuse; rape; and childhood sexual abuse and rape • Sample size: 97 • Mean age/range (years): 38.1, 20–55 • Gender (% female): 100% • Race/ethnicity: NR	• Type: Sexual assault, child sexual abuse • Setting: NR • Timing: Lifetime	• PTSD measure: Modified PTSD Symptom Scale–Self-Report • Comparator: Females "who had not experienced childhood sexual or physical abuse or rape" (p. 36). • Matched control: No • Adjustors: NR	• Total sample: 97 • Results for relevant outcomes: "Rates of PTSD diagnosis were 6–7 times greater in the three trauma groups than in the control group" (p. 37). • Quality assessment score: 4

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
higher levels of psychopathology than the control group; (2) women who report childhood sexual abuse will exhibit significantly higher levels of psychopathology than women who were raped in adulthood; and (3) women who experienced both rape and childhood sexual abuse will show significantly higher levels of psychopathology than women who experienced either of these conditions alone" (p. 35).				
Tiet et al., 2015 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study • Study aims: To examine whether "gender and military sexual assault (MSA) were associated with psychiatric severity differences at initiation of treatment for [PTSD] and whether MSA and gender predicted psychiatric treatment outcomes" (p. 92).	• Population: Patients entering treatment at one of seven VA PTSD specialty intensive treatment programs at five sites across the United States. "Participants were excluded if they (a) went on to receive treatment for less than 15 days, (b) had had cognitive impairment that precluded informed consent, (c) had been active duty military personnel, or (d) were later discharged directly	• Type: MST • Setting: Military • Timing: While participants were in the military	• PTSD measure: PCL-Civilian version • Comparator: Patients entering treatment at one of seven VA PTSD specialty intensive treatment programs without any military sexual assault • Matched control: No • Adjustors: Gender, MSA, age, race, marital status, hostile fire, treatment length of stay	• Total sample: 574 • Results for relevant outcomes: "MSA was not consistently associated with worse problems at intake. . . . patients who experienced MSA did not have worse treatment outcomes than those who did not experience MSA" (p. 95). • Quality assessment score: 4

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
	to another residential or inpatient treatment program" (p. 93). • Sample size: 1,107 • Mean age/range (years): NR • Gender (% female): 13% • Race/ethnicity: NR			
Valentiner et al., 1996 • Funding: National Institute of Mental Health • Country of study: United States • Study design: Prospective cohort study • Study aims: To examine "PTSD severity in female victims of assault 3 months after an assault" (p. 455).	• Population: Female sexual assault victims • Sample size: 215 • Mean age/range (years): 30.4, 17–65 • Gender (% female): 100% • Race/ethnicity: 68% Black; 29% White; 3% other	• Type: Sexual assault • Setting: NR • Timing: Less than 2 weeks before assessment	• PTSD measure: PTSD Symptom Scale • Comparator: Nonsexual assault victims • Matched control: No • Adjustors: NA	• Total sample: 129 • Results for relevant outcomes: Sexual assault victims showed higher levels of Wishful Thinking (coping strategy) and worse PTSD severity three months after the assault compared to victims of non-sexual assault. • Quality assessment score: 4

NOTE: BDI = Beck Depression Inventory. CAPS = Clinician-Administered Posttraumatic Stress Disorder Scale. CM = clinical modification. DoD = U.S. Department of Defense. DSM = *Diagnostic and Statistical Manual of Mental Disorders*. ICD-9 = *International Classification of Diseases*, 9th revision. MMPI = Minnesota Multiphasic Personality Inventory. MSA = military sexual assault. MST = military sexual trauma. NR = not reported. OEF = Operation Enduring Freedom. OIF = Operation Iraqi Freedom. OND = Operation New Dawn. PCL= Posttraumatic Stress Disorder Checklist. PTSD = posttraumatic stress disorder. SCID = Structured Clinical Interview for Diagnostic and Statistical Manual Disorders. VA = U.S. Department of Veterans Affairs. VHA = Veterans Health Administration.

Table B.4. Review 3: Associations Between Sexual Assault and Sexual Harassment and Depression (*n* = 22)

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
Arata, 1999 • Funding: University of South Alabama Research Council • Country of study: United States	• Population: Female undergraduates in an introductory psychology class who experienced different levels of victimization and nonvictims	• Type: Sexual assault, child sexual abuse • Setting: NR • Timing: Adulthood	• Depression measure: DSMIII-R, SCID–nonpatient edition • Comparator: Participants with no reported history of sexual victimization • Matched control: No	• Total sample: 92 • Results for relevant outcomes: No significant relationship between depression and revictimization was found. • Quality assessment score: 3

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
• Study design: Retrospective cohort study • Study aims: To explore "the role of repeated sexual victimization in producing increased risk for mental disorders" (p. 1).	• Sample size: 92 • Mean age/range (years): 24.0, 19–48 • Gender (% female): 100% • Race/ethnicity: 71% White; 17% Black; 2% Hispanic; 6% Asian; 3% other		• Adjustors: N/A	
Atkeson et al., 1982 • Funding: National Institute of Mental Health • Country of study: United States • Study design: Prospective cohort study • Study aims: To investigate "depressive symptoms in rape victims for 1 year following their assault" (p. 96).	• Population: "[F]emale rape victims initially seen at the Grady Memorial Hospital Rape Crisis Center in Atlanta, Georgia" (p. 97). • Sample size: 202 • Mean age/range (years): 25.6, 15–71 • Gender (% female): 100% • Race/ethnicity: 63% Black; 37% White	• Type: Sexual assault • Setting: NR • Timing: 2, 4, or 8 months previously	• Depression measure: BDI, Hamilton Psychiatric Rating Scale for Depression • Comparator: Women who were comparable with the victim participants in terms of age, race, and socioeconomic levels • Matched control: No • Adjustors: NR	• Total sample: 64 • Results for relevant outcomes: "Depressive symptoms were significantly higher in victims of rape than in nonvictim controls following the assault. By 4 months postrape, depressive symptoms in the victim group had diminished, and the victims were no longer significantly different from the nonvictim control group" (p. 96). • Quality assessment score: 3
Burnam et al., 1988 • Funding: National Institute of Mental Health • Country of study: United States • Study design: Retrospective cohort study • Study aims: To "examine the association between reported sexual assault and prevalence of nine	• Population: Households within two epidemiologic catchment areas in Los Angeles • Sample size: 864 • Mean age/range (years): 36.0 • Gender (% female): 82% • Race/ethnicity: 27% Hispanic	• Type: Sexual assault • Setting: • Timing: Lifetime	• Depression measure: Diagnostic Interview Schedule (DIS) for DSM-III using a computer scoring algorithm to generate a diagnosis of major depression • Comparator: Respondents who reported that they had been sexually assaulted in their lifetime • Matched control: Yes; cases were probability-matched to controls based	• Total sample: 864 • Results for relevant outcomes: Subjects who had been assaulted were had a relative risk of major depression of 2.4 compared with subjects who had not been assaulted. No differences in association for major depression were detected by gender or race. • Quality assessment score: 4

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
specific mental disorders" and identify predictors of later mental disorder among victims (p. 843).			on gender, age, ethnicity, and education level. • Adjustors: Groups were effectively adjusted through matching. They were matched on gender, age, ethnicity, and education level.	
Clancy et al., 2006 • Funding: National Institute of Mental Health, National Cancer Institute, VA Merit Awards • Country of study: United States • Study design: Retrospective cohort study • Study aims: To "examine the prevalence of traumatic events, in addition to combat, in a veteran population and to determine how these other traumatic events may be related to levels of psychological symptom severity" (p. 1347).	• Population: Male "veterans who were diagnosed with PTSD [during an evaluation] at a VA Medical Center" specialty outpatient PTSD clinic (p. 1346). • Sample size: 422 • Mean age/range (years): 54.0 • Gender (% female): 0% • Race/ethnicity: 41% White; 55% African American; 1% American Indian; 2% Hispanic; 1% Other	• Type: Childhood sexual abuse, sexual abuse as an adult • Setting: Multiple, including military • Timing: Before, during, or after military service	• Depression measure: BDI • Comparator: N/A • Matched control: No • Adjustors: N/A	• Total sample: 422 • Results for relevant outcomes: "[A]ttack after military service was associated with increased depressive symptoms" (p. 1350). • Quality assessment score: 2
Cloitre, Scarvalone, and Difede, 1997 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study	• Population: Women who reported a history of sexual abuse in childhood and at least one sexual assault in adulthood, women who reported at least one sexual assault in	• Type: Sexual assault, child sexual abuse • Setting: NR • Timing: Adulthood	• Depression measure: SCID I and II • Comparator: Women who reported no prior history of assault. "Exclusion criteria for all study participants were current or past history of schizophrenia, current or	• Total sample: 56 • Results for relevant outcomes: Compared with the control group, the retraumatization group "had higher rates of . . . major depressive disorder, χ^2 = (1, N = 36) = 8.22, p = < .004. Similarly, when compared to the [control]

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
• Study aims: To "assess not only the diagnostic status, but also the self and interpersonal functioning of women with a history of both child and adulthood assault compared to women who were assaulted only in adulthood and to women who were never assaulted" (p. 439).	adulthood, and a control group who reported no history of childhood abuse or adult assault • Sample size: 56 • Mean age/range (years): 33.5, 18–65 • Gender (% female): 100% • Race/ethnicity: 76% White		past history of organic brain syndrome, presence of eating disorder or borderline personality disorder, and acute suicidal risk" (p. 439). • Matched control: No • Adjustors: N/A	group, the [adult only assault] group was also more likely to have higher rates of . . . major depression, χ^2 (1, N = 26) = 5.43, p < .002" (p. 444). • Quality assessment score: 3
Ellis, Atkeson, and Calhoun, 1981 • Funding: National Institute of Mental Health • Country of study: United States • Study design: Retrospective cohort study • Study aims: To examine long-term effects of rape in victims who had been assaulted at least 1 year previously	• Population: Female "victims from the metropolitan Atlanta area who had been raped at least 1 year previously" (p. 263). • Sample size: 53 • Mean age/range (years): 92% were in their 20s or 30s • Gender (% female): 100% • Race/ethnicity: 93% White	• Type: Sexual assault • Setting: NR • Timing: 1 year or more before assessment	• Depression measure: BDI • Comparator: Women "recruited through bulletins posted at a YWCA and human service agencies" (p. 263). • Matched control: Yes, control was matched but not paired on age, race, socioeconomic level, and marital status • Adjustors: NR	• Total sample: 53 • Results for relevant outcomes: "Victims were significantly more depressed than . . . controls" (p. 263). "Nineteen percent of victims were severely depressed, compared to 8% of controls, and 26% of victims were moderately depressed, compared to 15% of controls" (p. 264). • Quality assessment score: 4
Faravelli et al., 2004 • Funding: NR • Country of study: Italy • Study design: Retrospective cohort study	• Population: Young "women who were the victims of rape as decided by a court of law" and "women in the general population who had experienced a life-threatening trauma	• Type: Sexual assault • Setting: NR • Timing: 4 to 9 months before assessment	• Depression measure: Florence Psychiatric Interview • Comparator: Women "in the general population who had experienced a life-threatening trauma (except	• Total sample: 72 • Results for relevant outcomes: "Compared with the nonraped group, the following psychiatric diagnoses were found with significantly greater prevalence among the raped women: major

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
• Study aims: To assess "the psychopathological consequences of a single rape in adult women who did not experience any form of sexual abuse during childhood or adolescence and where the occurrence of rape was established with certainty by police" (p. 1483).	(except any form of sexual abuse)" (p. 1483). • Sample size: 72 • Mean age/range (years): 34.5 • Gender (% female): 100% • Race/ethnicity: NR		any form of sexual abuse)" (p. 1483). • Matched control: Yes, sociodemographic • Adjustors: NR	depression (N = 30, 75%, versus N = 14, 44%)" (pp. 1483–1484). • Quality assessment score: 4
Frank and Pazak Anderson, 1987 • Funding: National Institute of Mental Health • Country of study: United States • Study design: Prospective cohort study • Study aims: To address "three questions: (1) Do rape victims differ from matched nonvictimized controls with respect to prior history of mental disorders? (2) Does the complex of symptoms experienced by recent rape victims in the aftermath of an assault meet the	• Population: Female sexual assault victims referred to the Allegheny County Center for Victims of Violent Crime or Pittsburgh Action Against Rape • Sample size: 91 • Mean age/range (years): 23.4 • Gender (% female): 100% • Race/ethnicity: NR	• Type: Sexual assault • Setting: NR • Timing: Recent, undefined	• Depression measure: DIS • Comparator: Victim group referred a best friend who had not experienced sexual assault to be a control • Matched control: Yes, based on prior history of mental disorders • Adjustors: N/A	• Total sample: 91 • Results for relevant outcomes: Recent rape victims were found to be significantly more likely to meet criteria for major depressive disorder (38% vs. 16% z = 2.20, p < 0.05) • Quality assessment score: 3

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
criteria for any or several psychiatric disorders? (3) Does a past history of psychiatric problems increase the likelihood of meeting criteria for a full-fledged episode of depressive disorder, generalized anxiety disorder, or other syndromes in the immediate aftermath of an assault?" (p. 78).				
Gilboa-Schechtman and Foa, 2001 (Study 1) • Funding: National Institute of Mental Health • Country of study: United States • Study design: Prospective cohort study • Study aims: To compare patterns of recovery among victims of sexual compared with nonsexual assault	• Population: Female victims of sexual or nonsexual assault within the last month who were literate in English and had no prior diagnosis or presence of organic mental disorder • Sample size: 157 • Mean age/range (years): 30.1 • Gender (% female): 100% • Race/ethnicity: 57% African American; 43% White	• Type: Sexual assault • Setting: NR • Timing: 30 days or less before assessment	• Depression measure: BDI • Comparator: Victims of nonsexual assault with no presence of prior diagnosis of mental disorder • Matched control: No • Adjustors: N/A	• Total sample: 101 • Results for relevant outcomes: "The magnitude of the emotional reaction to sexual assault was larger than the magnitude of the emotional reaction to nonsexual assault" in depression (p. 396). This was true both recently after exposure and at 1 month after exposure. • Quality assessment score: 5
Gilboa-Schechtman, and Foa, 2001 (Study 2) • Funding: National Institute of Mental Health • Country of Study: United States	• Population: Female victims of sexual or nonsexual assault within the last month who were literate in English and had no prior diagnosis or	• Type: Sexual assault • Setting: NR • Timing: 3 months before assessment	• Depression measure: BDI • Comparator: Victims of nonsexual assault with no presence of prior diagnosis of mental disorder • Matched control: No • Adjustors: N/A	• Total sample: 108 • Results for relevant outcomes: "The magnitude of the emotional reaction to sexual assault was larger than the magnitude of the emotional reaction to nonsexual assault" in depression (p. 396).

