Predictors of PTSD Treatment Retention and Response

A Systematic Review

MARGARET A. MAGLIONE, CHRISTINE CHEN, MEGHAN FRANCO,
MAHLET GIZAW, NIMA SHAHIDINIA, SANGITA M. BAXI, SUSANNE HEMPEL

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Preface

Over the past two decades, the U.S. Department of Defense (DoD) has invested substantial resources into developing effective treatments for military-related psychological health conditions. Systematic reviews are a key component in the knowledge translation process and function to translate the available research into evidence-based health care guidelines that promote optimal clinical care. Although a few government agencies, including the U.S. Department of Veterans Affairs and the Agency for Healthcare Research and Quality, have established evidence synthesis centers, there is no similar center within the DoD that focuses exclusively on psychological health issues. Thus, the Southern California Evidence-based Practice Center, housed at the RAND Corporation, has been awarded a three-year contract to synthesize research on psychological health interventions important to military populations. This review, investigating which patient characteristics and intervention aspects are associated with better retention and increased response, should be of interest to health policymakers and practitioners as well as patients with posttraumatic stress disorder.

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Abstract

This systematic review synthesizes the evidence on pretreatment patient characteristics and treatment program features associated with treatment retention, response, and remission in military populations with PTSD.

We searched PubMed, EMBASE, PsycINFO, PILOTS, CDSR, CENTRAL and bibliographies of systematic reviews to identify English-language studies that report outcomes of treatment retention, response, and remission for PTSD treatment. To avoid missing relevant studies, we retrieved full texts of all studies on efficacy or effectiveness of PTSD interventions in military populations. Patient and treatment characteristics associated with outcomes were not the primary focus of some studies, so were not reported in the abstract or even in an article's discussion section. Only through obtaining and reviewing entire articles were these findings discovered. Two reviewers independently screened literature using predetermined eligibility criteria. Reviewers abstracted study-level information and assessed each study's risk of bias. Results from studies reporting on the same potential predictor and outcome were pooled via meta-analysis where possible. Results of multivariate models were described narratively.

A comprehensive search and 758 full text publication screenings yielded 84 articles reporting on 70 studies that met inclusion criteria. Twenty-one studies were rated as good quality, 33 were rated fair, and 16 were rated poor, according to the Quality in Prognostics Studies (QUIPS) instrument, which focuses on ability to accurately detect predictors. Quality of evidence was low or insufficient for most patient and treatment characteristics due to inconsistent results, imprecision, potential publication bias, and study limitations. Over half the included studies were conducted at U.S. Veteran Affairs (VA) sites or were analyses of records from the VA database. Although studies involving multivariate analyses of VA data had high quality due to good statistical power and adjustment for potential confounders, it was sometimes difficult to determine the overlap of VA patient populations; the same patients may have been included in multiple observational studies.

Dozens of patient and program characteristics were investigated in the included studies. Moderate quality evidence indicates older age is associated with better retention. Length of stay in treatment was the strongest predictor of response; quality of evidence was rated high. There is also high quality evidence that more severe PTSD at treatment entry is associated with less response. Moderate quality evidence shows that worse baseline mental health and more combat experience are associated with worse response to treatment. Low quality evidence supports a negative association of participation in atrocities with response. Individual therapy was associated with greater response than group therapy; quality of evidence was moderate. No predictors of remission during or after treatment were assessed in more than one study; no studies assessed remission more than one year after treatment entry.

In sum, length of stay in treatment is strongly associated with better response; however, age is the only patient characteristic with a large body of supporting evidence associated with better retention. Combat experience, participation in atrocities, and worse mental health are associated with less response to treatment. Studies predicting remission are urgently needed.

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Summary

Introduction

Given the prevalence of posttraumatic stress disorder (PTSD) and the magnitude of its consequences, all affected veterans and active service members should have access to effective treatment. To match patients with the most appropriate treatment, it is important to know which treatment program characteristics and pretreatment patient characteristics are predictors of treatment retention and response. Knowing which aspects of programs are associated with better response could help design more effective programs, and finding pretreatment patient characteristics that can serve as red flags for dropout or prompts to monitor specific patients more closely would be a valuable tool for clinical practice.

The U.S. Department of Defense (DoD) Psychological Health Center of Excellence commissioned a systematic review to identify patient and program characteristics associated with increased retention, better response to treatment, and remission from PTSD in military populations. Retention refers to staying in treatment and can be expressed as a continuous measure (length of stay, in days) or a dichotomous outcome—for example, whether a patient completed a minimum length of treatment. Response to treatment means change in PTSD severity from baseline to follow-up based on reliable and valid instruments. Remission occurs when an individual has improved so much that he or she no longer meets the diagnostic criteria for PTSD or scores below a certain level on validated instruments.

Rather than assess the comparative effectiveness of specific interventions, this project's goal was to identify baseline patient characteristics and specific program characteristics associated with increased retention, better response to treatment, and remission. Hypothesized pretreatment patient characteristics include demographics, military background, PTSD severity, social support, co-occurring mental health conditions, and treatment expectations. Program characteristics include therapeutic alliance, number and frequency of sessions, modality (e.g., group versus individual sessions, delivery by telemedicine), location, and combining multiple interventions.

This review was guided by six key questions (KQs):

KQ 1. What patient characteristics are associated with treatment retention?
KQ 2. What program characteristics are associated with treatment retention?
KQ 3. What patient characteristics are associated with treatment response?
KQ 4. What program characteristics are associated with treatment response?
KQ 5. What patient characteristics are associated with remission?
KQ 6. What program characteristics are associated with remission?

Methods

We searched electronic databases—PubMed, Embase, PsycINFO, Published International Literature on Traumatic Stress (PILOTS), Cochrane Database of Systematic Reviews, and the Cochrane Central Register of Controlled Trials (CENTRAL)—and bibliographies of existing systematic reviews to identify English-language studies that report outcomes of PTSD treatment retention, response, and remission among military populations. Two reviewers independently screened literature using predetermined eligibility criteria. Reviewers abstracted prespecified study-level information and assessed each included study's risk of bias; data were checked by the project lead for accuracy.

Studies of the same potential predictor and outcome that used compatible measurement tools were pooled via meta-analysis using the restricted maximum likelihood estimator with Wald-type confidence interval (CI) in the R statistical software package. Continuous outcomes were expressed as standardized mean differences (*SMD*s) and categorical outcomes were expressed as relative risk, together with the 95 percent CIs. Studies that reported the results of multivariate models were described narratively, as these cannot be pooled.

The overall quality of evidence was assessed using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach, adapted for prognostic literature, and we differentiated high, moderate, low, and insufficient confidence in findings. A body of observational evidence begins with a high-quality rating and is downgraded based on the following domains: study limitations (risk of bias), directness, consistency, precision, and publication bias. The rating is increased if the effect size is large.

Regarding risk of bias, the quality rating is downgraded when results are primarily based on studies with substantial methodological limitations. For example, if the body of evidence on a predictor consists solely of bivariate correlations that do not adjust for potential confounders, the evidence is downgraded. When individual study results conflict regarding the direction of findings (e.g., a positive versus negative relationship with retention, regardless of statistical significance), or when substantial heterogeneity is detected in pooled analysis, the body of evidence is downgraded for inconsistency. The evidence is downgraded for precision when CIs overlap conflicting conclusions (i.e., when meta-analysis results are not statistically significant, CIs are wide, or if most studies report statistically insignificant results when meta-analysis is not possible). Regarding publication bias, the default position is to assume that prognosis research is seriously affected by publication bias until evidence to the contrary, such as multiple studies on different samples, is found. Evidence is indirect when a study's population or outcome is not exactly representative. As we excluded studies of nonmilitary populations and only included studies that reported direct outcomes (valid, reliable measures of PTSD severity), there was no need to decrease any quality rating for indirectness.

Results

We included 70 studies reported in 84 journal articles. Twenty-one studies were rated as good quality, 33 were rated fair, and 16 were rated poor according to the Quality in Prognosis Studies (QUIPS) instrument, which focuses on ability to accurately detect predictors.

At least half studied U.S. Department of Veterans Affairs (VA) patients; although admission dates and site locations were abstracted whenever available, it was difficult to determine the overlap of these study populations. Most multivariate analyses of the national VA database assessed retention rather than response. The quality of evidence was downgraded for predictors where the majority of evidence came from potentially overlapping populations. We conducted a sensitivity analysis by removing the studies of the national VA database; our overall conclusions did not change.

KQ 1: Retention and Patient Characteristics

According to the modified GRADE system, the quality of evidence could not be rated high for any patient characteristic. Ratings for many potential predictors of retention were downgraded for publication bias because the majority of evidence came from multivariate analyses of data from the VA database; again, it was difficult to determine the overlap of patients in these studies.

Being older was the only predictor of better retention supported by moderate-quality evidence. Even so, half of the identified studies on age found a positive direction of findings that was not statistically significant (imprecise). Only three studies reported on sex; results were mixed, so quality of evidence was rated insufficient to formulate a conclusion. Mixed results were found regarding race/ethnicity. Being African American was associated with worse retention (low quality of evidence) in several studies; however, one study of VA outpatient counseling reported better retention among African American patients. Three studies assessing employment status had mixed results; none found a statistically significant association with retention (insufficient evidence). Married patients had a lower rate of treatment dropout in four studies; however, these results never reached statistical significance. Quality of evidence was rated low for marital status.

Low-quality evidence supports the notion that higher treatment expectations are associated with better retention and that depression and service connection are associated with worse retention. More severe PTSD at baseline (low quality of evidence) and more mental health comorbidities (moderate quality of evidence) were associated with better retention. Those findings may seem counterintuitive; however, more severe patients may receive stronger encouragement or more incentive to remain in treatment longer.

Quality of evidence was rated insufficient for income, substance use disorder, combat exposure, and theater due to inconsistency or study limitations. Quality of evidence was also rated insufficient for anxiety, anger, treatment history, beliefs about psychotherapy, exposure

to civilian trauma, participation in atrocities, military rank, and number of deployments because they were each included as a potential predictor of retention in only one study.

KQ 2: Retention and Treatment Characteristics

Few treatment characteristics were assessed in more than one study. Regarding mode of delivery, none of the three studies of in-person versus telehealth treatment reported a statistically significant difference in retention when adjusting for important confounders; direction of findings conflicted, so quality of evidence was rated low for no difference between modalities. Use of virtual reality was assessed in one study; thus, quality of evidence was rated insufficient to make conclusions.

Results were mixed in three studies of adding medication to psychological therapy (insufficient quality of evidence).

Low-quality evidence indicates that facility distance from patients is inversely associated with retention; direction of effect was consistent but only statistically significant in one of four studies. Notably, we identified no studies of the effect of therapeutic alliance.

KQ 3: Response and Patient Characteristics

Many studies assessed the relationship between response to treatment and age, race/ethnicity, and sex. Quality of evidence for these potential predictors was rated insufficient as the results of several studies were in direct conflict, while many others reported no statistically significant associations. Quality of evidence for a positive effect of more education, being employed, and being married was rated low due to lack of precision, risk of bias, or conflicting results.

Three studies reported bivariate correlations between baseline and follow-up PTSD severity; pooled results showed a very large statistically significant negative association. In three stratified analyses, patients with moderate or low PTSD severity improved significantly more than those with high/severe PTSD. Five studies reported on multivariate models where change in severity was the dependent variable: three found baseline severity significantly associated with worse response while the other two reported findings in a similar direction that were not statistically significant. The consistency of direction, large effect size, and quality of the studies led us to rate the quality of evidence high that higher severity at baseline is associated with less improvement.

Our meta-analysis of two studies that reported bivariate correlations between baseline mental health and response found a large and significant association between better mental health and decrease in PTSD severity score posttreatment. One of these studies developed a model adjusting for important confounders; the relationship between mental health and response was statistically significant. Quality of evidence was rated moderate.

Quality of evidence for negative effect of depression was rated low due to lack of precision and low for anger due to conflicting results. Three studies that included comorbid anxiety found conflicting results; thus, quality of evidence was rated insufficient.

Social support and social function had statistically significant positive effects in two studies; however, these studies did not adjust for other potential predictors, so quality of evidence was rated low. Better physical health had a significant positive effect in three studies; quality of evidence was rated moderate.

Level of combat exposure measured by the Combat Experiences Scale (CES) had a significant negative association with response trajectory in two of five studies that included this variable in multivariate analyses. Two studies reported stratified results comparing patients who had or had not been exposed to combat; our meta-analysis found a large and statistically significant difference in response, with patients exposed to combat having worse response. In contrast, our pooled analysis of three studies that reported bivariate correlations between the *level* of combat exposure and response found statistically insignificant results. Quality of evidence was rated moderate.

Our meta-analysis of two studies reporting a bivariate correlation between participation in atrocities and response found a large and significant negative association. Quality of evidence was rated low. Service connection/disability status was included in five studies that reported the results of multivariate models. One found that requesting an increase in service connection associated with less improvement at discharge, while the others reported no statistically significant associations between service connection/disability status and treatment response. Thus, quality of evidence was insufficient to make a conclusion.

Regarding theater, one study found Iraq/Afghanistan vets had significantly less response than patients who served in other eras. Another study found no significant difference between peacekeepers and wartime veterans. Quality of evidence for theater was rated insufficient.

Mild traumatic brain injury, military occupation, number of deployments, worse family function, and marijuana use were investigated in only one study apiece. Quality of evidence for these potential predictors was rated insufficient due to lack of replication.

KQ 4: Response and Treatment Characteristics

Retention was the strongest predictor of treatment response; this was true for residential, inpatient, and outpatient treatment. All seven studies that included length of stay in multivariate models found a statistically significant positive association. Quality of evidence was rated high. In five studies, patients who attended more treatment sessions had greater response; however, this relationship was not always statistically significant (low quality of evidence).

Regarding mode of delivery, individual therapy was found statistically superior to group therapy in two randomized controlled trials (RCTs; moderate quality of evidence). Meta-analyses of in-person versus telehealth delivery of prolonged exposure, or PE (two RCTs) and cognitive processing therapy, or CPT (three RCTs) found no significant difference in response. However, considerable heterogeneity was detected, leading to a low quality of evidence rating for noninferiority. Virtual reality exposure versus standard PE showed no statistical difference in response in one RCT; lack of replication led to a rating of insufficient evidence.

Regarding adding services or components, one of two studies assessing the effect of using medication with interventions found a statistically significant positive result; the other reported no significant association without providing quantitative results. Meta-analysis of three RCTs found that adding telephone monitoring or management to outpatient PTSD treatment did not have a significant effect on response. However, results of the individual studies were mixed, leading to substantial heterogeneity. Again, quality of evidence was low for no effect of telephone monitoring/management. One study adding an online stress management program based in cognitive behavioral therapy found better response than outpatient psychotherapy alone at six weeks and 12 weeks but not at 18 weeks. Due to lack of replication, quality of evidence was rated insufficient.

Treatment fidelity, patient mix, patient/clinician racial congruence, urban versus suburban location, and facility distance from patients were investigated in one study each. Quality of evidence was rated "insufficient" for these potential predictors of treatment response.

KQ 5: Remission and Patient Characteristics

Only one study meeting inclusion criteria reported patient characteristics associated with remission during or after treatment. This secondary analysis of data from an RCT (n = 235) of present-centered therapy versus PE in women found a negative association of both more severe PTSD and dissociative disorder with remission; multivariate analysis adjusted for other potential confounders. The authors reported a stratified analysis that found demographic characteristics and service connection not statistically associated with loss of diagnosis or remission. Better social function and physical health were significantly associated with remission, while co-occurring psychiatric diagnosis had a significant negative association. Despite the good quality of this study, quality of evidence was rated insufficient for these predictors due to lack of replication.