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
• Study design: Prospective cohort study • Study aims: To compare patterns of recovery among victims of sexual compared with nonsexual assault	presence of organic mental disorder • Sample size: 108 • Mean age/range (years): 31.5 • Gender (% female): 100% • Race/ethnicity: 29% African American; 68% White; 3% Hispanic			This was true both recently after exposure and 3 months after exposure. • Quality assessment score: 6
Gross, Kroll-Desrosiers, and Mattocks, 2020 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study • Study aims: To determine "whether prenatal depression mediated the association between MST and postnatal depression" (p. 38).	• Population: Pregnant veterans • Sample size: 620 • Mean age/range (years): 33.2 • Gender (% female): 100% • Race/ethnicity: 60% White	• Type: MST • Setting: Military • Timing: During service	• Depression measure: Edinburgh Postnatal Depression Scale • Comparator: NR • Matched control: No • Adjustors: NR	• Total sample: 620 • Results for relevant outcomes: "MST was associated with higher pre- and postnatal symptoms of depression and [suicidal ideation]. Further, prenatal depression mediated the association between MST and postnatal depression (indirect effect [standard error] of harassment on postnatal depression through prenatal depression: 1.11 [0.26], $p < 0.001$; indirect effect [standard error] of assault on postnatal depression through prenatal depression: 1.50 [0.35] $p < 0.001$), even after for controlling for demographic variables and prenatal stress" (p. 38). • Quality assessment score: 8
Krahé and Berger, 2017 • Funding: German Research Foundation • Country of study: Germany • Study design: Prospective cohort study • Study aims: To "examine the longitudinal	• Population: First-year students in "different universities in the Federal States of Berlin and Brandenburg, Germany" (p. 148). • Sample size: NR • Mean age/range (years): NR • Gender (% female): NR • Race/ethnicity: NR	• Type: Other, categorical severity of sexual victimization • Setting: University • Timing: Since 14th birthday for baseline, within a year for follow-up	• Depression measure: Simplified BDI • Comparator: Respondents without any unwanted sexual contact since age 14 or in the previous year in either follow-up wave • Matched control: No • Adjustors: Controlled for gender and the "concurrent associations between the three constructs [sexual	• Total sample: 2,425 in Wave 1; 1,685 in Wave 2; 1,618 in Wave 3 • Results for relevant outcomes: The study "found that sexual victimization . . . significantly predicted depression 12 months later . . . and still had a significant indirect effect on depression levels 24 months later . . . [after] controlling for depression" at 12 months (p. 153). It also found that depression after initial assault

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
associations between sexual assault victimization and depression as an indicator of general psychological health" (p. 153).			victimization, self-esteem, depression], their stability over time, and the individual differences on the two constructs of depression and self-esteem" (p. 151).	mediated the relationship between victimization and revictimization. • Quality assessment score: 5
Maguen et al., 2012 • Funding: DoD Concept Award Grant, VA Health Sciences Research and Development Career Development Award, and National Institutes of Health grant • Country of study: United States • Study design: Retrospective cohort study • Study aims: To examine "correlates of [PTSD], including [MST], in Iraq and Afghanistan veterans. [The study authors] also compared mental health comorbidities by gender among veterans with PTSD, with and without MST" (p. e61).	• Population: OEF/OIF veterans • Sample size: 213,803 • Mean age/range (years): 16–71 • Gender (% female): NR • Race/ethnicity: 49% White, 25% Black, 15% Hispanic, 11% other (women); 66% White, 12% Black, 15% Hispanic, 7% other (men)	• Type: MST • Setting: Military • Timing: NR	• Depression measure: ICD-9 Clinical Modification (ICD-9-CM) codes (296.20–296.25, 296.30–296.35, 300.4, and 311) • Comparator: Veterans who received a PTSD diagnosis but did not have a history of MST • Matched control: No • Adjustors: N/A	• Total sample: 74,493 • Results for relevant outcomes: "Female OEF/OIF veterans with PTSD (*n* = 7,255) were more likely than their male counterparts to have clinical presentations of comorbid depression, other anxiety disorders, and eating disorders. Of women with PTSD, 70% also were diagnosed with depression. . . . Among female OEF/OIF veterans with PTSD, MST was significantly associated with comorbid depression, substance use, anxiety, alcohol use, and eating disorders. Male OEF/OIF veterans with PTSD and a history of MST were more likely to have clinical presentations of comorbid depression, and substance use, but did not differ on the other comorbid diagnoses" (p. e64). • Quality assessment score: 3
McCallum et al., 2015 • Funding: NR	• Population: "National Guard soldiers	• Type: MST • Setting: Military	• Depression measure: BDI-II • Comparator: NR	• Total sample: 528

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
• Country of study: United States • Study design: Prospective cohort study • Study aims: To examine sexual stressors causing PTSD issues with a comprehensive, longitudinal lens among the National Guard	included two brigade combat teams deployed to Iraq (2006–2007) and Afghanistan (2007–2008)" (p. 308). • Sample size: 749 • Mean age/range (years): 30.0, 18–59 • Gender (% female): 11.3% • Race/ethnicity: 86% Caucasian	• Timing: 2006–2008	• Matched control: No • Adjustors: NR	• Results for relevant outcomes: "[R]eports of sexual harassment during deployment was associated with greater postdeployment [posttraumatic stress symptoms] ($p = .018$) and depression symptoms ($p = .016$)" (p. 310). • Quality assessment score: 6
Millegan, 2016 • Funding: DoD • Country of study: United States • Study design: Retrospective cohort study • Study aims: To investigate the "association of recent sexual trauma (last 3 years) with health and occupational outcomes" among men in the military (p. 132).	• Population: Male service members who had not separated or retired before 2004 • Sample size: 75,555 • Mean age/range (years): 35.8, 18–69 • Gender (% female): 0% • Race/ethnicity: 75% White; 8.3% Black; 16.7% other	• Type: Sexual assault, sexual harassment • Setting: NR • Timing: 3 years or less before assessment	• Depression measure: PHQ-8 used to identify depression that met DSM-IV-TR criteria • Comparator: Military men who screened negative for sexual harassment and sexual assault in the past 3 years. • Matched control: No • Adjustors: "[B]irth year, education status, race and ethnicity, marital status, previous sexual trauma, recent deployment experience, military pay grade, military component status, service branch, military occupation, heavy alcohol use, problem drinking, tobacco use, body mass index, and physical and mental component summary scores" (p. 138).	• Total sample: 37,711; 30,059 [multiple time points] • Results for relevant outcomes: "In multivariable models, sexual harassment or assault, respectively, was associated with . . . [depression: adjusted odds ratio (AOR)] = 2.37, 95% CI [1.69, 3.33]" (p. 132). • Quality assessment score: 6
Rowe et al., 2009 • Funding: NR • Country of study: United States	• Population: Female veterans • Sample size: 232 • Mean age/range (years): 45.0	• Type: MST • Setting: Military • Timing: While participants	• Depression measure: BDI • Comparator: NR • Matched control: No • Adjustors: NR	• Total sample: 232 • Results for relevant outcomes: "MST-positive and MST-negative groups did not differ on BDI scores" (p. 392).

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
• Study design: Retrospective cohort study • Study aims: "[T]o (a) describe and compare the demographic characteristics, health behaviors, and psychological symptoms of female veterans who have experienced MST to those veterans who do not report this experience; and (b) examine the associations between psychological symptoms and health behaviors in this sample, stratified by MST status" (pp. 387–388).	• Gender (% female): 100% • Race/ethnicity: NR	were in the military		• Quality assessment score: 5
Rugulies et al., 2020 • Funding: Danish Working Environment Research Fund • Country of study: Denmark • Study design: Prospective cohort study • Study aims: The authors "studied onset of workplace sexual harassment and subsequent	• Population: Two cohorts composed of Danish workforce • Sample size: 16,628 • Mean age/range (years): 46.3 (cohort I); 46.7 (cohort II) • Gender (% female): 52.9% (cohort I); 53.3% (cohort II) • Race/ethnicity: NR	• Type: Sexual harassment • Setting: Workplace • Timing: 12 months or less before assessment	• Depression measure: Major Depression Inventory • Comparator: Participants who were at time 1 both free of a depressive disorder and not exposed to sexual harassment. • Matched control: No • Adjustors: NR	• Total sample: 16,628 • Results for relevant outcomes: "Onset of sexual harassment was associated with elevated depressive symptoms in 2014, both for harassment by non-workplace personnel (e.g., patients, estimate [B]: 1.61, 95% CI: 0.51–2.72, $p = 0.004$) and workplace personnel (e.g., supervisors, B: 3.85, 95% CI: 2.51–5.20, $p < 0.001$), after adjustment for depressive symptoms in 2012" (p. 21). • Quality assessment score: 7

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
risk of depressive symptoms and depressive disorder" (p. 21).				
Santiago et al., 1985 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study • Study aims: To investigate the long-term effects of sexual assault and the role played by factors characterizing the assault.	• Population: Rape victims who have been sexually assaulted at least 2 years before the study • Sample size: 145 • Mean age/range (years): 32.0, 20–60 • Gender (% female): 100% • Race/ethnicity: 91% Anglo; 6% Black 6%; 3% Hispanic	• Type: Sexual assault • Setting: NR • Timing: More than 2 years before assessment	• Depression measure: BDI • Comparator: "A control group matched for age, ethnicity, marital status, employment status, education, family income, primary work role, living arrangements, and past psychiatric history" (p. 1338). • Matched control: Yes, matched but not paired for age, ethnicity, marital status, employment, education, family income, primary work role, living arrangements, and past psychiatric history • Adjustors: N/A	• Total sample: 145 • Results for relevant outcomes: Rape victims had higher scores on the BDI than the control and women who had been subjected to prior sexual abuse scored significantly higher on measures of depression than those who who had no prior history. "[The authors] found no significant relationship between most rape situation variables and the psychological assessment of women following rape" (p. 1340) • Quality assessment score: 4
Sørbø et al., 2014 • Funding: Norwegian Ministry of Health and the Ministry of Education and Research • Country of study: Norway • Study design: Prospective cohort study • Study aims: "[T]o investigate the association between different types of adult abuse, emotional, sexual and	• Population: Data from the Norwegian Mother and Child Cohort Study, pregnancy cohort of pregnant women across Norway, singleton pregnancies • Sample size: 90,700 • Mean age/range (years): NR • Gender (% female): 100% • Race/ethnicity: NR	• Type: Sexual assault • Setting: NR • Timing: 12 months or less before assessment	• Depression measure: Edinburgh Postnatal Depression Scale (EDS-5), four out of the five items (research version) • Comparator: Women who did not experience adult abuse, or experienced physical or emotional abuse • Matched control: No • Adjustors: "[A]ge, parity, civil status, child abuse, education, social support, and depression prior to pregnancy" (p. 1).	• Total sample: 49,201 • Results for relevant outcomes: All types of sexual abuse were strongly associated with postpartum depression. Stronger associations were detected when sexual abuse was paired with emotional abuse. • Quality assessment score: 4

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
physical, as singular or combined exposures, and [postpartum depression]" (p. 2).				
Tannahill et al., 2020 • Funding: VA • Country of study: United States • Study design: Retrospective cohort study • Study aims: To "assess if men and women veterans have different rates of PTSD and depression diagnoses, and suicidal ideation/behavior following MST" (p. 216).	• Population: VHA-enrolled OEF and OIF veterans • Sample size: 435,690 • Mean age/range (years): 30.8 (women); 32.1 (men) • Gender (% female): NR • Race/ethnicity: (Women) 56.1% White, 26.9% Black, 10.6% Hispanic; (Men) 62.6% White, 19.2% Black, 11.8% Hispanic	• Type: MST • Setting: Military • Timing: While participants were in the military	• Depression measure: ICD-9-CM codes (309.81) classified into Healthcare Utilization and Costs Project Clinical Classification Software categories • Comparator: VHA-enrolled OEF and OIF veterans who screened negative for MST in adulthood • Matched control: No • Adjustors: N/A	• Total sample: 435,690 • Results for relevant outcomes: "Women with MST had a . . . comparable risk for a depression diagnosis (predicted probability = 0.63, 95% CI [0.63, 0.64]) compared to men with MST" (p. 215). • Quality assessment score: 8
Tiet et al., 2015 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study • Study aims: To examine whether "gender and military sexual assault (MSA) were associated with psychiatric severity differences at initiation of treatment for [PTSD] and	• Population: Patients entering treatment at one of seven VA PTSD specialty intensive treatment programs at five sites across the United States. "Participants were excluded if they (a) went on to receive treatment for less than 15 days, (b) had had cognitive impairment that precluded informed consent, (c) had been active duty military personnel, or (d) were later	• Type: MST • Setting: Military • Timing: While participants were in the military	• Depression measure: CES-D • Comparator: NR • Matched control: No • Adjustors: Male, MSA, baseline, age, White, marital status, hostile fire, and treatment length of stay.	• Total sample: 574 • Results for relevant outcomes: "MSA was not consistently associated with worse problems at intake. . . . [P]atients who experienced MSA did not have worse treatment outcomes than those who did not experience MSA" (p. 95). • Quality assessment score: 4

Study Details	Population	Exposure	Measures, Controls, and Adjusters	Results
whether MSA and gender predicted psychiatric treatment outcomes" (p. 92).	discharged directly to another residential or inpatient treatment program" (p. 93). • Sample size: 1,107 • Mean age/range (years): 13% • Gender (% female): NR • Race/ethnicity: NR			
Walker, Archer, and Davies, 2005 • Funding: N/A • Country of study: United Kingdom • Study design: Retrospective cohort study • Study aims: To investigate the effects of rape on a non-clinical sample . . . by comparing them on standard tests with a control group, who had no prior history of sexual assault" (p. 446).	• Population: Male victims of sexual assault and a control group, with no history of sexual assault, to match the survivors on demographic variables • Sample size: 80 • Mean age/range (years): 34.2 • Gender (% female): 0% • Race/ethnicity: 100% White	• Type: Sexual assault • Setting: NR • Timing: NR	• Depression measure: The General Health Questionnaire • Comparator: White males, with no prior sexual assault history, and are matched to the victim group on demographic variables • Matched control: Yes, on a range of demographic variables • Adjustors: N/A	• Total sample: 80 • Results for relevant outcomes: "The male rape group had much poorer [depression and other] psychological functioning than the controls, lower self-worth, and lower self-esteem" (p. 445). • Quality assessment score: 3

NOTE: BDI = Beck Depression Inventory. CES-D = Center for Epidemiological Studies-Depression Scale. CI = confidence interval. DIS = Diagnostic Interview Schedule. DoD = U.S. Department of Defense. DSM = *Diagnostic and Statistical Manual of Mental Disorders*. ICD-9 = *International Classification of Diseases*, 9th revision. MSA = military sexual assault. MST = military sexual trauma. N/A = not applicable. NR = not reported. OEF = Operation Enduring Freedom. OIF = Operation Iraqi Freedom. OND = Operation New Dawn. PHQ-9 = Patient Health Questionnaire-9. PTSD = posttraumatic stress disorder. SCID = Structured Clinical Interview for Diagnostic and Statistical Manual Disorders. VA = U.S. Department of Veterans Affairs. VHA = Veterans Health Administration.

Table B.5. Review 3: Associations Between Sexual Assault and Sexual Harassment and Substance Use Disorders (*n* = 17)

Study Details	Population	Exposure	Outcomes and Analysis Methods	Results
Arata, 1999 • Funding: University of South Alabama Research Council • Country of study: United States • Study design: Retrospective cohort study • Study aims: To explore "the role of repeated sexual victimization in producing increased risk for mental disorders" (p. 1).	• Population: Female undergraduates in an introductory psychology class who experienced different levels of victimization and nonvictims • Sample size: 92 • Mean age/range (years): 24.0, 19–48 • Gender (% female): 100% • Race/ethnicity: 71% White; 17% Black; 2% Hispanic; 6% Asian; 3% other	• Type: Sexual assault, child sexual abuse • Setting: NR • Timing: Adulthood	• SUD measure: DSMIII-R, SCID–nonpatient edition • Comparator: Participants with no reported history of sexual victimization • Matched control: No • Adjustors: N/A	• Total sample: 92 • Results for relevant outcomes: No significant relationship between substance abuse and revictimization was found. • Quality assessment score: 3
Burnam et al., 1988 • Funding: National Institute of Mental Health • Country of study: United States • Study design: Retrospective cohort study • Study aims: To "examine the association between reported sexual assault and prevalence of nine specific mental disorders" and identify predictors of later mental disorder among victims (p. 843).	• Population: Households within two epidemiologic catchment areas in Los Angeles • Sample size: 864 • Mean age/range (years): 36.0 • Gender (% female): 82% • Race/ethnicity: 27% Hispanic	• Type: Sexual assault • Setting: NR • Timing: Lifetime	• SUD measure: Diagnostic Interview Schedule (DIS) for DSM-III using a computer scoring algorithm to generate a diagnosis of major depression • Comparator: Respondents who reported that they had not been sexually assaulted in their lifetime • Matched control: Yes; cases were probability-matched to controls based on gender, age, ethnicity, and education level. • Adjustors: Groups were effectively adjusted through matching. They were matched on gender,	• Total sample: 864 • Results for relevant outcomes: Subjects who had been assaulted had a relative risk of alcohol abuse of 2.3 and a relative risk of drug abuse of 2.5 compared with subjects who had not been assaulted. The association for alcohol abuse was lower among women than men. • Quality assessment score: 4

Study Details	Population	Exposure	Outcomes and Analysis Methods	Results
			age, ethnicity, and education level.	
Copeland et al., 2011 • Funding: NR • Country of study: Sweden • Study design: Case-control • Study aims: To "test psychiatric mediators and genetic moderators of the effect of sexual abuse on later alcohol dependence. The study also tested differences between alcohol dependent women with or without a history of sexual abuse on variables that might affect treatment planning" (p. 183).	• Population: Women "seeking treatment for alcohol dependence at two Stockholm, Sweden outpatient clinics" from December 2003 to April 2007 (p. 185). • Sample size: 389 • Mean age/range (years): 45.1 • Gender (% female): 100% • Race/ethnicity: Northern European	• Type: Sexual assault, sexual harassment • Setting: NR • Timing: Lifetime	• SUD measure: AUDIT, Addiction Severity Index, SCID, genotyping • Comparator: All females presenting for routine gynecological health examinations were given study information and asked if they could be contacted later. • Matched control: No • Adjustors: NR	• Total sample: 369 • Results for relevant outcomes: "The association of sexual abuse with alcohol dependence was limited to the most severe category of sexual abuse involving anal or vaginal penetration. Of the five psychiatric disorders tested, anxiety, anorexia nervosa, and bulimia met criteria as potential mediators of the abuse-alcohol dependence association. Severe sexual abuse continued to have an independent effect on alcohol dependence status even after accounting for these potential mediators. None of the candidate genetic markers moderated the association between sexual abuse and alcohol dependence. Of alcohol dependent participants, those with a history of severe abuse rated higher on alcoholism severity, and psychiatric comorbidities" (p. 183). • Quality assessment score: 4
Davis et al., 2020 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study • Study aims: To study the effects of co-occurring sexual violence and depression or anxiety	• Population: 18-to-20–year-olds from a cohort of individuals recruited from middle schools in Southern California.	• Type: Sexual assault, sexual harassment • Setting: NR • Timing: 12 months or	• SUD measure: Selected consequence questions from the project ALERT youth survey and Brief Young Adult Alcohol Consequences Survey and Marijuana Consequences Survey	• Total sample: 2,416 • Results for relevant outcomes: People who experienced sexual violence in the past year had greater substance abuse consequences than those who did not. Depression and

Study Details	Population	Exposure	Outcomes and Analysis Methods	Results
symptoms on youths and their functioning one year later	• Sample size: NR • Mean age/range (years): NR • Gender (% female): NR • Race/ethnicity: NR	less before assessment	• Comparator: Respondents who had a low sexual violence score and low depression and anxiety scores • Matched control: No • Adjustors: Participant sex, race/ethnicity, age, mother's education level, college status, and sexual orientation	anxiety symptoms were not detected to be a moderator in this association. • Quality assessment score: 5
Deliramich and Gray, 2008 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study • Study aims: To (1) "evaluate whether [sexual assault] survivors are more likely to increase alcohol consumption posttraumatically relative to other trauma survivors; [and (2)] determine whether changes in posttraumatic alcohol consumption predict changes in posttraumatic sexual activity" (p. 613).	• Population: Female sexual assault and motor vehicle accident survivors within 5 years of the study • Sample size: 57 • Mean age/range (years): 20.0 • Gender (% female): 100% • Race/ethnicity: 93% Caucasian	• Type: Sexual assault • Setting: NR • Timing: 5 years or less before assessment	• SUD measure: AUDIT • Comparator: Motor vehicle accident survivors within 5 years of the study • Matched control: No • Adjustors: N/A	• Total sample: 57 • Results for relevant outcomes: "There were no differences between trauma conditions with respect to estimated pretraumatic alcohol usage, but the groups reported dramatically different courses of alcohol consumption posttraumatically. Specifically, assault survivors reported an increase in alcohol use, compared to a decrease observed among [motor vehicle accident] survivors. It may be the case that assault survivors are more likely to use alcohol to cope with their trauma than are other trauma groups" (p. 618). • Quality assessment score: 3
Fillo et al., 2018 • Funding: National Institute on Alcohol Abuse and Alcoholism • Country of study: United States • Study design: Retrospective cohort study • Study aims: To measure "the prevalence of experiencing MST	• Population: U.S. Army Reserve and National Guard men who are married or living as married in heterosexual relationships	• Type: MST • Setting: Military, during last deployment • Timing: Most recent deployment	• SUD measure: AUDIT for alcohol problems; frequent heavy drinking assessed through survey • Comparator: N/A • Matched control: No • Adjustors: Age, PTSD symptoms	• Total sample: 248 • Results for relevant outcomes: "[G]reater MST exposure was associated with a greater likelihood of engaging in frequent heavy drinking (adjusted risk ratio [aRR] = 1.03, 95% CI [1.01,

Study Details	Population	Exposure	Outcomes and Analysis Methods	Results
during deployment among male Reserve and National Guard soldiers" and the extent to which "the degree of MST exposure during deployment [is] associated with frequent heavy drinking and alcohol problems postdeployment" (p. 111).	• Sample size: 731 • Mean age/range (years): 33.4, 18–45 • Gender (% female): 0% • Race/ethnicity: 81% White; 4.4% Black; 9.7% Hispanic			1.05]) and experiencing alcohol problems (aRR = 1.03, 95% CI [1.01, 1.06]) at baseline" (p. 111). • Quality assessment score: 2
Frank and Pazak Anderson, 1987 • Funding: National Institute of Mental Health • Country of study: United States • Study design: Prospective cohort study • Study aims: To address "three questions: (1) Do rape victims differ from matched nonvictimized controls with respect to prior history of mental disorders? (2) Does the complex of symptoms experienced by recent rape victims in the aftermath of an assault meet the criteria for any or several psychiatric disorders? (3) Does a past history of psychiatric problems increase the likelihood of meeting criteria for a full-fledged episode of depressive disorder, generalized anxiety disorder, or other syndromes in the immediate aftermath of an assault?" (p. 78).	• Population: Female sexual assault victims referred to "the Allegheny County Center for Victims of Violent Crime or Pittsburgh Action Against Rape" (p. 78). • Sample size: 91 • Mean age/range (years): 23.4 • Gender (% female): 100% • Race/ethnicity: NR	• Type: Sexual assault • Setting: NR • Timing: Recent, undefined	• SUD measure: DIS • Comparator: Victim group referred a best friend who had not experienced sexual assault to be a control • Matched control: Yes, based on prior history of mental disorders • Adjustors: N/A	• Total sample: 91 • Results for relevant outcomes: Recent rape victims were found to be significantly more likely to meet criteria for drug abuse (28% vs. 3%, $z = 4.63$, $p < 0.01$). • Quality assessment score: 3
Goldberg et al., 2019 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study • Study aims: To assess "whether women who screened positive	• Population: "VHA-enrolled veterans from the Operation Enduring Freedom/Operation Iraqi Freedom	• Type: MST • Setting: Military • Timing: While participants	• SUD measure: Diagnosed by licensed VHA clinicians. Healthcare Utilization and Costs Project Clinical Classification Software 5.11 and 5.12	• Total sample: NR • Results for relevant outcomes: "Prevalence of AUD diagnosis ranged from 4.7%(women screening negative for MST) to 18.2% (men screening positive for