KQ 6: Remission and Treatment Characteristics

Only four studies of program characteristics and remission met the inclusion criteria. An RCT found no significant difference in remission at six months between patients in individual or group therapy. An RCT of telehealth (videoconference) versus in-person delivery of CPT found no significant difference in remission at treatment end, three months, and six months posttreatment. An RCT of "spaced" PE (ten sessions over eight weeks) versus "massed" PE (ten sessions over two weeks) reported similar remission rates at 12 weeks. Finally, a cohort study of active-duty Navy personnel reported significantly higher remission rates for patients receiving psychotherapy plus eye movement desensitization and reprocessing than those receiving psychotherapy alone, at treatment end. Despite the good quality of these studies, the quality of evidence is insufficient for all due to lack of replication.

Discussion and Conclusion

We identified no predictors of retention with high-quality evidence. Moderate-quality evidence was found for older age. Notably, baseline PTSD severity was not associated with worse retention. We identified low-quality evidence that patients with service-connected disability are less likely to completion treatment. These patients could be identified at admission and focused efforts to retain them implemented.

Retention (length of stay) was the strongest and most consistent predictor of treatment response. It is interesting to note that none of the identified studies of in-person versus telehealth treatment found a significant difference in retention after adjusting for potential confounders (low quality of evidence). Moderate quality evidence shows that worse mental health and more combat exposure had a negative effect on response, while better physical health was associated with increased response. Participation in atrocities was associated with worse response (low quality of evidence). Only one study each on the effects of traumatic brain injury and the effects of the number of deployments was identified; more research in these areas is warranted. The relationship between pain and response is an important area for future study and possible intervention given that no studies in this area met our inclusion criteria.

Individual therapy was associated with greater response than group therapy (moderate evidence). Our meta-analyses found that differences in response between in-person or telehealth treatment were not statistically significant for PE or CPT, though our results indicated substantial heterogeneity. Adding telephone monitoring or management to outpatient PTSD treatment did not have a significant effect on response; additional research with larger samples and longer follow-up is needed to increase the quality of evidence, as considerable heterogeneity was detected. The effect of treatment fidelity, patient/therapist racial congruence, and facility distance from patients were each assessed in one study of response; additional research on these factors is suggested. No studies of therapeutic alliance met inclusion criteria; more research in this area is suggested.

Response was measured using a variety of instruments; the most widely used were the Clinician-Administered PTSD Scale and the PTSD Checklist. To pool results of multiple studies, we converted continuous scores (means) to *SMD*s, thus converting to a uniform scale across studies. We strongly suggest that researchers agree to a standard definition of response (e.g., minimum score on the CAPS or PCL) throughout the field for ease of comparisons across studies. Few studies of predictors of remission during or after PTSD treatment were identified, and none followed patients more than a year after treatment entry. Thus, no conclusions could be made regarding predictors of remission in military personnel or veterans. Longitudinal analyses of VA data are strongly suggested to shed light on this important area.

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Abbreviations

ACS	Affect Control Scale
ANCOVA	analysis of covariance
ANOVA	analysis of variance
APA	American Psychiatric Association
AUD	alcohol use disorder
AUDIT	Alcohol Use Disorders Identification Test
BDI	Beck Depression Inventory
BDI-II	Beck Depression Inventory—Second Edition
CAPS	Clinician-Administered PTSD Scale
CAPS-2	Clinician-Administered PTSD Scale—2
CBT	cognitive behavioral therapy
CES	Combat Experiences Scale
CI	confidence interval
COPE	Coping Orientation to Problems Experienced
CPT	cognitive processing therapy
CPT-C	cognitive processing therapy, cognitive
CPT-M	cognitive processing therapy, modified
CUD	cannabis use disorder
DAR-5	Dimensions of Anger Reactions—5
DoD	Department of Defense
DRRI	Deployment Risk and Resilience Inventory
DSM	Diagnostic and Statistical Manual of Mental Disorders
EBP	evidence-based psychotherapy
EBPTU	Evaluation and Brief PTSD Treatment Unit
EMDR	eye movement desensitization and reprocessing
FAD-12	Family Assessment Device—12
GAD-7	Generalized Anxiety Disorder—7
GHQ-28	General Health Questionnaire—28
GRADE	Grading of Recommendations Assessment, Development and Evaluation
HADS	Hospital Anxiety and Depression Scale
ICBT	integrated cognitive behavioral therapy

ICD	International Classification of Diseases
IES	Impact of Event Scale
IES-A	Avoidance and Emotional Numbing symptom severity subscale of the Impact of Event Scale
IES-I	Intrusive Reexperiencing symptom severity subscale of the Impact of Event Scale
IR	imagery rehearsal
ITT	intention to treat
MAC	minimum adequate care
MANCOVA	multivariate analysis of covariance
MANOVA	multivariate analysis of variance
MMPI	Minnesota Multiphasic Personality Inventory
MMPI-2	Minnesota Multiphasic Personality Inventory, second revised version
MSA	military sexual assault
mTBI	mild traumatic brain injury
NR	not reported
n.s.	not significant
NTFT	non-trauma-focused therapy
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OND	Operation New Dawn
OR	odds ratio
OR-C	object relations clinical rating
OUC	optimized usual care
PCL	PTSD Checklist
PCL-C	PTSD Checklist—Civilian version
PCL-M	PTSD Checklist—Military version
PCL-S	PTSD Checklist—Specific version
PCT	present-centered therapy
PDS	Posttraumatic Diagnostic Scale
PE	prolonged exposure
PE-HBT	prolonged exposure via home-based telehealth
PE-IP	prolonged exposure in person
PHQ-9	Patient Health Questionnaire—9

PILOTS	Published International Literature on Traumatic Stress
PME	PTSD motivation enhancement
POW	prisoner of war
PRRP	PTSD Residential Rehabilitation Program
PSS-I	Posttraumatic Stress Symptom Scale—Interview version
PTSD	posttraumatic stress disorder
RCT	randomized controlled trial
RMANOVA	Repeated Measure ANOVA
ROVER	Returning OEF/OIF/OND Veterans' Environment of Recovery
RR	relative risk
SCID	Structured Clinical Interview for *DSM*
SCID-IV	Structured Clinical Interview for *DSM-IV*
SF-12	12-Item Short Form Health Survey
SF-36	36-Item Short Form Health Survey
SIPPS	specialized intensive PTSD programs
SIPU	Specialized Inpatient PTSD Unit
SMD	standardized mean difference
SN	sleep and nightmare
SNRI	serotonin and norepinephrine reuptake inhibitor
SSRI	selective serotonin reuptake inhibitor
SUD	substance use disorder
TAU	treatment as usual
TBI	traumatic brain injury
TCM	telephone care management
TGE	trauma group exposure
TOP	Telemedicine Outreach for PTSD
VA	Veterans Affairs
VPE	virtual prolonged exposure
VR-12	Veterans RAND 12-Item Health Survey
VRE	virtual reality exposure
VTC	video teleconferencing

Chapter 1. Introduction

Posttraumatic stress disorder (PTSD) is highly prevalent among U.S. veterans. Hines et al., 2014, conducted a systematic review and meta-analysis to estimate prevalence among different military subgroups (e.g., sex, enlistment type, service branch) after Iraq and Afghanistan deployment; they calculated higher PTSD prevalence among Iraq-deployed personnel (12.9 percent), compared with personnel deployed to Afghanistan (7.1 percent). Veterans engaged in combat roles had the highest prevalence of PTSD. A later meta-analysis (Fulton et al., 2015) estimated even higher PTSD prevalence of 23 percent among Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) and veterans.

Symptoms of PTSD include reexperiencing, avoidance, negative cognitions/mood, and hyperarousal (American Psychiatric Association [APA], 2013). These symptoms can be severe, pervasive, and may have a devastating impact on those affected by the disorder, as well as their families. Potential negative consequences include psychiatric comorbidity, high medical costs, poor work performance, familial discord, crime, and suicide risk (Debell et al., 2014; Reynolds et al., 2016; Schnurr et al., 2009; Taft et al., 2007; Young, 2017). Given the prevalence of the disorder and the magnitude of its consequences, all veterans and active service members with PTSD should have access to effective treatment. To match patients with the most appropriate interventions, it is important to know which program features and pretreatment patient characteristics are predictors of treatment retention and response. Knowing which program characteristics are associated with better response could help in designing more effective programs and finding pretreatment patient characteristics that can serve as red flags for dropout or prompts to monitor specific patients more closely would be a valuable tool for clinical practice.

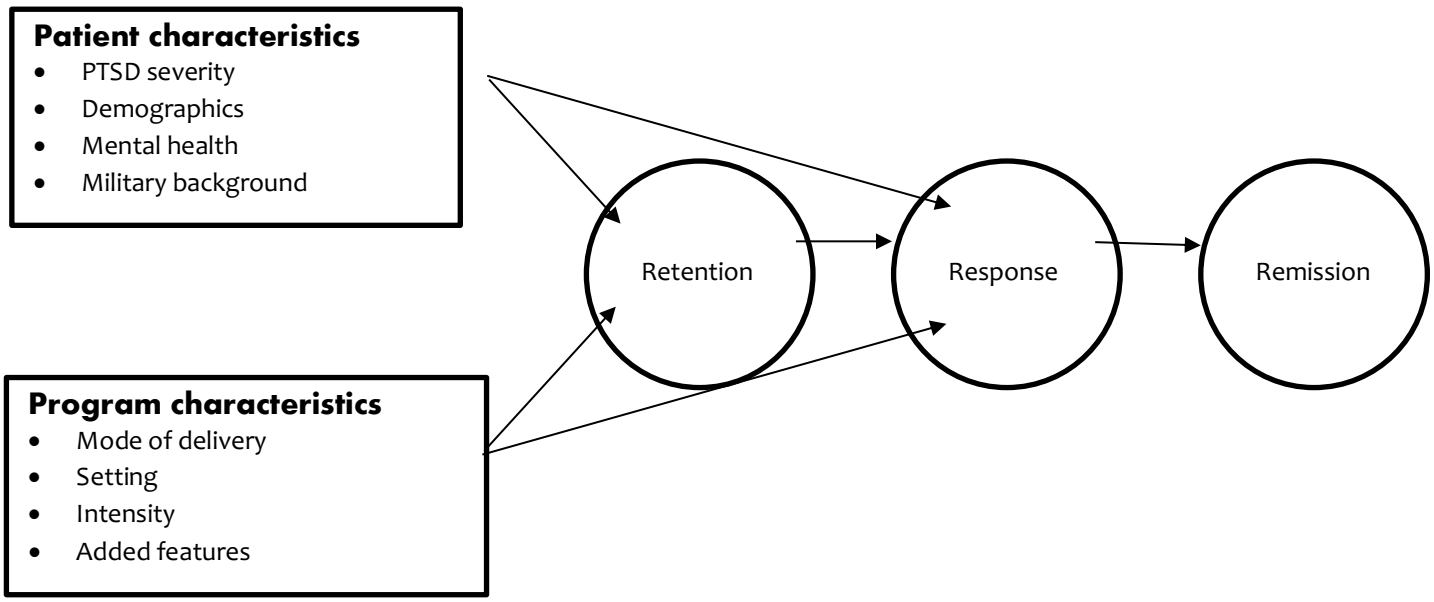
This systematic review covers interventions of interest to the U.S. Department of Defense (DoD) Psychological Health Center of Excellence. These include trauma-focused psychotherapy (i.e., specific cognitive behavioral therapy [CBT] for PTSD, cognitive processing therapy [CPT], eye movement desensitization and reprocessing [EMDR], prolonged exposure [PE]); non-trauma-focused psychotherapy; and medications (selective serotonin reuptake inhibitors [SSRIs], nefazodone, imipramine, phenelzine) used as monotherapy or adjunct therapy. Interventions recommended against by the DoD were excluded (e.g., atypical antipsychotics, benzodiazepines, antiepileptics, D-cycloserine, prazosin), as were interventions that have insufficient evidence to recommend for or against their use, such as couples counseling, acceptance and commitment therapy, the Seeking Safety model, repetitive transcranial magnetic stimulation, and acupuncture (Management of Posttraumatic Stress Working Group, 2017).

All studies of psychological treatment of PTSD at U.S. Department of Veterans Affairs (VA) locations were included. Studies analyzing data from the VA national patient database included veterans who received at least one mental health care visit for PTSD, with or without medication.

The intensity, approach, and fidelity of psychotherapy received during VA visits may have varied widely among patients and locations; we discuss the implications and perform sensitivity analyses to address this issue.

Rather than assess the comparative effectiveness of specific interventions, this project's goal was to identify baseline patient characteristics and specific intervention features associated with increased retention, better response to treatment, and remission. The search strategy was broad because a large number of different factors have been hypothesized to affect treatment retention and patient improvement. Hypothesized pretreatment patient characteristics include demographics, PTSD severity, trauma type, social support, co-occurring mental health conditions (Dewar, Paradis, and Fortin, 2020), previous mental health treatment, treatment expectations (Rief and Glombiewski, 2017), and military background including service-connected disability. Program characteristics include therapeutic alliance (West, 2015), number and frequency of sessions (Imel et al., 2013), mode of delivery, setting (Goodson et al., 2011), and combining multiple interventions. Increased length of stay in treatment has also been associated with response to PTSD treatment (Banducci et al., 2018); thus, retention is both an outcome and a potential predictor for this project. The logic framework is displayed in Figure 1.1.

Figure 1.1. Project Framework



This review addresses retention, response, and remission outcomes. *Retention* refers to staying in treatment and can be expressed as a continuous measure (length of stay in days) or a dichotomous outcome. Regarding dichotomous outcomes, some investigators define *retention* as completing a minimum number of sessions, while others define it as staying in treatment for a certain number of weeks or months. Researchers have designed observational studies or secondary analyses of large data sets to investigate correlates of treatment dropout.

Response to treatment has been defined by researchers in a variety of ways. For example, Brady et al., 2015, defined poor response as a reduction in PTSD symptoms of no more than one-third and good response as a reduction in PTSD symptoms of two-thirds or greater. A decrease of ten points on the Clinician-Administered PTSD Scale (CAPS) has been validated (Schnurr and Lunney, 2016) and used to define response in several studies (e.g., Schnurr et al., 2003; Schnurr et al., 2007). Others (Rubin et al., 2016; Van Rooij et al., 2016) have defined response as reduction of at least 30 percent in scores, while yet another author (Bryant et al., 2008) defined response as at least a 50-percent decrease in CAPS score.

Because of the disagreements regarding a standard dichotomous variable representing response, we extracted the continuous measure "change in PTSD severity" whenever possible. When those data were unavailable, we extracted baseline and follow-up severity scores and calculated change in severity. (We used this data to calculate effect size so outcomes could be compared across studies.) Change in severity is considered the primary measure of response in this project. We also abstracted the results of multivariate models developed to investigate predictors of follow-up severity while adjusting for baseline severity, as well as bivariate correlations of baseline characteristics with follow-up PTSD severity.

Finally, we investigated predictors of remission. *Remission* was defined as when an individual improves so much that he or she no longer meets the diagnostic criteria for PTSD (Morina et al., 2014) using a universally accepted diagnostic method such as the psychiatric *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) or the *International Classification of Diseases* (*ICD*). However, no longer meeting diagnostic criteria can be a less stringent definition than a score of less than 20 points on CAPS (Schnurr et al., 2009), which is the suggested definition of remission for CAPS for the *DSM-IV* (APA, 1994; Weathers, Keane, and Davidson, 2001) and has been used in a variety of studies (Davidson et al., 2012; Markowitz, Choo, and Neria, 2018; Schnurr et al., 2007).