Study Details	Population	Exposure	Outcomes and Analysis Methods	Results
for MST were at a disproportionately higher risk for diagnoses of alcohol-use disorder (AUD) or drug-use disorder (DUD) relative to men" (p. 477).	(OEF/OIF) conflicts" (p. 478). • Sample size: 435,690 • Mean age/range (years): 31.0 (women); 32.8 (men) • Gender (% female): NR • Race/ethnicity: 55.8% White, 26.0% Black, 10.7% Hispanic (women); 62.4% White, 18.9% Black, 12.1% Hispanic (men)	were in the military	• Comparator: NR • Matched control: No • Adjustors: Gender, Black, Hispanic, other, age, branch of service, combat exposure	MST). . . . Among women veterans, prevalence of AUD was more than doubled among those screening positive for MST (10.2% vs 4.7%, for women screening positive and negative for MST, respectively) as was prevalence of DUD (11.0% vs. 4.5% for women screening positive and negative for MST, respectively)" (p. 479). • Quality assessment score: 4
Maguen et al., 2012 • Funding: DoD Concept Award Grant, VA Health Sciences Research and Development Career Development Award, and National Institutes of Health grant • Country of study: United States • Study design: Retrospective cohort study • Study aims: To examine "correlates of [PTSD], including [MST], in Iraq and Afghanistan veterans. [The study authors] also compared mental health comorbidities by gender among veterans with PTSD, with and without MST" (p. e61).	• Population: OEF/OIF veterans • Sample size: 213,803 • Mean age/range (years): 16–71 • Gender (% female): NR • Race/ethnicity: 49% White, 25% Black, 15% Hispanic, 11% other (women); 66% White, 12% Black, 15% Hispanic, 7% other (men)	• Type: MST • Setting: Military • Timing: NR	• SUD measure: ICD-9 Clinical Modification (ICD-9-CM) codes (alcohol use disorders (305.00–305.03 and 303), substance use disorders (305.20–305.93 and 304) • Comparator: Veterans who received a PTSD diagnosis but did not have a history of MST • Matched control: No • Adjustors: N/A	• Total sample: 74,493 • Results for relevant outcomes: "Male OEF/OIF veterans with PTSD (*n* = 67,238) were more likely than their female counterparts to have clinical presentations of comorbid alcohol and other substance use disorders; one quarter of men with PTSD had comorbid alcohol use disorders. . . . Among female OEF/OIF veterans with PTSD, MST was significantly associated with comorbid depression, substance use, anxiety, alcohol use, and eating disorders. . . . Male OEF/OIF veterans with PTSD and a history of MST were more likely to have clinical presentations of comorbid depression, and

Study Details	Population	Exposure	Outcomes and Analysis Methods	Results
				substance use, but did not differ on the other comorbid diagnoses" (p. e64). • Quality assessment score: 3
McGinley, Richman, and Rospenda, 2011 • Funding: NR • Country of study: United States • Study design: Prospective cohort study • Study aims: To show the correlation between sexual harassment at work and mental health and drinking outcomes through a longitudinal data set.	• Population: "Employees initially selected from a Midwestern urban university in the United States during the fall semester of 1996" (p. 230). • Sample size: 4,832 • Mean age/range (years): NR • Gender (% female): NR • Race/ethnicity: 52% White; 21% African American; 8% Hispanic	• Type: Sexual harassment • Setting: Workplace • Timing: 1996–2006	• SUD measure: Michigan Alcoholism Screening Test (MAST) • Comparator: NR • Matched control: No • Adjustors: NR	• Total sample: 2,265 • Results for relevant outcomes: As hypothesized, both chronic [generalized workplace harassment] class and chronic [sexual harassment] class predicted more problematic drinking outcomes, after controlling for previous drinking. . . . Belonging to the chronic [generalized workplace harassment] class significantly predicted higher escapist drinking (p = .022), binge drinking (p = .024), and MAST scores (p = .027)" (p. 232). • Quality assessment score: 3
Millegan et al., 2015 • Funding: DoD, Clinical Investigations Department at Naval Medical Center San Diego • Country of study: United States • Study design: Prospective cohort study • Study aims: To evaluate "the effects of sexual harassment and sexual assault on health, functional, and military outcomes among women serving in the U.S. military" (p. 299).	• Population: Female active service members • Sample size: 77,047 • Mean age/range (years): NR • Gender (% female): 100% • Race/ethnicity: Non-Hispanic White 64.1%, non-Hispanic Black 19.2%, other 16.7% (sexual harassment); non-Hispanic White, 65%, non-Hispanic Black 20.9%, other	• Type: Sexual assault, sexual harassment • Setting: NR • Timing: 3 years or less before assessment	• SUD measure: Patient Health Questionnaire (PHQ); 5 items • Comparator: Service women not having reported recent sexual assault or sexual harassment, during the first or second follow-up • Matched control: No • Adjustors: N/A	• Total sample: 13,001 • Results for relevant outcomes: Those who reported sexual assault or sexual harassment "were proportionally more likely to report unhealthy behaviors (smoking, alcohol-related problems, heavy drinking)" (p. 300). • Quality assessment score: 6

Study Details	Population	Exposure	Outcomes and Analysis Methods	Results
	14.2% (sexual assault)			
Richman, Flaherty, and Rospenda, 1996 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study • Study aims: To show that stress and alienation paradigms can affect drinking behaviors across occupational levels, in this case among physicians.	• Population: "[M]edical students entering a state college of medicine in the fall of 1987" (p. 394). • Sample size: 184 • Mean age/range (years): 23.6 • Gender (% female): 33.5% • Race/ethnicity: NR	• Type: Sexual harassment • Setting: Workplace • Timing: Internship year of medical school	• SUD measure: MAST • Comparator: NR • Matched control: NR • Adjustors: NR	• Total sample: 167 • Results for relevant outcomes: "[I]n the area of sexual harassment, unwanted sexual advances were significantly positively related to problem drinking for both genders (0.21, $p < 0.05$ for males and 0.38, $p < 0.01$ for females)" (p. 396). • Quality assessment score: 6
Richman et al., 2002 • Funding: National Institute on Alcohol Abuse and Alcoholism • Country of study: United States • Study design: Prospective cohort study • Study aims: "This article utilizes longitudinal data from a two-wave university employee survey that encompassed measures of workplace harassment and abuse, symptomatic distress and alcohol use and misuse. . . . Using these data, [the authors] test the relationships between sexual harassment and generalized workplace abuse and alcohol-related outcomes" (p. 413).	• Population: Employees at an urban university in the midwestern United States • Sample size: 4,832 • Mean age/range (years): NR • Gender (% female): NR • Race/ethnicity: NR	• Type: Sexual harassment • Setting: University workplace • Timing: NR	• SUD measure: MAST; Alcohol consumption patterns: frequency, quantity, variability, heavy episodic drinking, intoxication • Comparator: Never experiencing harassment • Matched control: No • Adjustors: N/A	• Total sample: 1,880 • Results for relevant outcomes: "[S]howing that the onset and chronicity of harassment and abuse are predictive of drinking outcomes and symptomatic distress when baseline drinking and distress are utilized as control variables. . . . Men tended to exhibit higher escapist and interpersonal stress motives for drinking, patterns of misuse and alcohol-related problems in association with the onset of sexual harassment, and increased quantity of consumption in relation to chronic sexual harassment. Women, however, demonstrated increased alcohol use and misuse in relation to abusive or harassing workplace experiences, but not negative motives for drinking

Study Details	Population	Exposure	Outcomes and Analysis Methods	Results
				or problem-related drinking" (p. 418). • Quality assessment score: 5
Seelig et al., 2017 • Funding: VA • Country of study: United States • Study design: Prospective cohort study • Study aims: To examine "whether experiencing sexual assault or sexual harassment while in the military was associated with increased risk for subsequent unhealthy alcohol use and smoking among U.S. service members in the Millennium Cohort Study" (p. 502).	• Population: U.S. military personnel who were in the military at the time of baseline data collection and had not deployed to Iraq or Afghanistan before or during baseline assessment. • Sample size: 256,400 • Mean age/range (years): 17+ • Gender (% female): 36% (alcohol relapse group); 27% (alcohol initiation group) • Race/ethnicity: 73% White, 9% Black, 17% other (alcohol relapse group); 67% White, 16% Black, 17% other (alcohol initiation group)	• Type: Sexual assault, sexual harassment • Setting: Military • Timing: 3 years or less before assessment	• SUD measure: Cutback, Annoy, Guilty, Eye-Opener (CAGE) questionnaire was used "to differentiate alcohol initiation and relapse samples" (p. 503) The PQH-5–item alcohol module was used to identify problem drinking and gender-specific risky drinking determined by self-reported consumption; unhealthy alcohol use indicated if either problem or unhealthy drinking was identified. • Comparator: Respondents who did not report having been sexually assaulted or harassed in the past 3 years • Matched control: No • Adjustors: "[P]rior history of sexual trauma (lifetime exposure, reported on the first Millennium Cohort questionnaire), race/ethnicity, age, marital status, education, service branch, service component, military occupation, pay grade, combat deployment, smoking status (in the alcohol models), unhealthy alcohol use (in the smoking model), trouble sleeping, prior mental disorders, [PTSD], and	• Total sample: 48,287 (baseline and first follow-up) • Results for relevant outcomes: "Women who reported experiencing sexual assault while in the military had almost twice the risk for alcohol relapse: RR = 1.73; 95% CI [1.06, 2.83]" (p. 502). There were no significant association of alcohol relapse among men, and no significant associations between exposure and initiation of unhealthy alcohol use among either sex. "These findings suggest that men and women may respond differently [in alcohol relapse] following sexual trauma, and support future concerted policy efforts by military leadership to prevent, detect, and intervene on sexual assault" (p. 502). • Quality assessment score: 5

Study Details	Population	Exposure	Outcomes and Analysis Methods	Results
			physical component and mental component summary scores" (p. 504).	
Straus, Norman, and Pietrzak, 2020 • Funding: NR • Country of study: United States • Study design: Prospective cohort study • Study aims: "This study aimed to identify risk and protective factors that contribute to incident [alcohol use disorder]" (p. 1).	• Population: U.S. veterans • Sample size: 1,770 • Mean age/range (years): 55.6 • Gender (% female): 7.4% • Race/ethnicity: 70.5% White	• Type: Sexual assault • Setting: NR • Timing: Adulthood	• SUD measure: AUDIT-C • Comparator: Victims who experienced adult physical trauma • Matched control: No • Adjustors: NR	• Total sample: 1,770 • Results for relevant outcomes: "Lifetime drug use disorder and greater alcohol consumption at baseline, as well as trauma-related characteristics (i.e., adult sexual trauma, anxious arousal symptoms), were associated with increased risk of developing" alcohol use disorder (p. 1). • Quality assessment score: 5
Thompson et al., 2003 • Funding: NR • Country of study: United States • Study design: Retrospective cohort study • Study aims: "Three hypotheses were tested: (1) the sexual trauma groups will exhibit significantly higher levels of psychopathology than the control group; (2) women who report childhood sexual abuse will exhibit significantly higher levels of psychopathology than women who were raped in adulthood; and (3) women who experienced both rape and childhood sexual abuse will show significantly higher levels of psychopathology than women who experienced either of these conditions alone" (p. 35).	• Population: Female victims of childhood sexual abuse; rape; and childhood sexual abuse and rape • Sample size: 97 • Mean age/range (years): 38.1, 20–55 • Gender (% female): 100% • Race/ethnicity: NR	• Type: Child sexual abuse, sexual assault • Setting: NR • Timing: Lifetime	• SUD measure: SCID-I/P • Comparator: Females who "who had not experienced childhood sexual or physical abuse or rape" (p. 36). • Matched control: No • Adjustors: NR	• Total sample: 97 • Results for relevant outcomes: "Being sexually victimized in childhood and raped in adulthood was associated with a particular risk for substance dependence" (p. 35). • Quality assessment score: 4
Tiet et al., 2015 • Funding: NR • Country of study: United States	• Population: Patients entering treatment at one of seven VA PTSD	• Type: MST • Setting: Military	• SUD measure: Self report ASI • Comparator: NR • Matched control: No	• Total sample: 574 • Results for relevant outcomes: "MSA was not consistently associated with

Study Details	Population	Exposure	Outcomes and Analysis Methods	Results
• Study design: Retrospective cohort study • Study Aims: To examine whether "gender and military sexual assault (MSA) were associated with psychiatric severity differences at initiation of treatment for [PTSD] and whether MSA and gender predicted psychiatric treatment outcomes" (p. 92).	specialty intensive treatment programs at five sites across the United States. • Sample size: 1,107 • Mean age/range (years): 13% • Gender (% female): NR • Race/ethnicity: NR	• Timing: While participants were in the military	• Adjustors: Male, MSA, baseline, age, White, marital status, hostile fire, treatment length of stay	worse problems at intake. . . . patients who experienced MSA did not have worse treatment outcomes than those who did not experience MSA" (p. 95). • Quality assessment score: 4

NOTE: AUD = alcohol use disorder. AUDIT = Alcohol Use Disorders Identification Test. ASI = Addiction Severity Index. CI = confidence interval. DIS = Diagnostic Interview Schedule. DoD = U.S. Department of Defense. DSM = *Diagnostic and Statistical Manual of Mental Disorders*. ICD-9 = *International Classification of Diseases*, 9th revision. LCA = latent class analysis. MAST = Michigan Alcoholism Screening Test. MSA = military sexual assault. MST = military sexual trauma. N/A = not applicable. NR = not reported. PHQ-9 = Patient Health Questionnaire-9. PTSD = posttraumatic stress disorder. RR = relative risk. SCID = Structured Clinical Interview for Diagnostic and Statistical Manual Disorders. SUD = substance use disorders. VA = U.S. Department of Veterans Affairs. VHA = Veterans Health Administration.

Abbreviations

AOR	adjusted odds ratio
APA	American Psychological Association
ARR	adjusted relative risk
AUDIT	Alcohol Use Disorders Identification Test
ASI	Addiction Severity Index
BDI	Beck Depression Inventory
BSI	Brief Symptom Inventory
BSI-18	Brief Symptom Inventory–18
CAPS	Clinician-Administered Posttraumatic Stress Disorder Scale
CDSR	Cochrane Database of Systematic Reviews
CENTRAL	Cochrane Central Register of Controlled Trials
CES-D	Center for Epidemiological Studies-Depression Scale
CI	confidence interval
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CPT	cognitive processing therapy
DoD	U.S. Department of Defense
DTIC	Defense Technical Information Center
FY	fiscal year
GRADE	Grading of Recommendations Assessment, Development and Evaluation
ICTRP	International Clinical Trials Registry Platform
IOP	intensive outpatient program
ITT	intention to treat
MAST	Michigan Alcoholism Screening Test
MST	military sexual trauma
NOS	Newcastle-Ottawa Scale
NRSI	nonrandomized studies of interventions
PCL	Posttraumatic Stress Disorder Checklist
PE	prolonged exposure
PHCoE	Psychological Health Center of Excellence
PHQ-9	Patient Health Questionnaire-9
PICOTSS	Population, Intervention, Comparator, Outcome, Timing, Setting, and Study design
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PTCI	Posttraumatic Cognitions Inventory

PTSD	posttraumatic stress disorder
QIDS	Quick Inventory of Depressive Symptomatology
QoE	quality of evidence
RCT	randomized controlled trial
RoB 2	Risk of Bias 2 (tool)
ROBINS-I	Risk of Bias in Non-Randomized Studies–of Interventions
RRTP	residential rehabilitation treatment program
SA	sexual assault
SAH	sexual assault and harassment
SAPRO	Sexual Assault Prevention and Response Office
SCID	Structured Clinical Interview for Diagnostic and Statistical Manual Disorders
VA	U.S. Department of Veterans Affairs
VHA	Veterans Health Administration
WGRA	Workplace and Gender Relations Survey of Active Duty Members
WHO	World Health Organization

References

Acosta, Joie D., Wenjing Huang, Maria Orlando Edelen, Jennifer L. Cerully, Sarah Soliman, and Anita Chandra, *Measuring Barriers to Mental Health Care in the Military: The RAND Barriers and Facilitators to Care Item Banks*, Santa Monica, Calif.: RAND Corporation, RR-1762-OSD, 2018. As of June 30, 2021: https://www.rand.org/t/RR1762

Alexander, Walter, "Pharmacotherapy for Post-Traumatic Stress Disorder in Combat Veterans: Focus on Antidepressants and Atypical Antipsychotic Agents," *Pharmacy & Therapeutics*, Vol. 37, No. 1, January 2012, pp. 32–38.

Allard, Carolyn B., Sarah Nunnink, Amber M. Gregory, Bridget Klest, and Melissa Platt, "Military Sexual Trauma Research: A Proposed Agenda," *Journal of Trauma Dissociation*, Vol. 12, No. 3, 2011, pp. 324–345.

American Psychological Association, "APA PsycInfo," webpage, undated. As of June 30, 2021: https://www.apa.org/pubs/databases/psycinfo

APA—*See* American Psychological Association.

Arata, Catalina M., "Repeated Sexual Victimization and Mental Disorders in Women," *Journal of Child Sexual Abuse*, Vol. 7, No. 3, 1999.

Arksey, Hilary, and Lisa O'Malley, "Scoping Studies: Towards a Methodological Framework," *International Journal of Social Research Methodology*, Vol. 8, No. 1, 2005, pp. 19–32.

Atkeson, Beverly M., Karen S. Calhoun, Patricia A. Resick, and Elizabeth M. Ellis, "Victims of Rape: Repeated Assessment of Depressive Symptoms," *Journal of Consulting and Clinical Psychology*, Vol. 50, No. 1, 1982, pp. 96–102.

Balshem, Howard, Mark Helfand, Holger J. Schünemann, Andrew D. Oxman, Regina Kunz, Jan Brozek, Gunn E. Vist, Yngve Falck-Ytter, Joerg Meerpohl, Susan Norris, and Gordon H. Guyatt, "GRADE Guidelines: 3. Rating the Quality of Evidence," *Journal of Clinical Epidemiology*, Vol. 64, No. 4, April 2011, pp. 401–406.

Barker-Collo, Suzanne L., William T. Melnyk, and Leslie McDonald-Miszczak, "A Cognitive-Behavioral Model of Post-Traumatic Stress for Sexually Abused Females," *Journal of Interpersonal Violence*, Vol. 15, No. 4, April 2000, pp. 375–392.

Beck, A. T., R. A. Steer, and G. K. Brown, *Manual for The Beck Depression Inventory-II*, San Antonio, Tex.: Psychological Corporation, 1996.

Beckman, Kerry, Jillian Shipherd, Tracy Simpson, and Keren Lehavot, "Military Sexual Assault in Transgender Veterans: Results from a Nationwide Survey," *Journal of Traumatic Stress*, Vol. 31, No. 2, April 2018, pp. 181–190.

Blais, Rebecca K., and Christian Geiser, "Depression and PTSD-Related Anhedonia Mediate the Association of Military Sexual Trauma and Suicidal Ideation in Female Service Members/Veterans," *Psychiatry Research*, Vol. 279, September 2019, pp. 148–154.

Blake, Pamela Y., Jonathan H. Pincus, and Cary Buckner, "Neurologic Abnormalities in Murderers," *Neurology*, Vol. 45, No. 9, September 1995, pp. 1641–1647.

Bornstein, Jacob, Doron Zarfati, Zeev Goldik, and Haim Abramovici, "Vulvar Vestibulitis: Physical or Psychosexual Problem?" *Obstetrics & Gynecology*, Vol. 93, No. 5, Pt. 2, May 1999, pp. 876–880.

Breslin, Rachel A., Lisa Davis, Kimberly Hylton, Ariel Hill, William Klauberg, Mark Petusky, and Ashlea Klahr, *2018 Workplace and Gender Relations Survey of Active Duty Members: Overview Report*, Ft. Belvoir, Va.: U.S. Department of Defense, Office of People Analytics, May 2019.

Burnam, M. Audrey, Judith A. Stein, Jacqueline M. Golding, Judith M. Siegel, Susan B. Sorenson, Alan B. Forsythe, and Cynthia A. Telles, "Sexual Assault and Mental Disorders in a Community Population," *Journal of Consulting and Clinical Psychology*, Vol. 56, No. 6, December 1988, pp. 843–850.

Burns, Bridgit, Kate Grindlay, Kelsey Holt, Ruth Manski, and Daniel Grossman, "Military Sexual Trauma Among U.S. Servicewomen During Deployment: A Qualitative Study," *American Journal of Public Health*, Vol. 104, No. 2, February 2014, pp. 345–349.

Campbell Collaboration, homepage, undated. As of June 30, 2021: https://www.campbellcollaboration.org/

Campbell, Rebecca, Emily Dworkin, and Giannina Cabral, "An Ecological Model of the Impact of Sexual Assault on Women's Mental Health," *Trauma, Violence, & Abuse*, Vol. 10, No. 3, July 2009, pp. 225–246.

Chiauzzi, Emil, Ashley Clayton, and Jina Huh-Yoo, "Videoconferencing-Based Telemental Health: Important Questions for the COVID-19 Era from Clinical and Patient-Centered Perspectives," *JMIR Mental Health*, Vol. 7, No. 12, December 2020.

Cichowski, Sara, Malia Ashley, Orlando Ortiz, and Gena Dunivan, "Female Veterans' Experiences with VHA Treatment for Military Sexual Trauma," *Federal Practitioner*, Vol. 36, No. 1, January 2019, pp. 41–47.

Clancy, Carolina P., Anna Graybeal, Whitney P. Tompson, Kourtni S. Badgett, Michelle E. Feldman, Patrick S. Calhoun, Alaattin Erkanli, Michael A. Hertzberg, and Jean C. Beckham, "Lifetime Trauma Exposure in Veterans with Military-Related Posttraumatic Stress Disorder: Association with Current Symptomatology," *Journal of Clinical Psychiatry*, Vol. 67, No. 9, September 2006, pp. 1346–1353.

Cloitre, Marylene, Polly Scarvalone, and JoAnn Difede, "Posttraumatic Stress Disorder, Self- and Interpersonal Dysfunction Among Sexually Retraumatized Women," *Journal of Traumatic Stress*, Vol. 10, No. 3, 1997, pp. 437–452.

Cochrane Library, "Cochrane Central Register of Controlled Trials (CENTRAL)," webpage, undated-a. As of June 30, 2021: https://www.cochranelibrary.com/central/about-central

Cochrane Library, "Cochrane Database of Systematic Reviews," webpage, undated-b. As of June 30, 2021: https://www.cochranelibrary.com/central/about-cdsr

Cohen, Judith A., and Anthony P. Mannarino, "Psychological Symptoms in Sexually Abused Girls," *Child Abuse & Neglect*, Vol. 12, No. 4, 1988, pp. 571–577.

Copeland, William E., Åsa Magnusson, Mona Göransson, and Markus A. Heilig, "Genetic Moderators and Psychiatric Mediators of the Link Between Sexual Abuse and Alcohol Dependence," *Drug and Alcohol Dependence*, Vol. 115, No. 3, June 1, 2011, pp. 183–189.

Davis, Jordan P., Eric R. Pedersen, Anthony Rodriguez, Joan S. Tucker, Rachana Seelam, Regina Shih, and Elizabeth J. D'Amico, "Do Recent Experiences of Sexual Violence and Co-Occurring Depression and Anxiety Symptoms Predict Poorer Functioning One Year Later During the Transition to Young Adulthood?" *Journal of Interpersonal Violence*, April 22, 2020.

Defense Technical Information Center, homepage, undated. As of June 30, 2021: https://discover.dtic.mil/

Deliramich, Aimee N., and Matt J. Gray, "Changes in Women's Sexual Behavior Following Sexual Assault," *Behavior Modification*, Vol. 32, No. 5, September 2008, pp. 611–621.

Department of Defense Directive 1350.2, *Department of Defense Military Equal Opportunity (MEO) Program*, Washington, D.C.: U.S. Department of Defense, August 18, 1995, current as of November 21, 2003.

Department of Defense Directive 6495.01, *Sexual Assault Prevention and Response (SAPR) Program*, Washington, D.C.: U.S. Department of Defense, January 23, 2012, incorporating change 5, November 10, 2021.

Derogatis, Leonard R., *BSI 18: Brief Symptom Inventory 18—Administration, Scoring and Procedure Manual*, Bloomington, Minn.: NCS Pearson, Inc., 2001.

Diehle, Julia, Katja Schmitt, Joost G. Daams, Frits Boer, and Ramón J. L. Lindauer, "Effects of Psychotherapy on Trauma-Related Cognitions in Posttraumatic Stress Disorder: A Meta-Analysis," *Journal of Traumatic Stress*, Vol. 27, No. 3, 2014, pp. 257–264.

DiMauro, Jennifer, and Keith D. Renshaw, "Trauma-Related Disclosure in Sexual Assault Survivors' Intimate Relationships: Associations with PTSD, Shame, and Partners' Responses," *Journal of Interpersonal Violence*, February 2018.

DoD—*See* U.S. Department of Defense.

DTIC—*See* Defense Technical Information Center.

Dunmore, Emma, David M. Clark, and Anke Ehlers, "Cognitive Factors Involved in the Onset and Maintenance of Posttraumatic Stress Disorder (PTSD) After Physical or Sexual Assault," *Behaviour Research and Therapy*, Vol. 37, No. 9, September 1999, pp. 809–829.

Dworkin, Emily R., Suvarna V. Menon, Jonathan Bystrynski, and Nicole E. Allen, "Sexual Assault Victimization and Psychopathology: A Review and Meta-Analysis," *Clinical Psychology Review*, Vol. 56, August 2017, pp. 65–81.

Edwards, Katie M., Emily A. Waterman, Sarah E. Ullman, Lindsey M. Rodriguez, Christina M. Dardis, and Emily R. Dworkin, "A Pilot Evaluation of an Intervention to Improve Social Reactions to Sexual and Partner Violence Disclosures," *Journal of Interpersonal Violence*, July 2020.

Eftekhari, Afsoon, Josef I. Ruzek, Jill J. Crowley, Craig S. Rosen, Mark A. Greenbaum, and Bradley E. Karlin, "Effectiveness of National Implementation of Prolonged Exposure Therapy in Veterans Affairs Care," *JAMA Psychiatry*, Vol. 70, No. 9, September 2013, pp. 949–955.

Ellis, Elizabeth M., Beverly M. Atkeson, and Karen S. Calhoun, "An Assessment of Long-Term Reaction to Rape," *Journal of Abnormal Psychology*, Vol. 90, No. 3, 1981, pp. 263–266.

Estrada, Eduardo, Emilio Ferrer, and Antonio Pardo, "Statistics for Evaluating Pre-Post Change: Relation Between Change in the Distribution Center and Change in the Individual Scores," *Frontiers in Psychology*, Vol. 9, 2019.

Faravelli, Carlo, Alice Giugni, Stefano Salvatori, and Valdo Ricca, "Psychopathology After Rape," *American Journal of Psychiatry*, Vol. 161, No. 8, August 2004, pp. 1483–1485.

Farmer, Courtney C., Fernanda S. Rossi, Elizabeth M. Michael, and Rachel Kimerling, "Psychotherapy Utilization, Preferences, and Retention Among Women Veterans with Post-Traumatic Stress Disorder," *Women's Health Issues*, Vol. 30, No. 5, September-October 2020, pp. 366–373.

Farris, Coreen, Amy Street, Andrew R. Morral, Lisa Jaycox, and Dean Kilpatrick, "Measurement of Sexual Harassment and Sexual Assault," in Andrew R. Morral, Kristie L. Gore, and Terry L. Schell, eds., *Sexual Assault and Sexual Harassment in the U.S. Military:* Volume 1. *Design of the 2014 RAND Military Workplace Study*, Santa Monica, Calif.: RAND Corporation, RR-870/1-OSD, 2014, pp. 7–25. As of June 30, 2021: https://www.rand.org/pubs/research_reports/RR870z1.html

Fernández-Castilla, Belén, Ariel M. Aloe, Lies Declercq, Laleh Jamshidi, Patrick Onghena, S. Natasha Beretvas, and Wim Van den Noortgate, "Concealed Correlations Meta-Analysis: A New Method for Synthesizing Standardized Regression Coefficients," *Behavior Research Methods*, Vol. 51, No. 1, 2019, pp. 316–331.