We included randomized controlled trials (RCTs), nonrandomized prospective studies with a concurrent comparator, and single-arm retrospective and prospective observational studies that report predictors or correlates of retention, response, or remission. Many PTSD studies, especially RCTs, are not designed or powered to study retention or patient characteristics associated with improvement. Thus, studies of fewer than 50 subjects were excluded from this project. Only studies of veterans and/or active-duty military personnel were included.

This systematic review was guided by six key questions (KQs):

KQ 1. What patient characteristics are associated with treatment retention?
KQ 2. What program characteristics are associated with treatment retention?
KQ 3. What patient characteristics are associated with treatment response?
KQ 4. What program characteristics are associated with treatment response?
KQ 5. What patient characteristics are associated with remission?
KQ 6. What program characteristics are associated with remission?

Chapter 2. Methods

The protocol for this systematic review was registered in PROSPERO, an international registry for systematic reviews.

Sources

We searched databases—PubMed, Embase, PsycINFO, Published International Literature on Traumatic Stress (PILOTS), the Cochrane Database of Systematic Reviews, and the Cochrane Central Register of Controlled Trials (CENTRAL)—in March 2018 for English-language studies. Reference lists of included studies were mined. Studies included in prior systematic reviews were assessed for inclusion.

Search Strategy

The search strategy was developed by an Evidence-based Practice Center librarian specializing in systematic reviews, informed by search results of the prior feasibility scans conducted for this project and existing systematic reviews on the topic. Databases were searched from 1980, when PTSD became an official diagnosis in the psychiatric *DSM-III* (APA, 1980), onward. The search strings are included in Appendix A. As treatment retention is sometimes reported as a secondary outcome, we did not restrict the literature search to citations referencing this outcome. We retrieved and screened full texts of all trials and observational studies of DoD-supported PTSD interventions (listed in Chapter 1) to determine whether relevant outcomes were reported in the publication.

Eligibility Criteria

The inclusion and exclusion criteria below were applied to retrieved publications and are summarized using a "PICOTSS" (*participants, interventions, comparators, outcomes, timing, settings, and study design*) framework:

- Participants
  - Military personnel and veterans, 18 years of age or older; combat exposure is not required
- Interventions
  - Trauma-based psychotherapy (i.e., specific CBT for PTSD, CPT, EMDR, and PE); non-trauma-focused psychotherapy; medications (SSRIs, nefazodone, imipramine, phenelzine); any mental health care for PTSD diagnosed patients at VA facilities

- Comparators
  - RCTs and cohorts comparing two groups must either compare add-on treatments with treatment alone (A + B versus A), or compare adding a treatment to treatment as usual (TAU; i.e., A + TAU versus TAU alone), or report predictors of retention, response, or remission specific to an active intervention arm
  - We exclude studies that compare an active treatment with placebo, waiting list, or attention control alone unless predictors of completion or response in the active arm are reported
- Predictors
  - Treatment characteristics
    - Intervention components (e.g., psychotherapy, medication, support groups), setting (outpatient, inpatient, residential), frequency, intensity, length of treatment
  - Participant characteristics
    - Sex, age, race/ethnicity, income, education, marital status, PTSD severity, trauma type, deployment characteristics, co-occurring mental health disorders, prior mental health treatment, treatment expectations, medical comorbidities, disability, and therapeutic alliance
    - Studies of biomarkers such as functional magnetic resource imaging data were beyond the scope of this project
- Prediction analyses methods
  - Groups that received different treatment features may be compared
  - Researchers may report subgroup analyses, stratifying effects by treatment feature or participant characteristic
  - Prediction analyses such as correlating baseline characteristics with the effect, multiple regression analysis, variance analysis, or structural equation modeling may be reported; studies evaluating only the association between intermediate outcomes (e.g., biological changes during treatment, initial treatment response) and retention, response, or remission are excluded
- Outcomes
  - Retention outcomes may include length of stay (usually measured in days), completion of program per protocol, adequate dose completion, and intervention dropout rate
    - *PTSD response* refers to the difference in severity from baseline to follow-up; predictors of response can be identified in multivariable models where follow-up severity is the dependent variable and baseline severity is adjusted for in the model
    - Severity must be measured using standardized instruments such as CAPS, the Impact of Event Scale—Revised, the PTSD Checklist (PCL), the Structured Clinical Interview (SCID), and the Posttraumatic Stress Symptom Scale—Interview version (PSS-I)
    - Studies are required to explicitly define the term, stating the instrument used; interview data were used rather than questionnaire data when both are reported in the same study
  - PTSD remission: studies are required to state the diagnostic system, the measurement tool, and criterion/criteria

- Timing
  - Any treatment duration and any follow-up period
- Setting
  - Any setting
- Study design:
  - RCTs, clinical trials, observational studies including cohort, case control, and case series; analytic studies predicting treatment response or retention
  - Studies must analyze data from at least 50 participants.

Inclusion Screening Procedure

Following a pilot session to ensure similar interpretation of the inclusion and exclusion criteria, two reviewers independently screened titles and abstracts of retrieved citations. Citations judged as potentially eligible by one or both reviewers were obtained in full-text format.

Full-text publications were screened against inclusion and exclusion criteria by two independent reviewers; disagreements were resolved through discussion within the review team, with the project lead making the final decision. Reasons for exclusion at each stage were recorded in the electronic database DistillerSR. Publications reporting on the same study population were consolidated so that individual studies enter an analysis only once.

Data Extraction

Data collection forms were designed by the project lead with input from the project team. Reviewers pilot-tested the data collection forms on five randomly selected studies; the forms were modified, and a final pilot test was conducted on another random selection of studies to ensure agreement of interpretation. Study details were extracted by one reviewer and checked by the project lead. Biostatisticians extracted all outcome data to ensure quality; data extraction accuracy was checked by the project lead for all studies.

Information extracted from individual studies includes

- Study ID, author, year, region
- Participants: number of patients, mean age, gender distribution, race/ethnicity, population description (e.g., PTSD severity, deployment status [veteran versus active duty], comorbidities, types of trauma, military cohort), inclusion criteria, exclusion criteria
- Interventions: type, approach (i.e., CBT, exposure therapy), components, intensity (number and frequency of sessions), modality (i.e., group versus individual treatment), any medication used;
- Comparators: type and description of comparator, if applicable
- Predictors: treatment characteristics, pretreatment participant characteristics
- Analysis method for identifying predictors such as difference by group (chi-squared, analyses of variance [ANOVA], *t*-test), correlation, multiple regression, hierarchical linear model, path models, structural equation modeling

- Outcomes: treatment retention, response, and remission measures (instrument and version) and definitions
- Metric of data expression (e.g., means, proportions) and corresponding results (e.g., effect estimate, precision)
- Timing: time-points of predictor and outcome assessment, duration of intervention
- Setting: country, setting
- Study design: inclusion and exclusion criteria, sample size, reported power calculation.

Risk of Bias

All studies, regardless of design, were assessed using the Quality in Prognosis Studies (QUIPS) instrument (Hayden et al., 2013), designed specifically for studies of prognostic factors. The domains covered by this tool are participation, attrition, prognostic factor measurement, confounding measurement and account, outcome measurement, statistical analysis (e.g., group differences, correlation, multiple regression, hierarchical linear model), adequate power, and author involvement in initial development of the intervention type (i.e., EMDR, PE, delivery technology such as a smartphone app). Each study was categorized as having low, moderate, or high risk of bias for each domain.

In addition, we assessed the risk of bias of each controlled trial using the Cochrane Risk of Bias tool (Higgins and Green, 2011). Specifically, the following sources of bias were assessed and rated as low, high, or unclear: random sequence generation (selection bias), allocation concealment (selection bias), blinding of participants and providers (performance bias), blinding of outcome assessors (detection bias), completeness of reporting outcome data (attrition bias), and selective outcome reporting (reporting bias). Both the Cochrane and QUIPS assessments were performed independently by two reviewers who then met to reconcile any differences. Outstanding disputes were discussed with the project leader. Risk-of-bias ratings were based on publicly reported information from journal articles and the website ClinicalTrials.gov. Due to resource constraints, study authors were not contacted to obtain additional methodological information not reported in those sources.

The overall quality of each study was rated as good, fair, or poor based on the judgment of reviewers and the project leader. There is no quantitative algorithm involved in the overall rating, as different domains are important based on a systematic review's KQs and goals. Our instrument contains a field where reviewers can input text supporting their decision on overall quality; this information is displayed in Table 3.1 in Chapter 3.

Synthesis

Continuous outcomes such as change in PTSD severity score were converted to standardized mean differences (*SMD*s) for comparison across studies that used different instruments or different versions of the same instrument. Relative risk (*RR*) was calculated for dichotomous outcomes such as dropout rate. When retention was reported as percentage of patients completing treatment, this was converted to dropout rate in order to pool the same metric across studies.

When more than one study reported stratified results by the same predictor variable, outcome category (retention, response) and measure type (e.g., categorical or continuous outcome), we performed a meta-analysis. We used the restricted maximum likelihood estimator with Wald-type confidence interval (CI) in the R statistical software package. Forest plots were created to graphically represent each meta-analysis. We pooled *SMD*s for continuous outcomes and calculated *RR* or odds ratios (*OR*s) for dichotomous outcomes. For studies that reported bivariate correlations between predictor variables and retention or response, we transformed correlations into *z* statistics using the Fisher transformation (Fisher, 1915) to pool across studies. Heterogeneity was assessed using the I^2 statistic (Higgins et al., 2003).

Many studies on predictors of retention and response generate evidence using multivariate models. Models incorporate many independent variables to adjust for potential confounders and investigate several potential predictors simultaneously. Examples include logistic regression, hierarchical linear modeling, and structural equation modeling. They often utilize large observational data sets that include all patient records from a treatment facility or health system. The results of these multivariate analyses cannot be pooled due to heterogeneity of variables included in the models and measurement tools. Thus, the results are described narratively and consistent results are highlighted.

Studies of large observational data sets (such as the VA national patient database) may group patients who receive a treatment of inconsistent quality or characteristics (Schnurr, personal communication, 2019) together. In contrast, RCTs and cohort studies from one site generally describe and monitor treatment that adheres to specific standards. Thus, in the results section for each predictor, we indicate which studies used the national VA database. We also conduct sensitivity analyses by removing these studies.

Quality of Evidence

The quality of the body of evidence was assessed using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach (Balshem et al., 2011) adapted for prognostic studies (Iorio et al., 2015). A body of observational evidence begins with a high-quality rating and is downgraded based on the following domains: study limitations (risk of bias), directness, consistency, precision, and publication bias. The rating is increased if the effect size is large.

Regarding risk of bias, the quality rating is downgraded when results are primarily based on studies with substantial limitations per the assessment tools mentioned above. For example, the quality rating is downgraded when the body of evidence consists only of bivariate correlations, as such analyses do not adjust for important potential confounders. When individual study results conflict regarding the direction of findings (i.e., positive versus negative, regardless of statistical significance) or when substantial heterogeneity is detected in a pooled analysis, the body of evidence is downgraded for inconsistency. The evidence is downgraded for precision when CIs

overlap conflicting conclusions (i.e., when meta-analysis results are wide and results are not statistically significant).

Publication bias in observational studies, especially those using administrative data sets, is difficult to detect quantitatively; formal publication bias tests were not conducted because observational cohort studies made up the majority of evidence for this project. According to the GRADE working group (Guyatt et al., 2011), researchers should consider a body of evidence based primarily on such studies as having "substantial" risk of publication bias. The default position is to assume that prognosis research is seriously affected by publication bias until evidence to the contrary, such as multiple studies on different samples, is found.

According to the GRADE method, evidence is downgraded as "indirect" when a study's population or outcome is not exactly representative of the focus of the KQs. As we excluded studies of nonmilitary populations and only included studies that reported direct outcomes (valid, reliable measures of PTSD severity), there was no need to decrease the quality rating for indirectness.

The quality of evidence was graded on a four-item scale:

1. **High** indicates that the review authors are very confident that the effect estimate lies close to the true effect for a given outcome.
2. **Moderate** indicates that the review authors 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.
3. **Low** indicates that the review authors' confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
4. **Insufficient** indicates that the review authors have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

The information contributing to each domain and rating for each predictor is presented in Table 4.1 in Chapter 4.

Summary of Findings

Findings are summarized in a transparent table organized by key questions (KQs), comparisons, predictors, and outcomes. The table lists the KQs, predictors, and outcomes assessed in each analysis. For each predictor measure, the table displays the number and types of studies contributing to the result, any reasons for downgrading the quality of evidence, the direction and magnitude of the effect, and the grade of the quality of the evidence.

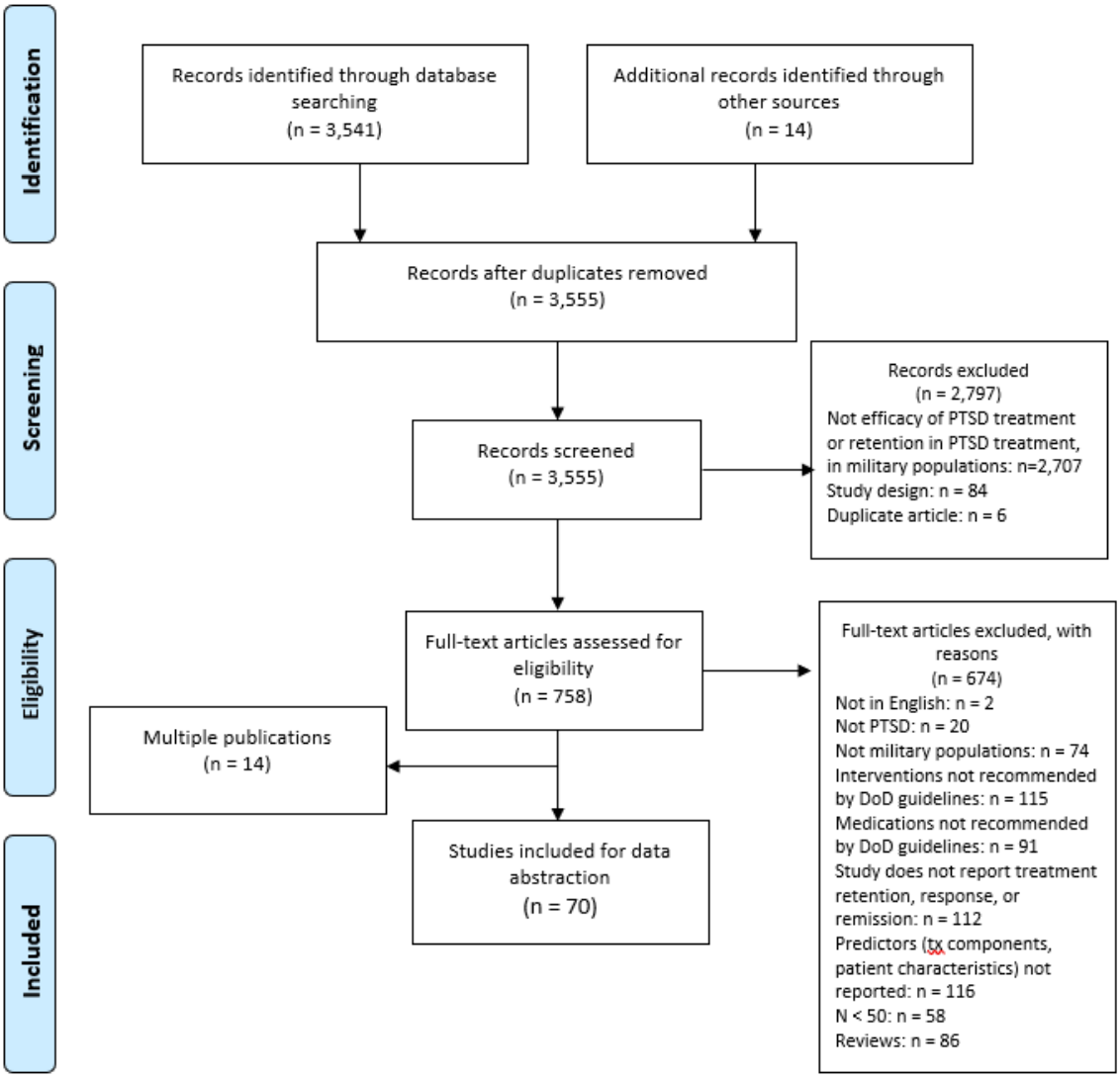
For each predictor, results of pooled analyses are described first, followed by narrative descriptions of studies not included in the pooled analyses (if any). The summary of findings and the quality of the evidence are discussed.

Chapter 3. Results

Results of the Search

The results of the literature are displayed graphically in Figure 3.1. Electronic database searches identified 3,541 potentially relevant titles. Reference mining of systematic reviews and relevant articles identified an additional 14. Dual review of the abstracts of the 3,555 publications resulted in the exclusion of almost 78 percent; most of those did not report outcomes of treatment for PTSD in military populations. Full texts were retrieved for 758 publications; dual review excluded 67 of these. The vast majority of full-text publications excluded were about PTSD in military personnel or veterans: 112 did not report retention, response, or remission outcomes, while 116 did not report any predictors of these outcomes. One hundred fifteen studied interventions that were not recommended by the DoD guidelines (Management of Posttraumatic Stress Working Group, 2017); another 91 studied nonrecommended medications. Excluded studies, and reasons for exclusion, are listed in Appendix B. Upon close review of the 84 studies accepted for inclusion in the project, we discovered that several studies were reported in multiple publications. For example, for the same study population, one article might study the effect of patient race and another article might report stratified data by sex. We created one large record for each study that included data from all associated publications. Seventy studies reported in 84 publications are included in this review: Acierno et al., 2017; Agha, 2008; Badour et al., 2012; Belsher et al., 2012; Boden et al., 2012; Boden et al., 2013; Bonn-Miller et al., 2013; Bray et al., 2016; Cook et al., 2013; Creamer et al., 2002; Currier, Holland, and Drescher, 2014; DeViva et al., 2017; Elliott et al., 2005; Engel et al., 2015; Evans et al., 2010; Evans, Cowlishaw, and Hopwood, 2009; Foa et al., 2018; Fontana and Rosenheck, 1997; Fontana and Rosenheck, 1998; Fontana, Ford, and Rosenheck, 2003; Forbes et al., 2003; Forbes et al., 2005; Forbes et al., 2008; Forbes et al., 2010; Ford, Fisher, and Larson, 1997; Fortney et al., 2015; Friedman et al., 2007; Gallegos et al., 2015; Gallegos, Streltzov, and Stecker, 2016; Garcia et al., 2011; Gilman, Schumm, and Chard, 2012; Graca, Palmer, and Occhietti, 2014; Gros et al., 2013; Gros et al., 2018; Gros, Yoder, et al., 2011; Haller et al., 2016; Hebenstreit et al., 2015; Hernandez-Tejada et al., 2014; Hobfoll et al., 2016; Holder et al., 2018; Jeffreys et al., 2014; Johnson et al., 1999; Johnson and Lubin, 2002; Korte et al., 2017; Kosten et al., 1992; Levi et al., 2017; López et al., 2017; Maguen et al., 2014; Maieritsch et al., 2016; McDowell and Rodriguez, 2013; McLay et al., 2016; Miles et al., 2015; Monson et al., 2006; Morland et al., 2014; Mott, Mondragon, et al., 2014; Murphy et al., 2009; Murphy et al., 2015; Murphy et al., 2016; Price et al., 2015; Reger et al., 2016; Resick et al., 2017; Richardson et al., 2014; Rosen et al., 2017; Rosen, Greenbaum, et al., 2013; Rosen, Tiet, et al., 2013; Rosenheck and Fontana, 1996; Rosenheck, Fontana, and Cottrol, 1995; Rosenheck, Stolar, and Fontana, 2000; Schnurr et al., 2003; Schnurr and Lunney, 2016; Spoont et al., 2009; Spoont et al., 2010; Spoont et al., 2015; Sripada et al.,

Figure 3.1. Literature Flow Diagram



2013; Stecker et al., 2014; Stecker et al., 2016; Steindl et al., 2003; Stevens et al., 2017; Szafranski et al., 2014; Tiet et al., 2015; Tuerk et al., 2011; Walter et al., 2014; Wilkinson, Stefanovics, and Rosenheck, 2015; and Wolf, Lunney, and Schnurr, 2016.

Description of Included Studies

Here we describe the body of evidence. An Evidence Table that displays detailed information from the main publication and related publications for the 70 included studies is included as Appendix C.

Study Designs

Twenty-eight RCTs were included, along with 42 observational studies. Most of the trials were designed to test the efficacy of interventions; predictors of response were often reported in

secondary analyses. Forty-seven studies reported results of multivariate models that adjusted for multiple patient and/or treatment characteristics to determine predictors; most used data from retrospective cohorts, but a few analyzed data from large RCTs. Many studies ($N = 44$) presented results stratified by patient or treatment characteristics. Fourteen studies reported bivariate correlations between treatment or patient characteristics and outcomes; these were often performed in preparation for multivariate modeling.

Participants

The 70 studies ranged in size from 50 patients (the minimum required for inclusion) to almost 40,000 VA patients in a national database. The majority of studies ($N = 64$) included veterans, while 11 studies included patients on active duty. (Numbers are not mutually exclusive; some studies included both.) Given the official recognition of PTSD as a diagnosis in 1980, most studies included patients from the Vietnam era ($N = 29$), the First Gulf War ($N = 10$), and the recent conflicts in Iraq and Afghanistan ($N = 31$). Four included some veterans from the Korean War, and one included some World War II veterans; these studies included patients from all eras enrolled at VA facilities. One study was conducted among the Israeli Defense Forces, and nine studied military personnel stationed around the world, including peacekeeping forces. Mean patient age ranged from 29 to 59 years.

Men comprised the majority population in most studies ($N = 42$); 17 studies included only men. Two studies included only women, and one was majority women. Eight studies did not report the sex distribution. Regarding race/ethnicity, in 46 studies the majority of patients were white; the majority were nonwhite in ten studies. The remaining 13 studies did not report the racial/ethnic characteristics of patients.

Interventions

Forty-two studies included some form of cognitive therapy (CBT, CPT, etc.). Twenty-one studied PE and four studied EMDR. Seventeen studies included medication, while 13 studies included an education component. Eight studied other interventions such as stress inoculation or brief eclectic psychotherapy. Of course, these numbers are not mutually exclusive, as studies could include multiple interventions.

Outcomes

Thirty-seven studies reported treatment retention, 62 reported a change in PTSD severity (response), and six reported remission rates.

Settings

Sixty of the 70 studies were conducted in the United States or Canada, while eight were conducted in Australia or New Zealand. The other studies were conducted in the United Kingdom ($N = 1$) and Israel ($N = 1$).

Thirty-six of the U.S. studies, reported in 41 publications, were conducted at U.S. VA sites. Although admission dates and site locations were extracted, it was extremely difficult to determine the overlap of patient populations. Studies that used the entire national VA database sometimes overlapped. For example, one study might use records from 2002 to 2008 while another might use data from 2005 to 2010. Also, this database includes all VA settings, and while some studies included only outpatient or residential programs, others included all patients and did not stratify results by setting. Still other studies might include only "five VA residential programs in the United States" but not specify locations. The possibility of the same VA patients appearing in multiple studies is discussed in the "Strengths and Limitations" section of Chapter 4.

Critical Appraisal Results

Study Quality: Quality in Prognosis Studies

Table 3.1 displays the QUIPS ratings for the 70 studies. All publications on each study were examined for information to determine the ratings. Twenty-one studies were rated good, 33 were rated fair, and 16 were rated poor regarding their ability to accurately determine predictors (i.e., variables associated with retention, response, or remission outcomes). *Risk of bias was rated either low, moderate, or high* for participation, attrition, predictor measurement, outcome measurement, confounding, and statistical measurement, *with higher risk of bias indicating worse quality and low risk of bias indicating better quality*. We also note whether the authors reported a power analysis, and if so, whether there was adequate power to detect predictors. Finally, we note whether the researchers studying an intervention were also responsible for the development of that intervention, as this may indicate conflict of interest bias.

Thirty-one studies had either moderate or high attrition, defined as over 30 percent at one year or less. This introduces bias when studying response or remission unless an intention to treat (ITT) analysis is conducted. However, a high rate of attrition does *not* introduce bias when investigating predictors of dropout (retention), as attrition is the outcome being studied. Thirty-nine of the 70 studies had low risk of participation bias; these were usually retrospective cohort studies that included all patients in a treatment program or administrative database. The vast majority (86 percent) of studies had low risk of bias regarding the measurement of predictor variables. All studies had low risk of bias regarding outcome measurement, as studies not using validated universally acceptable means to assess PTSD symptomology and severity were automatically excluded from this project.

Only three studies (Forbes et al., 2005; Forbes et al., 2010; Murphy et al., 2009) had a high risk of confounding; Forbes et al., 2005, had a high risk of bias regarding the statistical analysis presented. Ten studies reported insufficient power to detect predictors. These studies were designed to evaluate overall efficacy or effectiveness; retention or predictors of response were secondary outcomes. In six studies, the researchers were also involved in the development of the intervention being evaluated.

Table 3.1. Quality in Prognosis Studies Ratings

Study ID	Participation	Attrition	Predictor Measurement	Outcome Measurement	Confounding	Statistical Analysis	Power Calculation	Author Involvement	Overall	Comments
Acierno, 2017; Lopez, 2017; Gros, 2018	Low	Moderate	Low	Low	Low	Low	Insufficient power	Yes	Good	30% dropout, but ITT analysis
Agha, 2008; Thorp, 2012	Low	NR	Low	Low	Low	Moderate	No	No	Poor	Attrition not described
Badour, 2012	Low	High	Moderate	Low	Low	Low	No	No	Poor	Only 42% response at follow-up
Belsher, 2012	Low	Moderate	Low	Low	Low	Moderate	Yes	No	Fair	No comparison of dropouts (*N* = 51) with completers
Boden, 2012	Low	Low	Low	Low	Moderate	Low	No	No	Fair	Inadequate adjustment for potential confounders
Boden, 2013	Low	Low	Low	Low	Moderate	Low	No	Yes	Fair	Inadequate adjustment for potential confounders
Bonn-Miller, 2013	Low	Low	Low	Low	Low	Low	No	No	Good	No major flaws
Bray, 2016	Low	Low	Low	Low	Low	Low	Yes	No	Good	No major flaws
Cook, 2013	Low	Low	Low	Low	Low	Low	Yes	No	Good	No major flaws
Currier, 2014	Low	Moderate	Low	Low	Low	Low	No	No	Good	No major flaws, missing data handled through imputation
De Viva, 2017	Low	Low	Low	Low	Moderate	Moderate	No	No	Poor	No adjustment for potential confounders
Elliott, 2005; Creamer, 2002; Creamer, 1999	Low	Moderate	Low	Low	Low	Low	No	No	Fair	Those without follow-up data differed the rest on alcohol, anger
Engel, 2015	Low	Low	Low	Low	Low	Low	Insufficient power	Yes	Poor	Authors developed the intervention type, low power
Evans, 2009	Low	High	Low	Low	Low	Low	No	No	Fair	25% of cases missing data
Evans, 2010	Moderate	Moderate	Low	Low	Moderate	Low	No	Unclear	Poor	Inadequate adjustment for potential confounders.
Foa, 2018	Low	Low	Low	Low	Low	Low	Yes	No	Good	No major flaws
Fontana, 1998; Fontana, 1997; Fontana, 2003	Moderate	Moderate	Low	Low	Moderate	Moderate	No	No	Poor	Participation differed by age, race, marital status, alcohol use disorder (AUD), and personality disorder; no adjustment for important covariates.

Study ID	Participation	Attrition	Predictor Measurement	Outcome Measurement	Confounding	Statistical Analysis	Power Calculation	Author Involvement	Overall	Comments
Forbes, 2003	Moderate	Low	Low	Low	Moderate	Low	No	No	Fair	Unclear how patients were selected for study
Forbes, 2005	High	Low	Low	Low	High	High	No	No	Poor	No adjustment for potential confounders
Forbes, 2008	Low	Moderate	Moderate	Low	Moderate	Low	No	No	Fair	Some potential confounders not adjusted for
Forbes, 2010	Moderate	Moderate	Moderate	Low	High	Moderate	No	No	Poor	Unclear how patients were selected for study, no adjustment for confounders
Ford, 1997	Moderate	Low	Low	Low	Low	Low	No	No	Good	No major flaws
Fortney, 2015	Low	Low	Low	Low	Low	Low	Yes	No	Good	No major flaws
Friedman, 2007	Low	Moderate	Low	Low	Low	Low	Insufficient power	No	Fair	Insufficient power for some predictors
Gallegos, 2016	Moderate	Low	Low	Low	Moderate	Moderate	No	Unclear	Poor	Unclear blinding of assessors, concealment of allocation, and method of randomization; unclear rate of enrollment and no comparison of enrolled versus refused enrollment
Garcia, 2011	Moderate	High	Moderate	Low	Moderate	Moderate	No	No	Poor	67.5% dropout
Gilman, 2012	Low	Moderate	Low	Low	Low	Low	No	No	Fair	Did not adjust for all potential confounders
Graca, 2014	High	Moderate	Low	Low	Low	Low	No	No	Poor	No info on how dropout differed between treatment groups, small N
Gros, 2011	Low	Low	Low	Low	Moderate	Low	Insufficient power	No	Fair	Insufficient power
Gros, 2013; Gros, 2011	Moderate	Low	Low	Low	Low	Low	Insufficient power	No	Fair	Insufficient power
Haller, 2016	Low	High	Low	Low	Moderate	Low	No	Yes	Poor	60% attrition, no adjustment for demographics, randomization and blinding procedures