Fillo, Jennifer, Sarah Cercone Heavey, D. Lynn Homish, and Gregory G. Homish, "Deployment-Related Military Sexual Trauma Predicts Heavy Drinking and Alcohol Problems Among Male Reserve and National Guard Soldiers," *Alcoholism: Clinical and Experimental Research*, Vol. 42, No. 1, January 2018, pp. 111–119.

Fitzgerald, Kristy, Sally Wooler, Dara Petrovic, Jen Crickmore, Kristy Fortnum, Letitcha Hegarty, Chantal Fichera, and Pim Kuipers, "Barriers to Engagement in Acute and Post-Acute Sexual Assault Response Services: A Practice-Based Scoping Review," *International Journal of Emergency Mental Health and Human Resilience*, Vol. 19, No. 2, 2017.

Foa, Edna B., Constance V. Dancu, Elizabeth A. Hembree, Lisa H. Jaycox, Elizabeth A. Meadows, and Gordon P. Street, "A Comparison of Exposure Therapy, Stress Inoculation Training, and Their Combination for Reducing Posttraumatic Stress Disorder in Female Assault Victims," *Journal of Consulting and Clinical Psychology*, Vol. 67, No. 2, 1999, pp. 194–200.

Frank, Ellen, and Barbara Pazak Anderson, "Psychiatric Disorders in Rape Victims: Past History and Current Symptomatology," *Comprehensive Psychiatry*, Vol. 28, No. 1, 1987, pp. 77–82.

Frayne, Susan M., Katherine M. Skinner, Lisa M. Sullivan, Tara J. Tripp, Cheryl S. Hankin, Nancy R. Kressin, and Donald R. Miller, "Medical Profile of Women Veterans Administration Outpatients Who Report a History of Sexual Assault Occurring While in the Military," *Journal of Women's Health & Gender-Based Medicine*, Vol. 8, No. 6, July 1999, pp. 835–845.

Gadermann, Anne M., Charles C. Engel, James A. Naifeh, Matthew K. Nock, Maria Petukhova, Patcho N. Santiago, Benjamin Wu, Alan M. Zaslavsky, and Ronald C. Kessler, "Prevalence of DSM-IV Major Depression Among U.S. Military Personnel: Meta-Analysis and Simulation," *Military Medicine*, Vol. 177, Suppl. 8, August 2012, pp. 47–59.

Gerber, Megan R., Katherine M. Iverson, Melissa E. Dichter, Ruth Klap, and Rachel E. Latta, "Women Veterans and Intimate Partner Violence: Current State of Knowledge and Future Directions," *Journal of Women's Health*, Vol. 23, No. 4, April 2014, pp. 302–309.

Gilboa-Schechtman, Eva, and Edna B. Foa, "Patterns of Recovery from Trauma: The Use of Intraindividual Analysis," *Journal of Abnormal Psychology*, Vol. 110, No. 3, August 2001, pp. 392–400.

Gilmore, Amanda K., Margaret T. Davis, Anouk Grubaugh, Heidi Resnick, Anna Birks, Carol Denier, Wendy Muzzy, Peter Tuerk, and Ron Acierno, "'Do You Expect Me to Receive PTSD Care in a Setting Where Most of the Other Patients Remind Me of the Perpetrator?': Home-Based Telemedicine to Address Barriers to Care Unique to Military Sexual Trauma and Veterans Affairs Hospitals," *Contemporary Clinical Trials*, Vol. 48, May 2016, pp. 59–64.

Gilmore, Amanda K., Cristina Lopez, Wendy Muzzy, Wilson J. Brown, Anouk Grubaugh, Daniel W. Oesterle, and Ron Acierno, "Emotion Dysregulation Predicts Dropout from Prolonged Exposure Treatment Among Women Veterans with Military Sexual Trauma-Related Posttraumatic Stress Disorder," *Women's Health Issues*, Vol. 30, No. 6, November–December 2020, pp. 462–469.

Goldberg, Simon B., Whitney S. Livingston, Rebecca K. Blais, Emily Brignone, Ying Suo, Keren Lehavot, Tracy L. Simpson, Jamison Fargo, and Adi V. Gundlapalli, "A Positive Screen for Military Sexual Trauma Is Associated with Greater Risk for Substance Use Disorders in Women Veterans," *Psychology of Addictive Behaviors*, Vol. 33, No. 5, August 2019, pp. 477–483.

Gross, Georgina M., Aimee Kroll-Desrosiers, and Kristin Mattocks, "A Longitudinal Investigation of Military Sexual Trauma and Perinatal Depression," *Journal of Women's Health*, Vol. 29, No. 1, January 2020, pp. 38–45.

Gross, Georgina M., Silvia Ronzitti, Joan L. Combellick, Suzanne E. Decker, Kristin M. Mattocks, Rani A. Hoff, Sally G. Haskell, Cynthia A. Brandt, and Joseph L. Goulet, "Sex Differences in Military Sexual Trauma and Severe Self-Directed Violence," *American Journal of Preventive Medicine*, Vol. 58, No. 5, May 2020, pp. 675–682.

Hahn, Austin M., Christine K. Tirabassi, Raluca M. Simons, and Jeffrey S. Simons, "Military Sexual Trauma, Combat Exposure, and Negative Urgency as Independent Predictors of PTSD and Subsequent Alcohol Problems Among OEF/OIF Veterans," *Psychological Services*, Vol. 12, No. 4, November 2015, pp. 378–383.

Hahn, Christine K., Jessica Turchik, and Rachel Kimerling, "A Latent Class Analysis of Mental Health Beliefs Related to Military Sexual Trauma," *Journal of Traumatic Stress*, Vol. 34, No. 2, 2020, pp. 394–404.

Hedges, Larry V., and Ingram Olkin, *Statistical Methods for Meta-Analysis*, San Diego, Calif.: Academic Press, 1985.

Higgins, Julian P. T., James Thomas, Jacqueline Chandler, Miranda Cumpston, Tianjing Li, Matthew Page, and Vivian Welch, eds., *Cochrane Handbook for Systematic Reviews of Interventions*, version 6.2, updated February 2021. As of June 30, 2021: http://www.training.cochrane.org/handbook

Holder, Nicholas, Ryan Holliday, Jessica Wiblin, James P. LePage, and Alina Surís, "Predictors of Dropout from a Randomized Clinical Trial of Cognitive Processing Therapy for Female Veterans with Military Sexual Trauma-Related PTSD," *Psychiatry Research*, Vol. 276, June 2019, pp. 87–93.

Holland, Kathryn J., Verónica Caridad Rabelo, and Lilia M. Cortina, "Collateral Damage: Military Sexual Trauma and Help-Seeking Barriers," *Psychology of Violence*, Vol. 6, No. 2, 2016, pp. 253–261.

Holliday, Ryan, Noelle B. Smith, Nicholas Holder, Georgina M. Gross, Lindsey L. Monteith, Shira Maguen, Rani A. Hoff, and Ilan Harpaz-Rotem, "Comparing the Effectiveness of VA Residential PTSD Treatment for Veterans Who Do and Do Not Report a History of MST: A National Investigation," *Journal of Psychiatric Research*, Vol. 122, March 2020, pp. 42–47.

Hoyt, William T., and A. C. Del Re, "Effect Size Calculation in Meta-Analyses of Psychotherapy Outcome Research," *Psychotherapy Research*, Vol. 28, No. 3, May 2018, pp. 379–388.

Ipser, Jonathan, C., and Dan J. Stein, "Evidence-Based Pharmacotherapy of Post-Traumatic Stress Disorder (PTSD)," *International Journal of Neuropsychopharmacology*, Vol. 15, No. 6, July 2012, pp. 825–840.

Islam, Md. Mohaimenul, Usman Iqbal, Bruno Walther, Suleman Atique, Navneet Kumar Dubey, Phung-Anh Nguyen, Tahmina Nasrin Poly, Hossain Bhuiyan Masud, Yu-Chuan Li, and Syed-Abdul Shabbir, "Benzodiazepine Use and Risk of Dementia in the Elderly Population: A Systematic Review and Meta-Analysis," *Neuroepidemiology*, Vol. 47, 2016, pp. 181–191.

Jonas, Daniel E., Karen Cusack, Catherine A. Forneris, Tania M. Wilkins, Jeffrey Sonis, Jennifer Cook Middleton, Cynthia Feltner, Dane Meredith, Jamie Cavanaugh, Kimberly A. Brownley, Kristine Rae Olmsted, Amy Greenblatt, Amy Weil, and Bradley N. Gaynes, *Psychological and Pharmacological Treatments for Adults with Posttraumatic Stress Disorder (PTSD)*, Rockville, Md.: Agency for Healthcare Research and Quality, AHRQ Publication No. 13-EHC011-EF, April 2013.

Kang, Han, Nancy Dalager, Clare Mahan, and Erick Ishii, "The Role of Sexual Assault on the Risk of PTSD Among Gulf War Veterans," *Annals of Epidemiology*, Vol. 15, No. 3, March 2005, pp. 191–195.

Katz, Lori S., "Efficacy of Warrior Renew Group Therapy for Female Veterans Who Have Experienced Military Sexual Trauma," *Psychological Services*, Vol. 13, No. 4, November 2016, pp. 364–372.

Katz, Lori S., Geta Cojucar, Sarah Douglas, and Cristi Huffman, "Renew: An Integrative Psychotherapy Program for Women Veterans with Sexual Trauma," *Journal of Contemporary Psychotherapy*, Vol. 44, No. 3, 2014, pp. 163–171.

Katz, Lori S., Sarah Douglas, Kristen Zaleski, Jenny Williams, Cristi Huffman, and Geta Cojucar, "Comparing Holographic Reprocessing and Prolonged Exposure for Women Veterans with Sexual Trauma: A Pilot Randomized Trial," *Journal of Contemporary Psychotherapy*, Vol. 44, No. 1, 2014, pp. 9–19.

Kehle-Forbes, Shannon M., Eileen M. Harwood, Michele R. Spoont, Nina A. Sayer, Heather Gerould, and Maureen Murdoch, "Experiences with VHA Care: A Qualitative Study of U.S. Women Veterans with Self-Reported Trauma Histories," *BMC Womens Health*, Vol. 17, No. 38, 2017.

Kelley, Lance P., Frank W. Weathers, Meghan E. McDevitt-Murphy, David E. Eakin, and Amanda M. Flood, "A Comparison of PTSD Symptom Patterns in Three Types of Civilian Trauma," *Journal of Traumatic Stress*, Vol. 22, No. 3, June 2009, pp. 227–235.

Kessler, Ronald C., Amanda Sonnega, Evelyn Bromet, Michael Hughes, Christopher B. Nelson, and Naomi Breslau, "Epidemiological Risk Factors for Trauma and PTSD," in R. Yehuda, ed., *Risk Factors for Posttraumatic Stress Disorder*, Washington, D.C.: American Psychiatric Association, 1999, pp. 23–59.

Khan, A. J., N. Holder, Y. Li, B. Shiner, E. Madden, K. Seal, T. C. Neylan, and S. Maguen, "How Do Gender and Military Sexual Trauma Impact PTSD Symptoms in Cognitive Processing Therapy and Prolonged Exposure?" *Journal of Psychiatric Research*, Vol. 130, 2020, pp. 89–96.

Kim, Go-Un, and Mi-Young Kim, "The Effectiveness of Psychological Interventions for Women Traumatized by Sexual Abuse: A Systematic Review and Meta-Analysis," *Issues in Mental Health Nursing*, Vol. 41, No. 5, May 2020, pp. 385–394.

Klein, Margaret, and Jessica A. Gallus, "The Readiness Imperative for Reducing Sexual Violence in the U.S. Armed Forces: Respect and Professionalism as the Foundation for Change," *Military Psychology*, Vol. 30, No. 3, 2018, pp. 264–269.

Krahé, Barbara, and Anja Berger, "Longitudinal Pathways of Sexual Victimization, Sexual Self-Esteem, and Depression in Women and Men," *Psychological Trauma*, Vol. 9, No. 2, 2017, pp. 147–155.

Layman, Melissa J., Christine A. Gidycz, and Steven J. Lynn, "Unacknowledged Versus Acknowledged Rape Victims: Situational Factors and Posttraumatic Stress," *Journal of Abnormal Psychology*, Vol. 105, No. 1, February 1996, pp. 124–131.

Lehavot, Keren, Jodie G. Katon, Jessica A. Chen, John C. Fortney, and Tracy L. Simpson, "Post-Traumatic Stress Disorder by Gender and Veteran Status," *American Journal of Preventive Medicine*, Vol. 54, No. 1, January 2018, pp. e1–e9.

Lombardo, S., and R. Pohl, "Sexual Abuse History of Women Treated in a Psychiatric Outpatient Clinic," *Psychiatric Services*, Vol. 48, No. 4, April 1997, pp. 534–536.

Loucks, Laura, Carly Yasinski, Seth D. Norrholm, Jessica Maples-Keller, Loren Post, Liza Zwiebach, Devika Fiorillo, Megan Goodlin, Tanja Jovanovic, Albert A. Rizzo, and Barbara O. Rothbaum, "'You Can Do That?!': Feasibility of Virtual Reality Exposure Therapy in the Treatment of PTSD Due to Military Sexual Trauma," *Journal of Anxiety Disorders*, Vol. 61, January 2019, pp. 55–63.