Study ID	Participation	Attrition	Predictor Measurement	Outcome Measurement	Confounding	Statistical Analysis	Power Calculation	Author Involvement	Overall	Comments
										unclear
Hernandez-Tejada, 2014	Moderate	Low	Low	Low	Low	Low	No	No	Fair	68% of noncompleters had sufficient data for retention analysis
Hobfoll, 2016; Stevens, 2017	Moderate	Low	Low	Low	Moderate	Low	Insufficient power	Yes	Poor	Insufficient power, no mention of assessor blinding, no adjustment for some potential confounders
Holder, 2018	Moderate	Moderate	Moderate	Low	Low	Moderate	No	No	Fair	37.5% dropout, age and gender differed between comparison groups, but no adjustment
Jeffreys, 2014	Low	Moderate	Low	Low	Moderate	Low	No	No	Good	No major flaws
Johnson, 1999	Low	Low	Low	Low	Low	Moderate	No	Unclear	Fair	Small sample
Johnson, 2002	Moderate	Low	Low	Low	Moderate	Low	No	Unclear	Fair	73% participation rate, did not adjust for some potential confounders
Korte, 2017	Moderate	Low	Low	Low	Low	Low	Yes	Unclear	Fair	Unclear if assessors blinded, unclear method of randomization
Kosten, 1992	Moderate	Low	Moderate	Low	Moderate	Low	No	No	Poor	Simple correlation—does not control for possible confounders; inadequate description of participants without follow-up, no attempt to address missing data
Levi, 2017	Moderate	Moderate	Moderate	Low	Low	Moderate	No	No	Fair	Unclear how variables like immigration status were measured; about 25% attrition but no ITT
Maguen, 2014; Hebenstreit, 2015	Low	Low	Low	Low	Low	Low	No	No	Good	No major flaws
Maieritsch, 2016	Low	High	Low	Low	Low	Low	Insufficient power	No	Poor	43.3% attrition; although ITT was used, insufficient power, unclear method of randomization and allocation concealment
McDowell, 2013	Low	Moderate	Low	Low	Low	Moderate	No	No	Fair	Some possible confounders not adjusted for

Study ID	Participation	Attrition	Predictor Measurement	Outcome Measurement	Confounding	Statistical Analysis	Power Calculation	Author Involvement	Overall	Comments
McLay, 2016	Low	Low	Low	Low	Low	Low	No	No	Good	No major flaws
Miles, 2015	Low	Low	Low	Low	Low	Low	Insufficient power	Unclear	Fair	Insufficient power
Monson, 2006	Low	Moderate	Low	Low	Low	Moderate	Yes	No	Fair	Unclear method of randomization or concealment of allocation
Morland, 2014	Low	Moderate	Low	Low	Low	Low	No	No	Good	No major flaws
Mott, 2014	Moderate	Low	Low	Low	Low	Moderate	No	No	Fair	Only variables significant in bivariate comparison were included in the multivariate model, so inadequate adjustment for potential confounders
Murphy, 2009	Low	High	Low	Low	High	Low	No	Yes	Poor	No adjustment for important potential confounders, three months of medical data lost due to Hurricane Katrina
Murphy, 2016; Murphy, 2015	Low	Moderate	Low	Low	Moderate	Low	No	No	Fair	67% follow-up, some confounders not adjusted for
Price, 2015	Low	Low	Low	Low	Moderate	Low	No	No	Fair	Some confounders not adjusted for
Reger, 2016	Low	Moderate	Low	Low	Low	Low	Yes	No	Good	No major flaws
Resick, 2017	Low	Low	Low	Low	Low	Low	Yes	No	Good	No major flaws
Rosen, 2013a	Low	Low	Low	Low	Moderate	Low	No	No	Fair	No adjustment for potential confounders
Rosen, 2017	Moderate	Low	Low	Low	Low	Moderate	Yes	Unclear	Good	High-quality RCT, no modeling
Rosen, 2017	Moderate	High	Low	Low	Low	Low	Yes	No	Fair	31% participation rate
Rosen, 2013b; Schnurr, 2016 Rosenheck, 1995; Rosenheck, 1996; Rosenheck, 2000	Low	Moderate	Low	Low	Low	Low	No	No	Fair	25% dropout after 1 session
Schnurr, 2016; Rosen, 2013	Low	Low	Low	Low	Low	Low	Yes	No	Good	No major flaws
Spoont, 2009; Spoont, 2010	Moderate	Low	Low	Low	Moderate	Moderate	No	No	Fair	Race/ethnicity is primary predictor studied, but 39%

Study ID	Participation	Attrition	Predictor Measurement	Outcome Measurement	Confounding	Statistical Analysis	Power Calculation	Author Involvement	Overall	Comments
										were missing this info
Spoont, 2015	Low	Low	Moderate	Low	Low	Low	No	No	Good	No major flaws
Sripada, 2013	Low	Low	Low	Low	Low	Low	Insufficient power	No	Fair	Good for response, but retention analysis does not adjust for covariates
Stecker, 2014 Stecker, 2016; Gallegos, 2015	Low	Low	Low	Low	Moderate	Moderate	No	No	Fair	Stratified analysis only, so no control for potential confounders
Steindl, 2003	Low	Low	Low	Low	Moderate	Low	Yes	No	Fair	Does not adjust for some potential confounders
Szafranski, 2014	High	Low	Low	Low	Low	Low	No	No	Fair	Number who declined to participate not reported
Tiet, 2015	Low	Moderate	Moderate	Low	Moderate	Low	No	No	Fair	Moderate attrition, some potential confounding
Tuerk, 2011	Low	Low	Low	Low	Low	Low	No	No	Good	No major flaws
Walter, 2014	Low	Low	Low	Low	Low	Low	Yes	No	Good	No major flaws
Wilkinson, 2015	Low	Low	Moderate	Low	Low	Low	Yes	No	Good	Only issue: marijuana use is self-reported
Wolf, 2016	Low	Low	Low	Low	Low	Low	Insufficient power	No	Fair	Insufficient power

NOTE: NR = not reported.

Controlled Trials: Cochrane Risk of Bias Items

Table 3.2 displays Cochrane Risk of Bias Tool ratings for the 28 included controlled trials. Regarding randomization method, all trials had either low risk of bias, meaning they described proper randomization methods ($N = 17$), or unclear risk of bias, meaning they reported randomization but did not state the details ($N = 11$). Similarly, 16 studies had unclear risk of bias for allocation concealment because the method was not reported. Ten studies reported acceptable methods of allocation concealment, while two had a high risk of allocation bias due to inadequate procedures. Twenty-three were unable to blind participants; these studied behavioral interventions that made blinding impossible, so the overall quality rating was not affected. No studies reported unblinded outcome assessors. Two studies were rated at high risk for attrition bias due to dropout not addressed via ITT analysis.

Table 3.2. Cochrane Risk of Bias Items for Controlled Trials

Study ID	Random Sequence Generation (Selection Bias)	Allocation Concealment (Selection Bias)	Blinding of Participants and Personnel (Performance Bias)	Blinding of Outcome Assessment (Detection Bias)	Incomplete Outcome Data (Attrition Bias)	Selective Reporting of Outcome Data (Reporting Bias)	Other Sources of Bias
Acierno, 2017; Gros, 2018; López, 2017	Low risk	Low risk	High risk	Low risk	Low risk	Low risk	Low risk
Agha, 2008; Thorp, 2012	Unclear	Unclear	High risk	Unclear	Low risk	Low risk	Unclear
Bray, 2016	Low risk	Low risk	High risk	Unclear	Low risk	Low risk	Low risk
Cook, 2013	Low risk	Unclear	High risk	Low risk	Low risk	Low risk	Low risk
Engel, 2015	Unclear	Low risk	High risk	Low risk	Low risk	Low risk	High risk
Foa, 2018	Low risk	Unclear	High risk	Low risk	Low risk	Low risk	Low risk
Fortney, 2015	Low risk	Low risk	Unclear	Low risk	Low risk	Low risk	Low risk
Friedman et al., 2007	Unclear	Unclear	High risk	Low risk	Low risk	Low risk	Low risk
Friedma, 2007	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk	Unclear
Gallegos, 2015; Stecker, 2014; Stecker, 2016	Low risk	Low risk	High risk	Unclear	Low risk	Low risk	Low risk
Gallegos,2016	Unclear	High risk	High risk	Unclear	Low risk	Low risk	Unclear
Gros, 2011; Gros, 2013	Unclear	Unclear	High risk	Unclear	Low risk	Unclear	Unclear
Haller, 2016	Unclear	Unclear	High risk	Unclear	Low risk	Low risk	Low risk
Hobfoll, 2016; Stevens, 2017	Low risk	Unclear	High risk	Unclear	Low risk	Low risk	Low risk
Holder, 2018	Unclear	Unclear	Low risk	Low risk	Low risk	Low risk	Unclear
Korte, 2017	Unclear	High risk	High risk	Unclear	Low risk	Low risk	Unclear
Kosten, 1992	Low risk	Unclear	Low risk	Unclear	High risk	Low risk	Low risk
Maieritsch, 2016	Unclear	Unclear	High risk	Unclear	Low risk	Low risk	Unclear
Miles, 2015	Unclear	Unclear	High risk	Low risk	Unclear	Low risk	Low risk
Monson et al., 2006	Unclear	Unclear	High risk	Low risk	Low risk	Unclear	Low risk

Study ID	Random Sequence Generation (Selection Bias)	Allocation Concealment (Selection Bias)	Blinding of Participants and Personnel (Performance Bias)	Blinding of Outcome Assessment (Detection Bias)	Incomplete Outcome Data (Attrition Bias)	Selective Reporting of Outcome Data (Reporting Bias)	Other Sources of Bias
Morland, 2014	Low risk	Low risk	High risk	Low risk	Low risk	Unclear	Low risk
Murphy, 2009	Low risk	Unclear	High risk	Unclear	High risk	Low risk	High risk
Reger et al., 2016	Low risk	Unclear	High risk	Unclear	Low risk	Low risk	Low risk
Resick, 2017	Low risk	Unclear	High risk	Low risk	Low risk	Low risk	Low risk
Rosen, 2013	Low risk	Low risk	High risk	Unclear	Low risk	Low risk	Low risk
Rosen, 2017	Low risk	Unclear	High risk	Low risk	Low risk	Low risk	Low risk
Schnurr, 2016; Rosen, 2013	Low risk	Low risk	High risk	Low risk	Low risk	Low risk	Low risk
Stecker, 2014; Stecker, 2016; Gallegos, 2015	Low risk	Low risk	High risk	Unclear	Low risk	Low risk	Low risk
Wolf, 2016	Low risk	Low risk	High risk	Low risk	Low risk	Low risk	Low risk

KQ 1. What Patient Characteristics Are Associated with Treatment Retention?

Demographic Variables

Age

Seven studies (Garcia et al., 2011; Gros et al., 2013; Gros et al., 2018; Hebenstreit et al., 2015; Hernandez-Tejada et al., 2014; Jeffreys et al., 2014; Spoont et al., 2015) adjusted for age in models developed to identify predictors of retention in psychological treatment (CBT, CPT, PE). Four (Hebenstreit et al., 2015; Garcia et al., 2011; Gros et al., 2013; Jeffreys et al., 2014) found a positive significant association between increasing age and treatment completion, including a study of over 39,000 VA patients nationwide (Hebenstreit et al., 2015). Age was not statistically significant in the other studies, but the direction of the relationship was positive.

In contrast, Szafranski et al., 2014, reported a negative bivariate correlation ($r = –0.13$) between age and length of stay in a 25-day residential program that focused on group and individual CPT. The association was not statistically significant ($p = 0.30$).

The quality of evidence was rated moderate for a positive effect of increasing age on retention.

Education

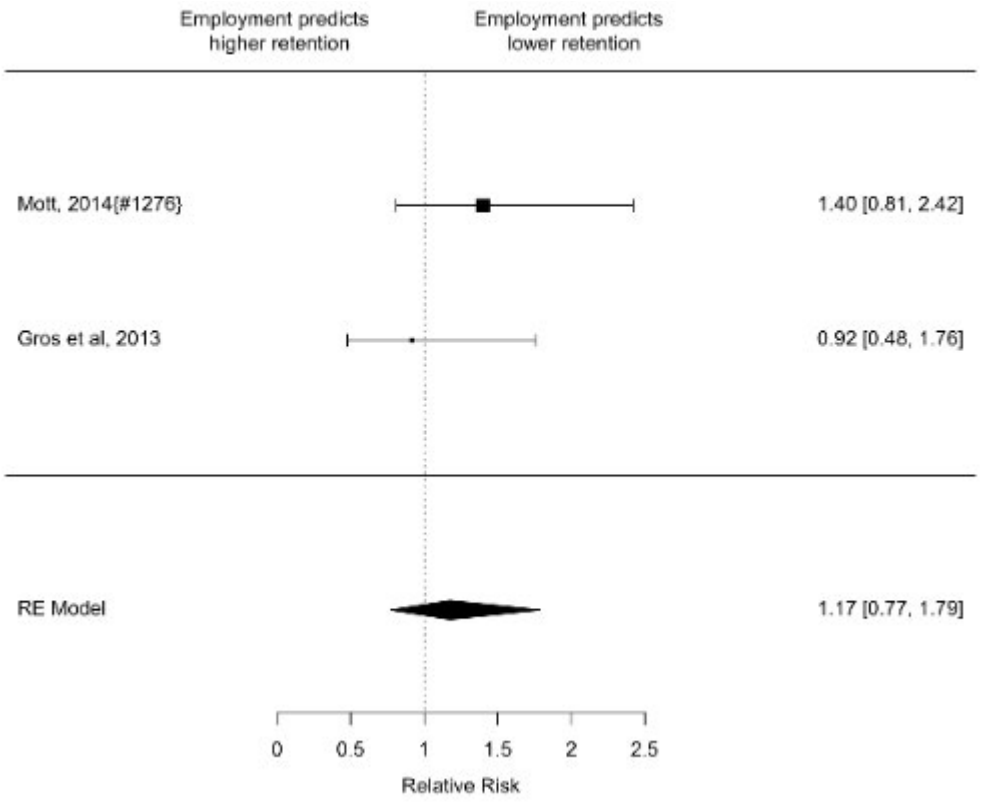
Mott et al., 2014, also compared the educational background of completers versus dropouts from evidence-based programs. The percentage of patients with additional education beyond high school was significantly higher in the completion group (67.3 percent versus 44.8 percent). In another study (Cook et al., 2013), education (less than high school) was included as a dichotomous variable in a multivariate regression model developed to predict retention in imagery rehearsal (IR). The authors reported that education level was not statistically significant; data were not reported, so direction of the association is unclear.

The quality of evidence was rated insufficient to support a conclusion.

Employment

Two studies (Gros et al., 2013; Mott, Mondragon, et al., 2014) compared dropout rates between employed and unemployed patients. Pooled results were not statistically significant (*RR* = 1.17, 95% CI [0.77, 1.79]) as displayed in Figure 3.2. No heterogeneity was detected ($I^2 = 0$; $p = 0.33$).

Figure 3.2. Meta-Analysis: Retention and Employment Status



These studies (Gros et al., 2013; Mott, Mondragon, et al., 2014) plus another (Hernandez-Tejada et al., 2014) included employment status in logistic regression models developed to predict treatment completion. None reported a statistically significant association between employment status and retention; results conflicted regarding direction.

The quality of evidence was rated insufficient to support a conclusion.