Lovell, Nancy, and Shiva Ghaed, "Adaptive Disclosure: A Combat-Specific PTSD Treatment," proposal protocol, March 2018. As of June 30, 2021: https://www.clinicaltrials.gov/ProvidedDocs/18/NCT01628718/Prot_SAP_000.pdf

Ma, Lin-Lu, Yun-Yun Wang, Zhi-Hua Yang, Di Huang, Hong Weng, Xian-Tao Zeng, "Methodological Quality (Risk of Bias) Assessment Tools for Primary and Secondary Medical Studies: What Are They and Which Is Better?" *Military Medical Research*, Vol. 7, No. 7, 2020.

Maguen, Shira, Beth Cohen, Li Ren, Jeane Bosch, Rachel Kimerling, and Karen Seal, "Gender Differences in Military Sexual Trauma and Mental Health Diagnoses Among Iraq and Afghanistan Veterans with Posttraumatic Stress Disorder," *Women's Health Issues*, Vol. 22, No. 1, January–February 2012, pp. e61–e66.

McBain, Sacha A., Jade Garneau-Fournier, and Jessica A. Turchik, "The Relationship Between Provider Gender Preferences and Perceptions of Providers Among Veterans Who Experienced Military Sexual Trauma," *Journal of Interpersonal Violence*, August 2020.

McCallum, Ethan B., Maureen Murdoch, Christopher R. Erbes, Paul Arbisi, and Melissa A. Polusny, "Impact of Deployment-Related Sexual Stressors on Psychiatric Symptoms After Accounting for Predeployment Stressors: Findings from a U.S. National Guard Cohort," *Journal of Traumatic Stress*, Vol. 28, No. 4, August 2015, pp. 307–313.

McCutcheon, Susan J., and Joanne Pavao, "Resources for Military Sexual Trauma (MST) Survivors," National Training Summit on Women Veterans, briefing slides, 2011. As of November 30, 2021: https://www.va.gov/womenvet/docs/2011summit/Breakout-ResourcesforMSTSurvivors2011.pdf

McGinley, Meredith, Judith A. Richman, and Kathleen M. Rospenda, "Duration of Sexual Harassment and Generalized Harassment in the Workplace over Ten Years: Effects on Deleterious Drinking Outcomes," *Journal of Addictive Diseases*, Vol. 30, No. 3, 2011, pp. 229–242.

McGuinness, Luke A., and Julian P. T. Higgins, "Risk-of-Bias VISualization (robvis): An R Package and Shiny Web App for Visualizing Risk-of-Bias Assessments," *Research Synthesis Methods*, Vol. 12, No. 1, January 2021, pp. 55–61.

Merry, Sally N., and Leah K. Andrews, "Psychiatric Status of Sexually Abused Children 12 Months After Disclosure of Abuse," *Journal of the American Academy of Child & Adolescent Psychiatry*, Vol. 33, No. 7, September 1994, pp. 939–944.

Messman-Moore, Terri L., Amy L. Brown, and Lori E. Koelsch, "Posttraumatic Symptoms and Self-Dysfunction as Consequences and Predictors of Sexual Revictimization," *Journal of Traumatic Stress*, Vol. 18, No. 3, June 2005, pp. 253–261.

Middleton, Katherine, and Carlton David Craig, "A Systematic Literature Review of PTSD Among Female Veterans from 1990 to 2010," *Social Work in Mental Health*, Vol. 10, No. 3, 2012, pp. 233–252.

Millegan, Jeffrey, Emma K. Milburn, Cynthia A. LeardMann, Amy E. Street, Diane Williams, Daniel W. Trone, and Nancy F. Crum-Cianflone, "Recent Sexual Trauma and Adverse Health and Occupational Outcomes Among U.S. Service Women," *Journal of Traumatic Stress*, Vol. 28, No. 4, August 2015, pp. 298–306.

Millegan, Jeffrey, Lawrence Wang, Cynthia A. LeardMann, Derek Miletich, and Amy E. Street, "Sexual Trauma and Adverse Health and Occupational Outcomes Among Men Serving in the U.S. Military," *Journal of Traumatic Stress*, Vol. 29, No. 2, April 2016, pp. 132–140.

Monteith, Lindsey L., Nazanin H. Bahraini, Holly R. Gerber, Brooke Dorsey Holliman, Alexandra L. Schneider, Ryan Holliday, and Bridget B. Matarazzo, "Military Sexual Trauma Survivors' Perceptions of Veterans Health Administration Care: A Qualitative Examination," *Psychological Services*, Vol. 17, No. 2, May 2020, pp. 178–186.

Morral, Andrew R., Kristie L. Gore, Terry L. Schell, Barbara Bicksler, Coreen Farris, Bonnie Ghosh-Dastidar, Lisa H. Jaycox, Dean Kilpatrick, Steve Kistler, Amy Street, Terri Tanielian, and Kayla M. Williams, *Sexual Assault and Sexual Harassment in the U.S. Military: Highlights from the 2014 RAND Military Workplace Study*, Santa Monica, Calif.: RAND Corporation, RB-9841-OSD, 2015. As of June 30, 2021: https://www.rand.org/pubs/research_briefs/RB9841.html

Morral, Andrew R., Miriam Matthews, Matthew Cefalu, Terry L. Schell, and Linda Cottrell, *Effects of Sexual Assault and Sexual Harassment on Separation from the U.S. Military: Findings from the 2014 RAND Military Workplace Study*, Santa Monica, Calif.: RAND Corporation, RR-870/10-OSD, 2021. As of June 30, 2021: https://www.rand.org/pubs/research_reports/RR870z10.html

Munn, Zachary, Micah D. J. Peters, Cindy Stern, Catalin Tufanaru, Alexa McArthur, and Edoardo Aromataris, "Systematic Review or Scoping Review? Guidance for Authors When Choosing Between a Systematic or Scoping Review Approach," *BMC Medical Research Methodology*, Vol. 18, No. 143, 2018.

Murray-Swank, Nichole A., Barbara M. Dausch, and Colleen Ehrnstrom, "The Mental Health Status and Barriers to Seeking Care in Rural Women Veterans," *Journal of Rural Mental Health*, Vol. 42, No. 2, 2018, pp. 102–115.

National Library of Medicine, PubMed.gov, homepage, undated. As of June 30, 2021: https://pubmed.ncbi.nlm.nih.gov/

Ouimette, Paige Crosby, Jessica Wolfe, and Kelly R. Chrestman, "Characteristics of Posttraumatic Stress Disorder-Alcohol Abuse Comorbidity in Women," *Journal of Substance Abuse*, Vol. 8, No. 3, 1996, pp. 335–346.

PHCoE—*See* Psychological Health Center of Excellence.

Psychological Health Center of Excellence, "Sexual Assault/Sexual Harassment in the Military," webpage, undated. As of June 30, 2021: https://health.mil/Military-Health-Topics/Centers-of-Excellence/Psychological-Health-Center-of-Excellence/PHCoE-Clinician-Resources/Sexual-Assault-and-Sexual-Harassment

Public Law 115-232, John S. McCain National Defense Authorization Act for Fiscal Year 2019, August 13, 2018.

Radloff, Lenore Sawyer, "The CES-D Scale: A Self-Report Depression Scale for Research in the General Population," *Applied Psychological Measurement*, Vol. 1, No. 3, 1977, pp. 385–401.

RAND Corporation, homepage, undated. As of June 30, 2021: https://www.rand.org/

Ranganathan, Priya, C. S. Pramesh, and Rakesh Aggarwal, "Common Pitfalls in Statistical Analysis: Intention-to-Treat Versus Per-Protocol Analysis," *Perspectives in Clinical Research*, Vol. 7, No. 3, 2016, pp. 144–146.

Richman, Judith A., Joseph A. Flaherty, and Kathleen M. Rospenda, "Perceived Workplace Harassment Experiences and Problem Drinking Among Physicians: Broadening the Stress/Alienation Paradigm," *Addiction*, Vol. 91, No. 3, 1996, pp. 391–403.

Richman, Judith A., Stephanie A. Shinsako, Kathleen M. Rospenda, Joseph A. Flaherty, and Sally A. Freels, "Workplace Harassment/Abuse and Alcohol-Related Outcomes: The Mediating Role of Psychological Distress," *Journal of Studies on Alcohol*, Vol. 63, No. 4, August 2002, pp. 412–419.

Rosellini, Anthony J., Amy E. Street, Robert J. Ursano, Wai Tat Chiu, Steven G. Heeringa, John Monahan, James A. Naifeh, Maria V. Petukhova, Ben Y. Reis, Nancy A. Sampson, Paul D. Bliese, Murray B. Stein, Alan M. Zaslavsky, and Ronald C. Kessler, "Sexual Assault Victimization and Mental Health Treatment, Suicide Attempts, and Career Outcomes Among Women in the U.S. Army," *American Journal of Public Health*, Vol. 107, No. 5, May 2017, pp. 732–739.

Roth, Susan, Elana Newman, David Pelcovitz, Bessel van der Kolk, and Francine S. Mandel, "Complex PTSD in Victims Exposed to Sexual and Physical Abuse: Results from the DSM-IV Field Trial for Posttraumatic Stress Disorder," *Journal of Traumatic Stress*, Vol. 10, No. 4, 1997, pp. 539–555.

Rowe, Erin L., Jaimie L. Gradus, Suzanne L. Pineles, Sonja V. Batten, and Eve H. Davison, "Military Sexual Trauma in Treatment-Seeking Women Veterans," *Military Psychology*, Vol. 21, No. 3, 2009, pp. 387–395.

Rugulies, Reiner, Kathrine Sørensen, Per T. Aldrich, Anna P. Folker, Maria K. Friborg, Susie Kjær, Maj Britt D. Nielsen, Jeppe K. Sørensen, and Ida E. H. Madsen, "Onset of Workplace Sexual Harassment and Subsequent Depressive Symptoms and Incident Depressive Disorder in the Danish Workforce," *Journal of Affective Disorders*, Vol. 277, 2020, pp. 21–29.

Rush, A. John, Madhukar H. Trivedi, Hicham M. Ibrahim, Thomas J. Carmody, Bruce Arnow, Daniel N. Klein, John C. Markowitz, Philip T. Ninan, Susan Kornstein, Rachel Manber, Michael E. Thase, James H. Kocsis, and Martin B. Keller, "The 16-Item Quick Inventory of Depressive Symptomatology (QIDS), Clinician Rating (QIDS-C), and Self-Report (QIDS-SR): A Psychometric Evaluation in Patients with Chronic Major Depression," *Biological Psychiatry*, Vol. 54, No. 5, 2003, pp. 573–583.

Sadler, Anne G., Ann M. Cheney, Michelle A. Mengeling, Brenda M. Booth, James C. Torner, and Lance Brendan Young, "Servicemen's Perceptions of Male Sexual Assault and Barriers to Reporting During Active Component and Reserve/National Guard Military Service," *Journal of Interpersonal Violence*, Vol. 36, No. 7-8, 2018.

Santiago, J. M., F. McCall-Perez, M. Gorcey, and A. Beigel, "Long-Term Psychological Effects of Rape in 35 Rape Victims," *American Journal of Psychiatry*, Vol. 142, No. 11, November 1985, pp. 1338–1340.

Schuyler, Ashley C., Sara Kintzle, Carrie L. Lucas, Hadass Moore, and Carl A. Castro, "Military Sexual Assault (MSA) Among Veterans in Southern California: Associations with Physical Health, Psychological Health, and Risk Behaviors," *Traumatology*, Vol. 23, No. 3, 2017, pp. 223–234.

Seehra, Jadbinder, Nikolaos Pandis, Despina Koletsi, and Padhraig S. Fleming, "Use of Quality Assessment Tools in Systematic Reviews Was Varied and Inconsistent," *Journal of Clinical Epidemiology*, Vol. 69, January 2016, pp.179–184.

Seelig, Amber D., Anna C. Rivera, Teresa M. Powell, Emily C. Williams, Arthur V. Peterson, Alyson J. Littman, Charles Maynard, Amy E. Street, Jonathan B. Bricker, and Edward J. Boyko, "Patterns of Smoking and Unhealthy Alcohol Use Following Sexual Trauma Among U.S. Service Members," *Journal of Traumatic Stress*, Vol. 30, No. 5, 2017, pp. 502–511.

Sexton, Minden B., RaeAnn E. Anderson, Diana C. Bennett, Edward J. Thomas, Rachel B. Broman, and Sarah K. H. Richards, "Military Sexual Trauma Survivor Preferences for Provider Gender and Associations with Mental Health Evaluation Attendance," *Behavior Therapist*, Vol. 43, No. 1, 2020, pp. 6–14.

Sharmin, Sonia, Kypros Kypri, Masuma Khanam, Monika Wadolowski, Raimondo Bruno, John Attia, Elizabeth Holliday, Kerrin Palazzi, and Richard Mattick, "Effects of Parental Alcohol Rules on Risky Drinking and Related Problems in Adolescence: Systematic Review and Meta-Analysis," *Drug and Alcohol Dependence*, Vol. 178, 2017, pp. 243–256.

Sørbø, Marie Flem, Hilde Grimstad, Johan Håkon Bjørngaard, Mirjam Lukasse, and Berit Schei, "Adult Physical, Sexual, and Emotional Abuse and Postpartum Depression, a Population Based, Prospective Study of 53,065 Women in the Norwegian Mother and Child Cohort Study," *BMC Pregnancy & Childbirth*, Vol. 14, No. 316, 2014.