Income

Three studies (Hernandez-Tejada et al., 2014; Mott, Mondragon, et al., 2014; Spoont et al., 2015) included income as a variable in multivariate models developed to predict PTSD treatment completion. Hernandez-Tejada et al., 2014, and Mott, Mondragon, et al., 2014, reported that

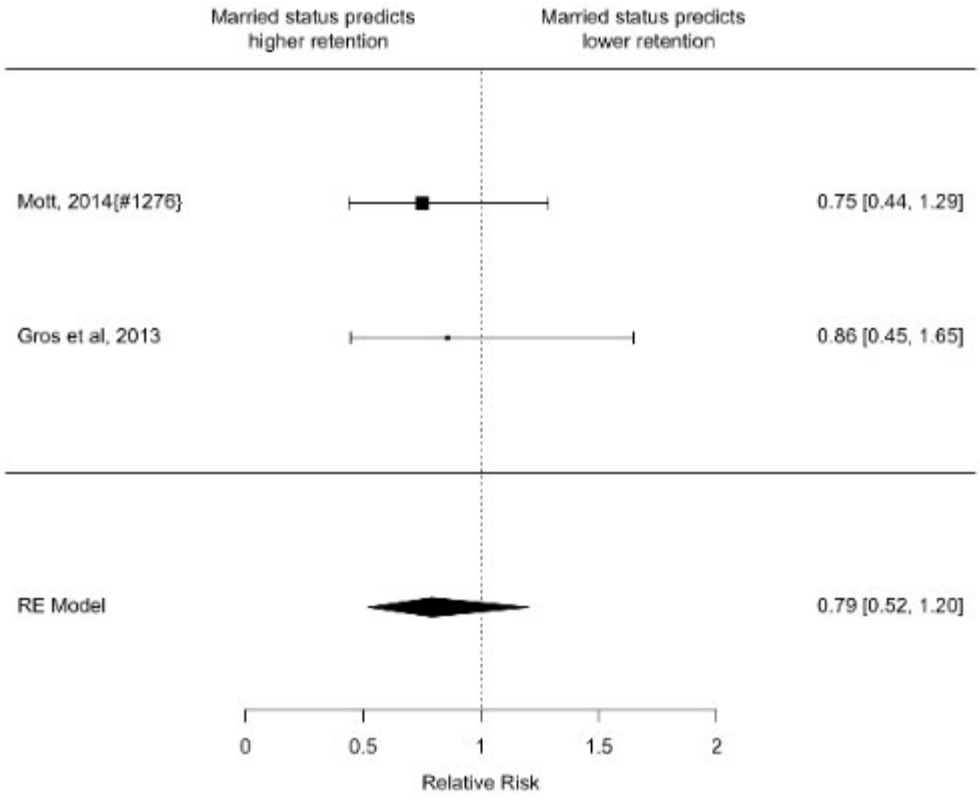
income was not statistically significant in linear regression models adjusting for patient and treatment characteristics. In contrast, using a propensity adjusted hierarchical regression model, Spoont et al., 2015, found that patients in the highest income category (annual income >$50,000) in the national VA database were significantly more likely to complete at least eight sessions of psychotherapy, which was considered the minimum clinical recommendation. Again, the content of the psychotherapy sessions may have varied widely among the VA patients.

The quality of evidence was rated insufficient to support a conclusion.

Marital Status

Figure 3.3 displays pooled results of the two identified studies (Gros et al., 2013; Mott, Mondragon, et al., 2014) that presented dropout rates stratified by marital status. Married patients had better retention in both studies; however, pooled results were not statistically significant (*RR* = 0.79, 95% [CI 0.52, 1.20]). No heterogeneity was detected (I^2 = 0%). The authors of both studies also adjusted for marital status in multivariate regression models and reported no significant association with retention. Two other studies (Hebenstreit et al., 2015; Hernandez-Tejada et al., 2014) also included marital status in logistic regression models. Although the effect of marriage was positive in both studies, neither found a statistically significant association. Hebenstreit et al., 2015, analyzed data from the VA national database;

Figure 3.3. Meta-Analysis: Retention and Marital Status



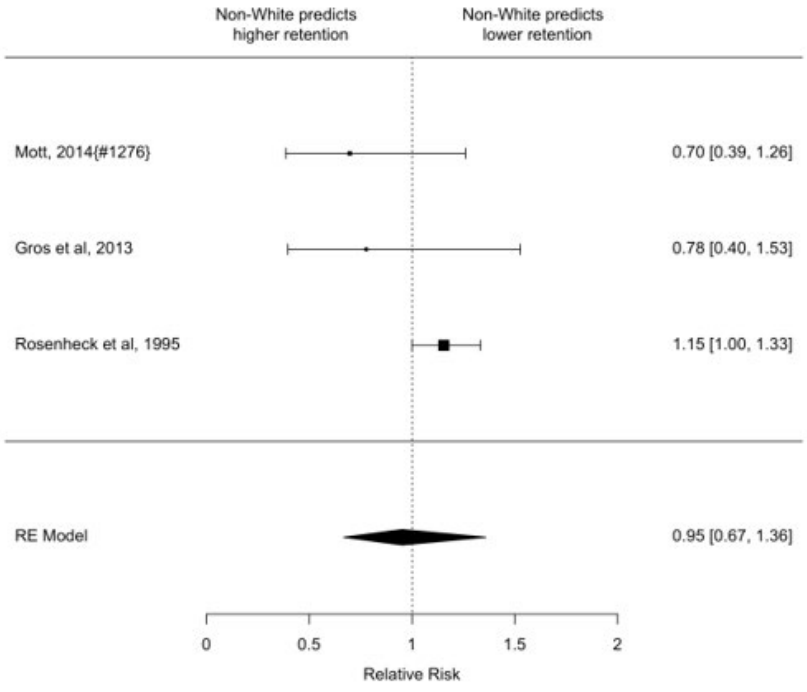
the size of the study is impressive, but the specific type and intensity of treatment received may have varied widely among patients.

The quality of evidence for a positive effect of marriage on retention was rated low.

Race/Ethnicity

Three studies (Gros et al., 2013; Mott, Mondragon, et al., 2014; Rosenheck, Fontana, and Cottrol, 1995) presented dropout rates for psychological treatment stratified by race (white versus nonwhite); pooled results are displayed in Figure 3.4. Results were not statistically significant (*RR* = 0.95, 95% CI [0.67, 1.36]). Heterogeneity was moderate (I^2 = 48%). Two of these studies (Gros et al., 2013; Mott, Mondragon, et al., 2014) also adjusted for race in multivariate regression models; the association between race and dropout was not statistically significant.

Figure 3.4. Meta-Analysis: Retention and Race/Ethnicity



Six other studies (Cook et al., 2013; Gros et al., 2018; Hebenstreit et al., 2015; Hernandez-Tejada et al., 2014; Spoont et al., 2009; Spoont et al., 2015) included race in multivariate regression models. Three of these studies (two by the same author, all using the VA national database) reported a significant association (Hebenstreit et al., 2015; Spoont et al., 2009; Spoont et al., 2015). There was no overlap among the VA cohorts studied by Spoont and colleagues, as newly diagnosed cases from different years were analyzed, but population overlap between those two studies and Hebenstreit et al., 2015, is possible. Hebenstreit and colleagues' analysis of over 2,000 female OEF, OIF, and Operation New Dawn (OND) veterans found that when adjusting

for other demographics, military background, and access, African Americans (*OR* = 0.73, 95% CI [0.59, 0.91]) and Latinas (*OR* = 0.61, 95% CI [0.47, 0.81]) were significantly less likely than whites to complete "minimally adequate treatment" defined as at least 12 weeks of medication use or nine outpatient counseling visits within 15 weeks. Similarly, Spoont at al.'s (2009) analysis of over 20,000 patients newly diagnosed with PTSD at VA centers found African Americans (*OR* = 0.62, 95% CI [0.55, 0.69]) and Latinos (*OR* = 0.82, 95% CI [0.69, 0.98]) less likely than whites to complete four months of psychiatric medications after adjusting for demographic, disability, and access factors. However, African Americans were more likely than whites to complete at least eight counseling sessions (*OR* = 1.33, 95% CI [1.13, 1.57]), and the difference between whites and Latinos was not significant. Spoont et al., 2015, also found African American VA patients significantly less likely (*OR* = 0.76, 95% CI [0.62, 0.95]) than white patients to complete four months of psychiatric medication for PTSD. Race/ethnicity was not a statistically significant predictor of completion of eight counseling sessions. It is important to note that focus, content, and intensity of psychotherapy may have varied considerably among the VA patients.

The quality of evidence that African American race is associated with worse retention was rated low.

Sex

Only one study reported retention rates stratified by sex. Mott et al., 2014, compared the gender composition of completers versus dropouts from evidence-based programs (CBT or PE). The difference was not statistically significant; the groups were 94.8 percent and 84.8 percent male, respectively. Mott and colleagues also included sex in a logistic regression model developed to predict treatment completion; the association was not significant. Two other studies (Gros et al., 2013; Hernandez-Tejada et al., 2014) included sex in similar multivariate models. Hernandez-Tejada et al., 2014, found no association, while Gros et al., 2013, found women significantly more likely to complete "minimally adequate treatment"—defined as at least eight sessions of psychotherapy.

The quality of evidence was rated insufficient to support a conclusion.

Mental Health

Anxiety

Miles et al., 2015, included the anxiety subscale score from the Affect Control Scale (ACS) in a logistic regression model predicting completion of a CPT program. Anxiety score had a significant negative effect on treatment completion (*OR* = 0.93, 95% [CI 0.87, 1.00]). Due to lack of other studies, the quality of evidence was rated insufficient to support a conclusion.

Anger

Miles et al., 2015, included the anger subscale score from the ACS in a logistic regression model predicting completion of a CPT program. This variable was not significant (*OR* = 0.99,

95% CI [0.92, 1.07]). Due to lack of other studies, the quality of evidence was rated insufficient to support a conclusion.

Avoidance/Avoidance Coping

Using data on veterans with PTSD in North America, Badour et al., 2012, conducted a longitudinal study to assess the association between PTSD severity and avoidance coping (N = 1,073). After controlling for baseline substance use and PTSD symptom severity, the authors found that length of stay in treatment was not significantly associated with avoidance coping at intake.

Cook et al., 2013, analyzed data from veterans whose PTSD was treated in an RCT of IR or sleep and nightmare (SN) management CBTs (N = 124). Multivariate regression analysis controlling for potential confounders found dropout rates were not predicted by avoidance symptoms.

A retrospective analysis of records of female Iraq and Afghanistan veterans enrolled in VA programs (N = 2,183) was conducted to identify factors associated with minimum adequate care (MAC), defined as consecutive weeks of medication se and nine mental health outpatient visits within a 15-week period. Hebenstreit et al., 2015, used multivariable logistic regression models to find that patients with high emotional numbing, denoted by having high likelihood of feeling detached and having minimized interest, were less likely to complete MAC compared with intermediate symptom class, which included those who had increased arousal and avoidance (OR = 0.75, 95% CI [0.57, 0.97]). The analysis controlled for demographic characteristics, military-related variables, access/temporal factors, and clinical variables. However, as noted previously, care may have varied widely among patients.

The quality of evidence was rated insufficient to support a conclusion.

Beliefs About Psychotherapy

Spoont et al., 2015, examined whether odds of retention in psychotherapy could be linked to race/ethnicity, beliefs about psychotherapy, and/or access barriers via a prospective national cohort study (n = 6,788). Veterans at the beginning of an episode of mental health care utilization were identified using electronic medical health records from any VA facility (2008–2009); to improve representativeness, all women, Latino men, and non–African American minority race members were sampled. Beliefs about psychotherapy were assessed with a self-administered survey (n = 6,778) created from three scales, the Beliefs About Medicines Questionnaire, the Beliefs about Psychotherapy Scale, and the Patient Attitudes Toward and Ratings of Care for Depression scale; minimum treatment was defined as either eight or more psychotherapy sessions and/or 120 or more days of guideline-recommended medications (SSRIs and serotonin and norepinephrine reuptake inhibitors [SNRIs]). The initial analysis used only the 6,788 veterans who initiated treatment, but the propensity models became unstable due to small numbers. The authors ultimately used the entire sample of 104,946 veterans for the analysis, weighting for survey response and adjusting for nonresponse (p-values were not adjusted

for multiple comparisons). For the larger sample, 20 percent of veterans were retained in pharmacotherapy (at least four months), 7 percent were retained in psychotherapy (at least eight sessions), and 24 percent were retained in one of the two. Using a linear regression model and propensity scoring techniques, and controlling for treatment need, access factors, age, gender, treatment beliefs, and facility factors, several factors were correlated with differential odds of treatment retention. Compared with white individuals, African American veterans had lower odds retention in pharmacotherapy (*OR* = 0.68, 95% CI [0.56, 0.83]; *p* <.001), as did Latino veterans (*OR* = 0.76, 95% CI [0.62, 0.94]; *p* <.01). For all groups, anticipated access barriers lowered the odds of retention in psychotherapy, but not pharmacotherapy (psychotherapy: *OR* = 0.55, 95% CI [0.50, 0.80]; *p* <.001; pharmacotherapy: *OR* = 0.92, 95% CI [0.78, 1.10]; *p* >.05), but controlling for these access barriers did not significantly alter the odds for Latino or African American veterans. Controlling for treatment belief significantly decreased the reduced odds of retention for Latino veterans, but only moderately for African American veterans. As mentioned previously, the specific type and focus of psychotherapy may have varied widely among patients; this may have effected retention.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Co-Occurring Mental Health Conditions, Number

Szafranski et al., 2014 reported a bivariate correlation between the number of co-occuring diagnoses and inpatient length of stay; the association was relatively large (*r* = 0.24, *p* = 0.04) and statistically significant. Finally, in a study of female VA PTSD patients, Hebenstreit et al., 2015, found those with two or more mental health comorbidities more likely to complete minimal adequate care (12 consecutive weeks of medication use or nine mental health outpatient visits within a 15-week period) than patients with no comorbidities (*OR* = 3.09, 95% CI [2.40, 4.10]). Their multivariate regression model adjusted for many important demographic, military, and clinical factors, but the specific type and focus of treatment received may have varied widely among patients.

The quality of evidence for better retention among those with more co-occurring disorders was rated moderate.

Depression

Four studies included patient depression in multivariate models predicting completion of PTSD treatment. Three (Gros et al., 2013; Gros et al., 2018; Hernandez-Tejada et al., 2014) used versions of the Beck Depression Inventory (BDI); the other (Miles et al., 2015) used the ACS depression score. Although patients with depression tended to have worse retention, this relationship was not statistically significant in any studies.

Szafranski et al., 2014, reported that a bivariate correlation between the Beck Depression Inventory—Second Edition (BDI-II) score and length of stay in residential treatment was not statistically significant (*r* = 0.06, *p* = 0.62).

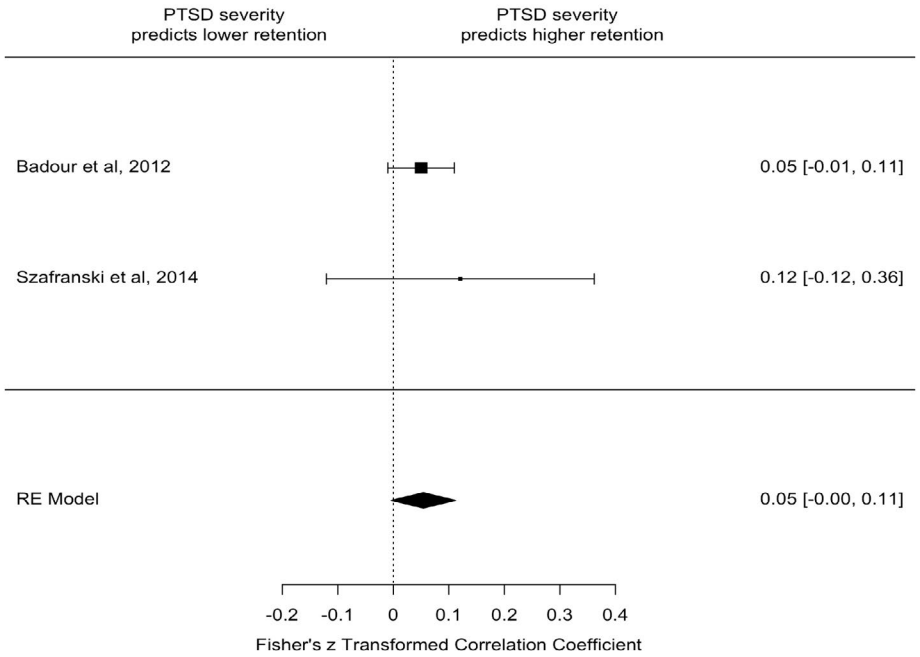
Garcia et al., 2011, compared patients who left treatment (cognitive therapy and/or PE) prior to reaching predefined treatment goals agreed upon by the clinician and patient. The authors reported that the mean Minnesota Multiphasic Personality Inventory (MMPI) depression scale score was significantly higher among dropouts ($p = 0.045$). In contrast, Tuerk et al., 2011, reported that the depression score on the BDI-II was not associated with dropout from a PE program; statistical results were not presented.