Spitzer, Robert L., Kurt Kroenke, and Janet B. W. Williams, "Validation and Utility of a Self-Report Version of PRIME-MD: The PHQ Primary Care Study," *JAMA*, Vol. 282, No. 18, 1999, pp. 1737–1744.

Sterne, Jonathan A. C., Miguel A. Hernán, Barnaby C. Reeves, Jelena Savović, Nancy D. Berkman, Meera Viswanathan, David Henry, Douglas G. Altman, Mohammed T. Ansari, Isabelle Boutron, James R. Carpenter, An-Wen Chan, Rachel Churchill, Jonathan J. Deeks, Asbjørn Hróbjartsson, Jamie Kirkham, Peter Jüni, Yoon K. Loke, Theresa D. Pigott, Craig R. Ramsay, Deborah Regidor, Hannah R. Rothstein, Lakhbir Sandhu Pasqualina L. Santaguida, Holger J. Schünemann, Beverly Shea, Ian Shrier, Peter Tugwell, Lucy Turner, Jeffrey C. Valentine, Hugh Waddington, Elizabeth Waters, George A. Wells, Penny F. Whiting, and Julian P. T. Higgins, "ROBINS-I: A Tool for Assessing Risk of Bias in Non-Randomized Studies of Interventions," *BMJ*, Vol. 355, No. 4919, 2016.

Sterne, Jonathan A. C., Jelena Savović, Matthew J. Page, Roy G. Elbers, Natalie S. Blencowe, Isabelle Boutron, Christopher J. Cates, Hung-Yuan Cheng, Mark S. Corbett, Sandra M. Eldridge, Miguel A. Hernán, Sally Hopewell, Asbjørn Hróbjartsson, Daniela R. Junqueira, Peter Jüni, Jamie J. Kirkham, Toby Lasserson, Tianjing Li, Alexandra McAleenan, Barnaby C. Reeves, Sasha Shepperd, Ian Shrier, Lesley A. Stewart, Kate Tilling, Ian R. White, Penny F. Whiting, and Julian P. T. Higgins, "RoB 2: A Revised Tool for Assessing Risk of Bias in Randomised Trials," *BMJ*, Vol. 366, No. 4898, 2019.

Sternke, Lisa Marie, "Measurement of Military Combat Exposure Among Women: Analysis and Implications," *Women's Health Issues*, Vol. 21, No. 4, July 1, 2011, pp. S160–S168.

Straus, Elizabeth, Sonya B. Norman, and Robert H. Pietrzak, "Determinants of New-Onset Alcohol Use Disorder in U.S. Military Veterans: Results from the National Health and Resilience in Veterans Study," *Addictive Behaviors*, Vol. 105, June 2020.

Street, Amy E., Jane Stafford, Clare M. Mahan, and Ann Hendricks, "Sexual Harassment and Assault Experienced by Reservists During Military Service: Prevalence and Health Correlates," *Journal of Rehabilitation Research & Development*, Vol. 45, No. 3, 2008, pp. 409–419.

Surís, Alina, Jessica Link-Malcolm, Kathleen Chard, Chul Ahn, and Carol North, "A Randomized Clinical Trial of Cognitive Processing Therapy for Veterans with PTSD Related to Military Sexual Trauma," *Journal of Traumatic Stress*, Vol. 26, No. 1, February 2013, pp. 28–37.

Tanielian, Terri, and Lisa H. Jaycox, *Invisible Wounds of War: Psychological and Cognitive Injuries, Their Consequences, and Services to Assist Recovery*, Santa Monica, Calif.: RAND Corporation, MG-720-CCF, 2008. As of June 30, 2021: https://www.rand.org/pubs/monographs/MG720.html

Tannahill, Hallie S., Whitney S. Livingston, Jamison D. Fargo, Emily Brignone, Adi V. Gundlapalli, and Rebecca K. Blais, "Gender Moderates the Association of Military Sexual Trauma and Risk for Psychological Distress Among VA-Enrolled Veterans," *Journal of Affective Disorders*, Vol. 268, May 1, 2020, pp. 215–220.

Taylor, Joanne E., and Shane T. Harvey, "Effects of Psychotherapy with People Who Have Been Sexually Assaulted: A Meta-Analysis," *Aggression and Violent Behavior*, Vol. 14, No. 5, 2009, pp. 273–285.

Thompson, Kevin M., Ross D. Crosby, Stephen A. Wonderlich, James E. Mitchell, Jennifer Redlin, Gail Demuth, Joshua Smyth, and Beth Haseltine, "Psychopathology and Sexual Trauma in Childhood and Adulthood," *Journal of Traumatic Stress*, Vol. 16, No. 1, February 2003, pp. 35–38.

Tiet, Quyen Q., Yani E. Leyva, Kathy Blau, Jessica A. Turchik, and Craig S. Rosen, "Military Sexual Assault, Gender, and PTSD Treatment Outcomes of U.S. Veterans," *Journal of Traumatic Stress*, Vol. 28, No. 2, April 2015, pp. 92–101.

Turchik, Jessica A., Caitlin McLean, Samantha Rafie, Tim Hoyt, Craig S. Rosen, and Rachel Kimerling, "Perceived Barriers to Care and Provider Gender Preferences Among Veteran Men Who Have Experienced Military Sexual Trauma: A Qualitative Analysis," *Psychological Services*, Vol. 10, No. 2, May 2013, pp. 213–222.

Turchik, Jessica A., Samantha Rafie, Craig S. Rosen, and Rachel Kimerling, "Preferences for Gender-Targeted Health Information: A Study of Male Veterans Who Have Experienced Military Sexual Trauma," *American Journal of Men's Health*, Vol. 8, No. 3, 2014, pp. 240–248.

U.S. Code, Title 38, Section 1720D, Counseling and Treatment for Sexual Trauma.

U.S. Department of Defense, *Department of Defense Annual Report on Sexual Assault in the Military: Fiscal Year 2020*, Washington, D.C., May 2021a.

U.S. Department of Defense, "Appendix B: Statistical Data on Sexual Assault," *Department of Defense Annual Report on Sexual Assault in the Military: Fiscal Year 2020*, Washington, D.C., May 2021b.

U.S. National Library of Medicine, ClinicalTrials.gov, homepage, undated. As of June 30, 2021: https://clinicaltrials.gov/

U.S. National Library of Medicine, "Treatment for Veterans with Military Sexual Trauma," ClinicalTrials.gov, NCT00371644, updated January 15, 2015. As of June 30, 2021: https://clinicaltrials.gov/ct2/show/NCT00371644

Valentine, Lisa M., Shannon D. Donofry, Rachel B. Broman, Erin R. Smith, Sheila A. Rauch, and Minden B. Sexton, "Comparing PTSD Treatment Retention Among Survivors of Military Sexual Trauma Utilizing Clinical Video Technology and In-Person Approaches," *Journal of Telemedicine and Telecare*, Vol. 26, No. 7-8, 2020, pp. 443–451.

Valentiner, David P., Edna B. Foa, David S. Riggs, and Beth S. Gershuny, "Coping Strategies and Posttraumatic Stress Disorder in Female Victims of Sexual and Nonsexual Assault," *Journal of Abnormal Psychology*, Vol. 105, No. 3, 1996, pp. 455–458.

van Toorenburg, M. M., S. A. Sanches, B. Linders, L. Rozendaal, E. M. Voorendonk, A. Van Minnen, and A. De Jongh, "Do Emotion Regulation Difficulties Affect Outcome of Intensive Trauma-Focused Treatment of Patients with Severe PTSD?" *European Journal of Psychotraumatology*, Vol. 11, No. 1, 2020.

Viechtbauer, Wolfgang, "Bias and Efficiency of Meta-Analytic Variance Estimators in the Random-Effects Model," *Journal of Educational and Behavioral Statistics*, Vol. 30, No. 3, 2005, pp. 261–293.

Viechtbauer, Wolfgang, "Conducting Meta-Analyses in R with the Metafor Package," *Journal of Statistical Software*, Vol. 36, No. 3, 2010.

Voils, Corrine I., Jamie L. Crandell, YunKyung Chang, Jennifer Leeman, and Margarete Sandelowski, "Combining Adjusted and Unadjusted Findings in Mixed Research Synthesis," *Journal of Evaluation in Clinical Practice*, Vol. 17, No. 3, 2011, pp. 429–434.

Wadsworth, Pamela, Eve Krahe, and Kim Searing, "Health Care Seeking and Engagement After Sexual Assault," *Journal for Nurse Practitioners*, Vol. 15, No. 10, 2019, pp. 801–805.

Waitzkin, Howard, Mario Cruz, Bryant Shuey, Daniel Smithers, Laura Muncy, and Marylou Noble, "Military Personnel Who Seek Health and Mental Health Services Outside the Military," *Military Medicine*, Vol. 183, No. 5-6, May 1, 2018, pp. e232–e240.

Walker, Jayne, John Archer, and Michelle Davies, "Effects of Male Rape on Psychological Functioning," *British Journal of Clinical Psychology*, Vol. 44, 2005, pp. 445–451.

Watkins, Laura E., Kelsey R. Sprang, and Barbara O. Rothbaum, "Treating PTSD: A Review of Evidence-Based Psychotherapy Interventions," *Frontiers in Behavioral Neuroscience*, Vol. 12, No. 258, 2018.

Weathers, Frank, Brett Litz, Debra Herman, J. A. Huska, and Terence M. Keane, "The PTSD Checklist (PCL): Reliability, Validity, and Diagnostic Utility," paper presented at Annual Convention of the International Society for Traumatic Stress Studies, 1993.

Weaver, Terri L., and George A. Clum, "Psychological Distress Associated with Interpersonal Violence: A Meta-Analysis," *Clinical Psychology Review*, Vol. 15, No. 2, 1995, pp. 115–140.

Weiss, Brandon J., Kathryn Azevedo, Katie Webb, Julia Gimeno, and Marylene Cloitre, "Telemental Health Delivery of Skills Training in Affective and Interpersonal Regulation (STAIR) for Rural Women Veterans Who Have Experienced Military Sexual Trauma," *Journal of Traumatic Stress*, Vol. 31, No. 4, August 2018, pp. 620–625.

Wells, G., B. Shea, D. O'Connell, J. Peterson, V. Welch, M. Losos, and P. Tugwell, "The Newcastle-Ottawa Scale (NOS) for Assessing the Quality of Nonrandomised Studies in Meta-Analyses," briefing slides, 2013. As of June 30, 2021: http://www.ohri.ca/programs/clinical_epidemiology/oxford.asp

WHO—*See* World Health Organization.

Wirtz, Andrea L., Nancy A. Perrin, Amelie Desgroppes, Verena Phipps, Ali A. Abdi, Brendan Ross, Francesco Kaburu, Isatu Kajue, Ezekiel Kutto, Eri Taniguchi, and Nancy Glass, "Lifetime Prevalence, Correlates and Health Consequences of Gender-Based Violence Victimisation and Perpetration Among Men and Women in Somalia," *BMJ Global Health*, Vol. 3, No. 4, 2018.

Wolff, Kristina B., and Peter D. Mills, "Reporting Military Sexual Trauma: A Mixed-Methods Study of Women Veterans' Experiences Who Served from World War II to the War in Afghanistan," *Military Medicine*, Vol. 181, No. 8, August 2016, pp. 840–848.

World Health Organization, "International Clinical Trials Registry Platform (ICTRP)," webpage, undated. As of June 30, 2021: https://www.who.int/clinical-trials-registry-platform

Zalta, Alyson K., Philip Held, Dale L. Smith, Brian J. Klassen, Ashton M. Lofgreen, Patricia S. Normand, Michael B. Brennan, Thad S. Rydberg, Randy A. Boley, Mark H. Pollack, and Niranjan S. Karnik, "Evaluating Patterns and Predictors of Symptom Change During a Three-Week Intensive Outpatient Treatment for Veterans with PTSD," *BMC Psychiatry*, Vol. 18, No. 242, 2018.

Zinzow, Heidi M., Thomas W. Britt, Cynthia L. S. Pury, Kristen Jennings, Janelle H. Cheung, and Mary Anne Raymond, "Barriers and Facilitators of Mental Health Treatment-Seeking in U.S. Active Duty Soldiers with Sexual Assault Histories," *Journal of Traumatic Stress*, Vol. 28, No. 4, August 2015, pp. 289–297.

NATIONAL DEFENSE RESEARCH INSTITUTE

Victims of sexual assault and sexual harassment often experience a variety of psychological outcomes and mental health symptoms related to posttraumatic stress disorder (PTSD), depression, anxiety, substance abuse, suicidal ideation, and self-harm. Sexual trauma also might affect careers. Despite a need to address these harms, some service members have reported that connecting to health care or mental health services following sexual assault or sexual harassment can be difficult—in part because of a lack of leadership support. Given these persistent challenges, the Psychological Health Center of Excellence identified an urgent need to better understand research that is pertinent to sexual assault and sexual harassment during military service so that the U.S. Department of Defense and the military services can improve the health care response for service members. RAND researchers investigated and synthesized relevant research in three topic areas: (1) the effectiveness of psychotherapy treatments designed for adult victims of sexual assault or sexual harassment in military settings; (2) barriers faced by U.S. military members to accessing and remaining in mental health care settings; and (3) associations between sexual assault or sexual harassment and mental health conditions.

$47.00

ISBN-10 1-9774-0805-2
ISBN-13 978-1-9774-0805-1

www.rand.org

RR-A668-1