The quality of evidence for a negative effect of depression on retention was rated low.

PTSD Severity, Baseline

Two studies (Badour et al., 2012; Szafranski et al., 2014) reported bivariate correlations between baseline PTSD and length of stay in treatment; results were pooled using meta-analysis. Fisher's (1915) *z*-transformed correlation coefficient reflected a small association of greater baseline PTSD severity with longer retention that approached statistical significance ($r = 0.05$, 95% CI [0.00, 0.11]; $p = 0.06$). Heterogeneity was not significant ($I^2 = 0\%$). Results are displayed in Figure 3.5. No studies stratified retention rates by baseline severity category.

Figure 3.5. Meta-Analysis: Correlations, Baseline PTSD Severity and Length of Stay



Six studies (Gros et al., 2013; Gros et al., 2018; Hebenstreit et al., 2015; Hernandez-Tejada et al., 2014; Miles et al., 2015; Spoont et al., 2015) adjusted for baseline PTSD severity in multivariate models. Hebenstreit et al., 2015, found patients with PTSD severity categorized as high statistically more likely to complete "minimally adequate treatment" than those with low severity (coefficient = 1.55, 95% CI [1.12, 2.20]) when adjusting for important patient and treatment characteristics. The five other studies reported no statistically significant relationship

between baseline severity and treatment retention, but the findings were always in a positive direction. Notably, two of these studies (Hebenstreit et al., 2015; Spoont et al., 2015) used the VA national database; population overlap is unclear, as is the consistency of content of the psychotherapy sessions. Despite good study quality and a consistent trend of direction, we rated the quality of evidence as low. Quality was downgraded due to lack of precision (statistical significance) and possible publication bias.

Social Support, Postdeployment

Gros and colleagues published two studies reporting on the relationship between patient Deployment Risk and Resilience Inventory (DRRI) postdeployment support scale score and retention. The first (Gros et al., 2013) found a statistically significant association between less support and discontinuation of behavioral activation and therapeutic exposure treatment, using a hierarchical linear model. The second (Gros et al., 2018) found a similar but not statistically significant association using a Cox proportional hazards model of data from an RCT of PE.

The quality of evidence was rated insufficient to support a conclusion.

Substance Use Disorder/Substance Use

DeViva et al., 2017, found that among 46 patients in evidence-based PTSD treatment programs there was no significant difference in the baseline rate of substance use disorder (SUD) between program completers and dropouts. Similarly, Mott, 2014, presented stratified data comparing completers of CPT or PE with those patients who dropped out before completing seven sessions. There was no difference between completers and noncompleters in the proportion diagnosed with SUD at baseline. (The samples enrolled in these two studies may overlap.) Szafranski et al., 2014, included use of illicit substances, based on the results of a urinary drug screen, in a linear regression model predicting length of stay in an inpatient PTSD treatment program. Adjusting for other important patient characteristics, screening positive for drugs was associated with a shorter length of stay ($p < 0.05$).

The quality of evidence was rated insufficient to support a conclusion.

Suicidality

Two studies included suicidality in regression models predicting retention. Mott et al., 2014, reported that suicide risk was not a statistically significant predictor of completion of CBT or PE in a logistic regression analysis ($N = 157$). Specific data (*OR* or *RR*) were not reported. Similarly, Szafranski, et al., 2014, reported that score on the Beck Scale for Suicide Ideation was not a significant predictor of length of stay in residential PTSD treatment in a linear regression analysis.

The quality of evidence was rated insufficient to support a conclusion.

Treatment Expectations

Belsher et al., 2012, used mixed-model longitudinal analyses to assess the relationship between disability compensation, treatment expectations, military cohort, length of stay, and

treatment outcomes (n = 725) in a case series of veterans receiving care in one of five VA residential specialized intensive PTSD programs (SIPPS). Treatment expectations were assessed via a three-item index, where participants identified their three most pressing PTSD-related problems and rated their expectation of improvement for each on a bidirectional 11-point Likert scale at the beginning of the study (scores were averaged across the three items to create an overall index for each participant). A correlation analysis showed that positive treatment expectations were associated with increased length of residential treatment (r = 0.12, p = 0.002).

Cook et al., 2013, conducted an RCT of IR versus SN management in 124 male Vietnam War veterans with chronic PTSD. The Credibility/Expectancy Questionnaire—a commonly used, six-question measure designed to capture participant perceptions of treatment rationale, procedural understanding, and expectations for improvement—was administered after the first session. Participant alpha for credibility was 0.79 and for expectancy was 0.72 in this study. For both the IR and SN conditions, bivariate maximum-likelihood logistic regression analysis was first used on all predictors (including demographics, medication use, education, trauma exposure, military service, symptom clusters, nightmare occurrence, and treatment credibility/expectations) to limit the number of predictors used in the eventual multivariate logistic regression analysis. In the IR condition, several of the bivariate analysis predictors were significant in predicting dropout, including trauma type, SSRI use, and lower perceived treatment credibility (OR = 0.57, p <0.05). However, none of the variables were statistically significant in the final multivariate analysis.

The quality of evidence for positive effect of higher treatment expectations was rated low.

Treatment History

DeViva et al., 2017, examined whether a veteran's "readiness for treatment" and ultimate completion of a chosen evidence-based psychotherapy (EBP) could be improved with at least one group session of education and treatment planning (n = 182). Those who refused or had scheduling conflicts for the group meetings comprised the TAU control group. Treatment history was not a significant predictor of selection or completion of an EBP for the education and treatment planning group. Treatment history analysis was not reported for the TAU group.

The quality of evidence was rated insufficient to support a conclusion.

Military Background

Exposure to Civilian Trauma

Cook et al., 2013, randomized 124 male Vietnam War veterans to two types of CBT for PTSD: IR or SN management. Dropout was defined as completing four or fewer sessions of a six-session program. For the IR group, exposure to civilian trauma was found to be statistically associated with dropout (OR = 1.39, p <0.05) in bivariate analysis, but the multivariate analysis did not indicate a substantial contribution (OR = 1.24, not significant [n.s.]).

The quality of evidence was rated insufficient to support a conclusion.

Number of Deployments

Szafranski et al., 2014, reported that the number of deployments was not correlated with length of stay ($r = 0.07$, $p = 0.58$). The quality of evidence was rated insufficient to support a conclusion.

Participation in Atrocities

Fontana, Ford, and Rosenheck, 2003, applied structural equation modeling to examine the contribution of baseline patient characteristics to patient satisfaction with VA PTSD treatment. In preparation, they conducted bivariate correlations between potential model variables. They reported a correlation of only 0.01 between participation in atrocities and length of stay; this result was not statistically significant and not included in the model. The quality of evidence was rated insufficient to support a conclusion.

Rank

Szafranski et al., 2014, evaluated different predictors of retention (length of stay) among male veterans ($n = 282$) returning from OEF, OIF, and OND enrolled in Returning OEF/OIF/OND Veterans' Environment of Recovery (ROVER), a voluntary inpatient 25-day evidence-based treatment for PTSD. Military rank was not correlated with length of stay ($r = 0.10$, $p = 0.42$). The quality of evidence was rated insufficient to support a conclusion.

Service Era/Combat Theater

Five studies (Gros et al., 2018; Hernandez-Tejada et al., 2014; Jeffreys et al., 2014; Mott, Mondragon, et al., 2014; Spoont et al., 2015) included service era or combat theater as a variable in multivariate models predicting treatment completion/dropout. All assessed the effect of serving in OEF, OIF, or OND. Mott, 2014, found that patients who served in that era were far less likely to complete a VA CPT or PE program ($OR = 0.09$, 95% [CI 0.03, 0.30]). The other four (Gros et al., 2018; Hernandez-Tejada et al., 2014; Jeffreys et al., 2014; Spoont et al., 2015) found the effect on treatment completion not statistically significant; direction of effect was mixed.

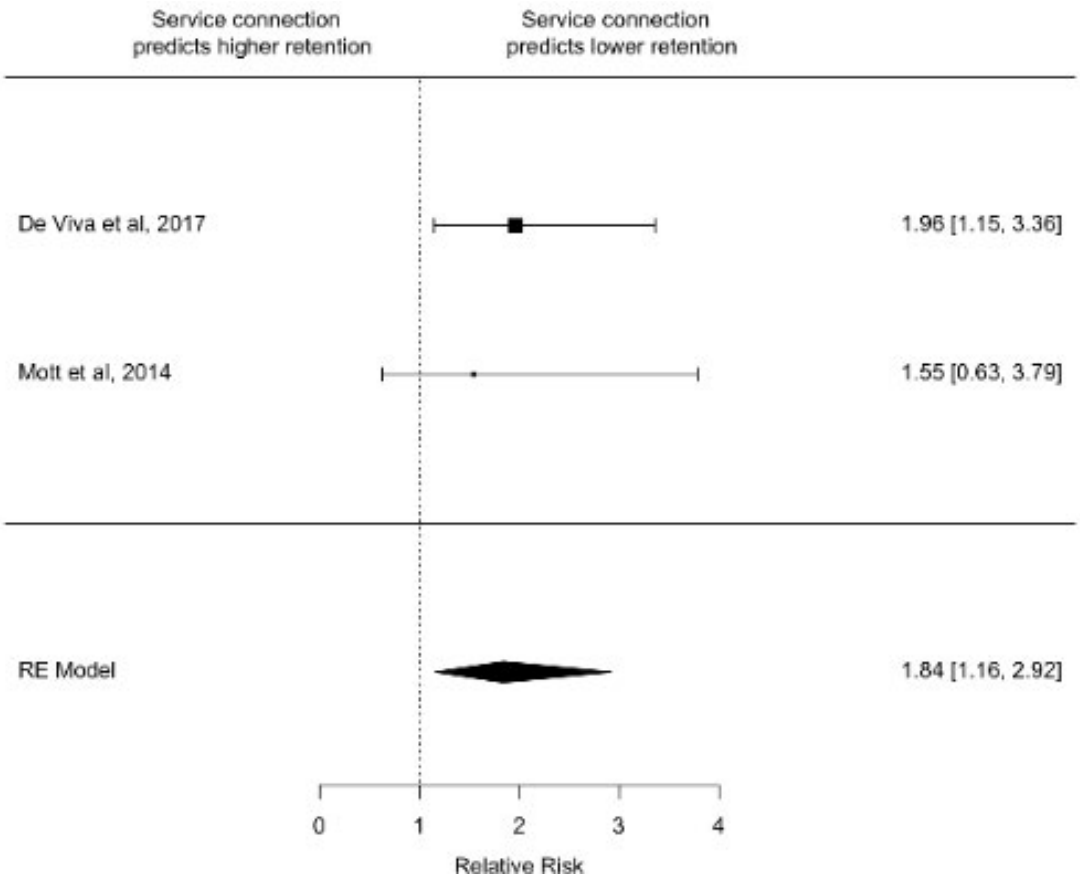
The quality of evidence was rated insufficient to support a conclusion.

Service Connection/Disability Status

Two studies (DeViva et al., 2017; Mott, Mondragon, et al., 2014) compared the dropout rate between veterans with and without service connection. The pooled analysis revealed that those with a service connection had a 1.84 times higher risk of dropout (95% CI [1.16, 2.92]) as displayed in Figure 3.6. No heterogeneity was detected ($I^2 = 0\%$).

Fontana and Rosenheck, 1998, evaluated outcomes in veterans enrolled in inpatient ($n = 831$) and outpatient ($n = 554$) VA-based PTSD programs. Veterans were asked whether they were

Figure 3.6. Meta-Analysis: Retention and Service Connection



seeking a psychiatric service-connected disability, and if they already had one, whether they were seeking an increase in disability rating. The authors found no difference in duration of treatment time for inpatient ($F = 1.42$, $p > 0.20$) or outpatient setting ($F = 0.21$, $p > 0.60$). As part of a large multisite trial, Belsher et al., 2012, examined veterans ($n = 776$) enrolled in specialized trauma care in one of five VA residential PTSD programs between 2005 and 2010. Service-connected PTSD compensation data were collected at baseline by questionnaire and patients were classified as seeking compensation, receiving compensation, or receiving compensation and requesting an increase. Patients already receiving compensation but not requesting an increase had significantly shorter stays (45.0 days) compared with those seeking compensation (52.9 days) or seeking an increase (48.6 days).

Four studies included service connection or disability status in multivariate models. Gros et al., 2018, included disability as a variable in a Cox proportional hazards model. Patients on disability were significantly less likely to complete eight sessions of PE (*OR* = 0.36, 95% CI [0.16, 0.88]). The same research center published the results of a hierarchical model where

disability status had the same effect ($p = 0.04$) on completion of exposure therapy in person or via telehealth. Tuerk et al., 2011, studied a PE program for PTSD involving weekly 90-minute sessions. The authors reported that patient characteristics including disability rating were not predictors of treatment completion; unfortunately, the statistical analysis was not described. Finally, Spoont et al., 2015, found that receiving VA disability (i.e., service connection) had an insignificant but negative relationship with completion of eight sessions of outpatient psychotherapy (*OR* = 0.90, 95% CI [0.74, 1.09]). Their model adjusted for many important patient and treatment characteristics.

The quality of evidence was rated low rather than insufficient based on the consistency domain. There was a trend toward patients already on disability having worse retention, but findings were not always statistically significant. The body of evidence was downgraded for precision (statistical significance) and possible publication bias.

Summary

Figures 3.7, 3.8, and 3.9 display the results for baseline patient characteristics included in multivariate models developed to identify predictors of retention among military populations. These analyses have a stronger design than simple bivariate correlations or stratified comparisons because multivariate models adjust for many potential confounders simultaneously. For each potential predictor, the figures display the number of multivariate analyses that found a statistically significant negative association with retention; no significant statistical association with retention; or a statistically significant positive association with retention. Because of the issues mentioned earlier regarding large observational databases, Figures 3.7a, 3.8a, and 3.9a display the results with the analyses of the VA national database removed as a sensitivity analysis.

Regarding demographic characteristics, no multivariate models indicated a significant effect of level of education, employment status, marital status, or religion on retention. As displayed in Figure 3.7, results were mixed regarding race/ethnicity. Four of seven studies found older patient age associated with better retention, while the other three studies found that age was not a statistically significant predictor. When the national VA studies are removed, age is the only significant predictor that remains: three multivariate analyses found a statistically significant positive association between increasing age and better retention, and two reported results in the same direction that were not statistically significant.

Figure 3.7. Demographic Predictors and Retention: Results of Multivariate Models

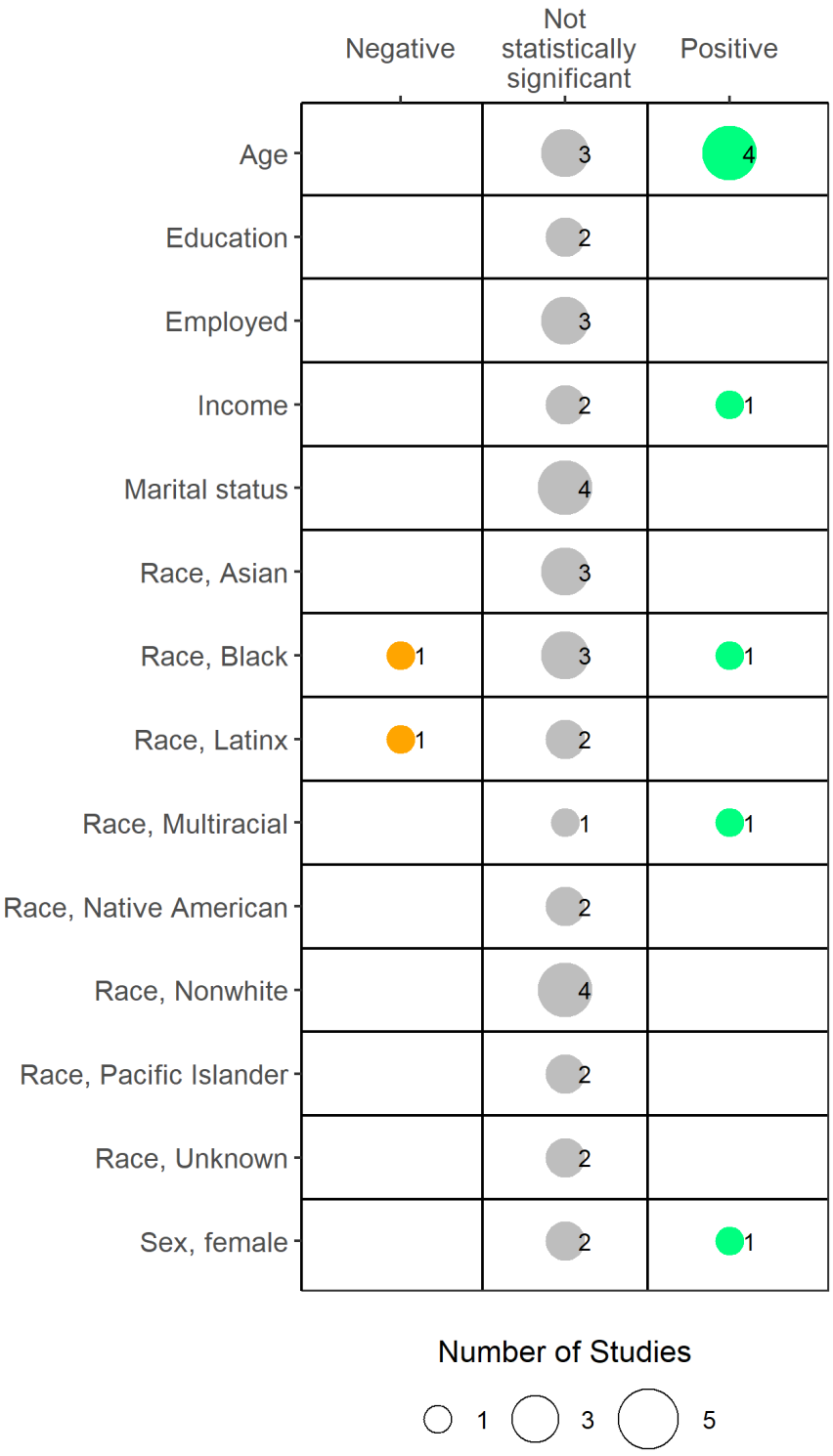
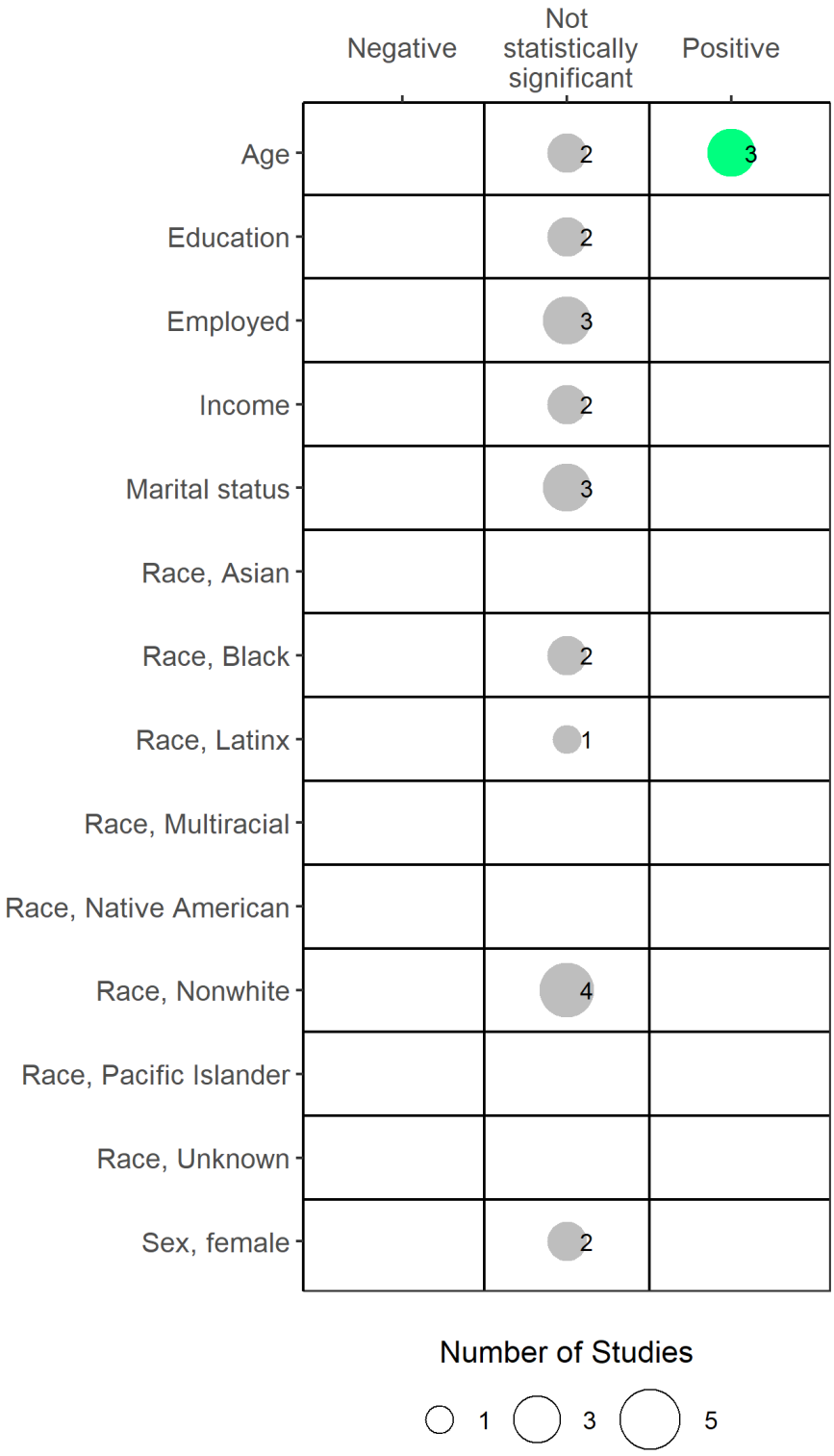


Figure 3.7a. Demographic Predictors and Retention, VA-Wide Studies Removed



Figures 3.8 and 3.8a summarize results for other nonmilitary-related patient characteristics. Notably, baseline PTSD severity had no effect on retention in five of six studies where models adjusted for it, and the other study reported that higher severity was associated with better retention. In the four studies that investigated co-occurring depression, none found a significant effect on retention. Anxiety and SUD were each included in one model; they were associated with worse retention. The trends remained after the national VA studies were removed.

Figure 3.8. Other Patient Characteristics and Retention: Results of Multivariate Models

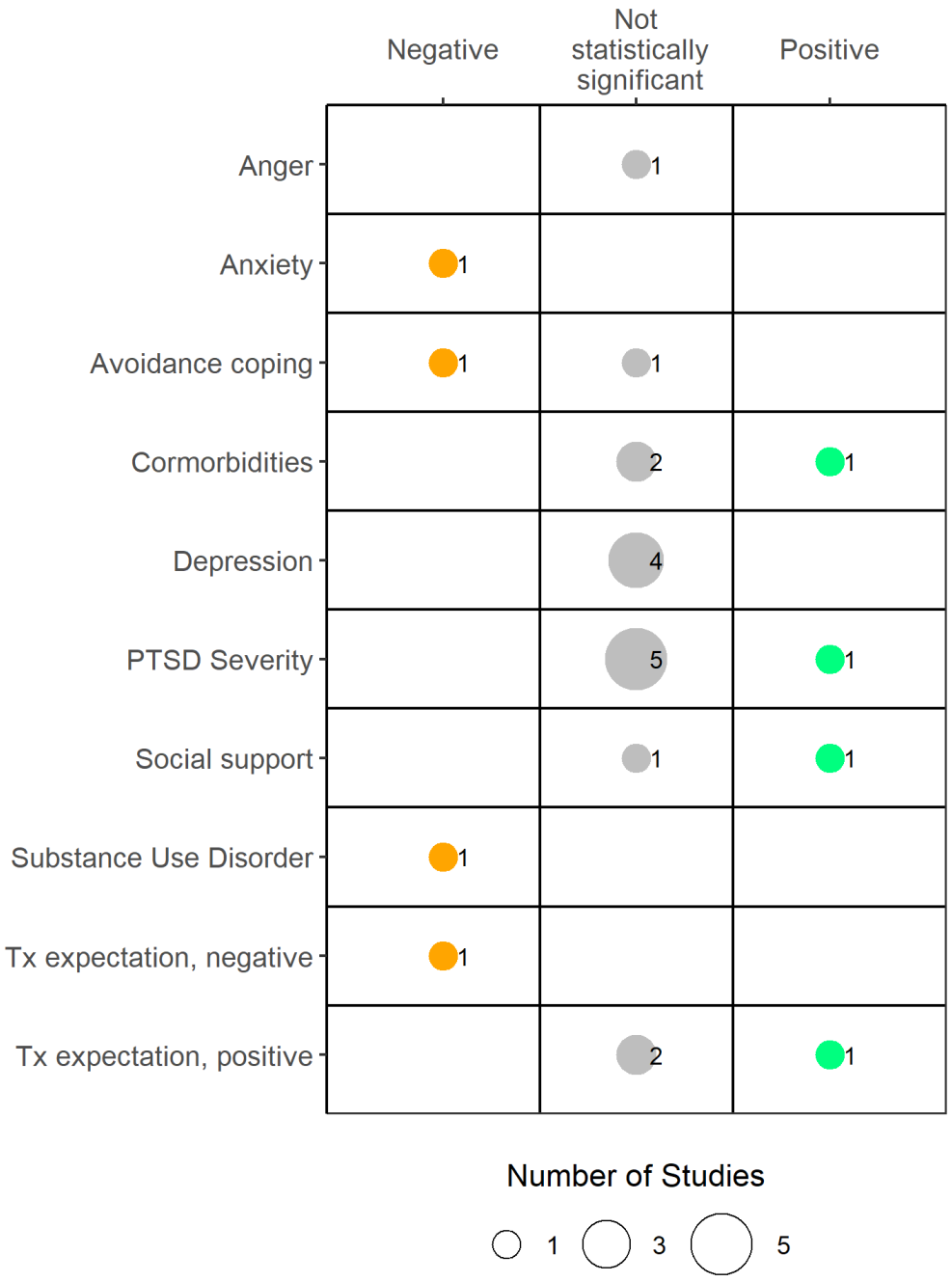
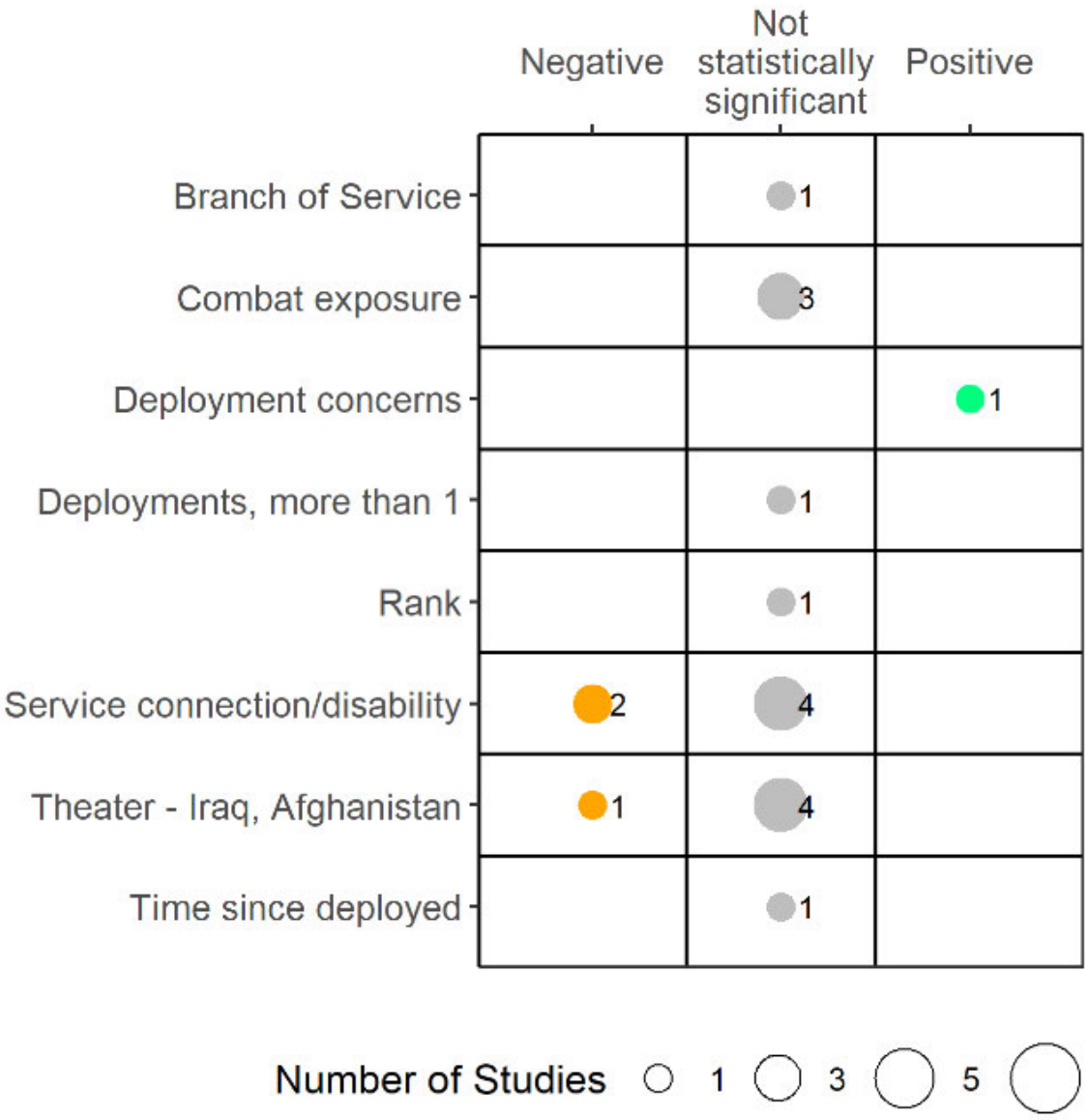


Figure 3.8a. Other Patient Characteristics and Retention, VA-Wide Studies Removed

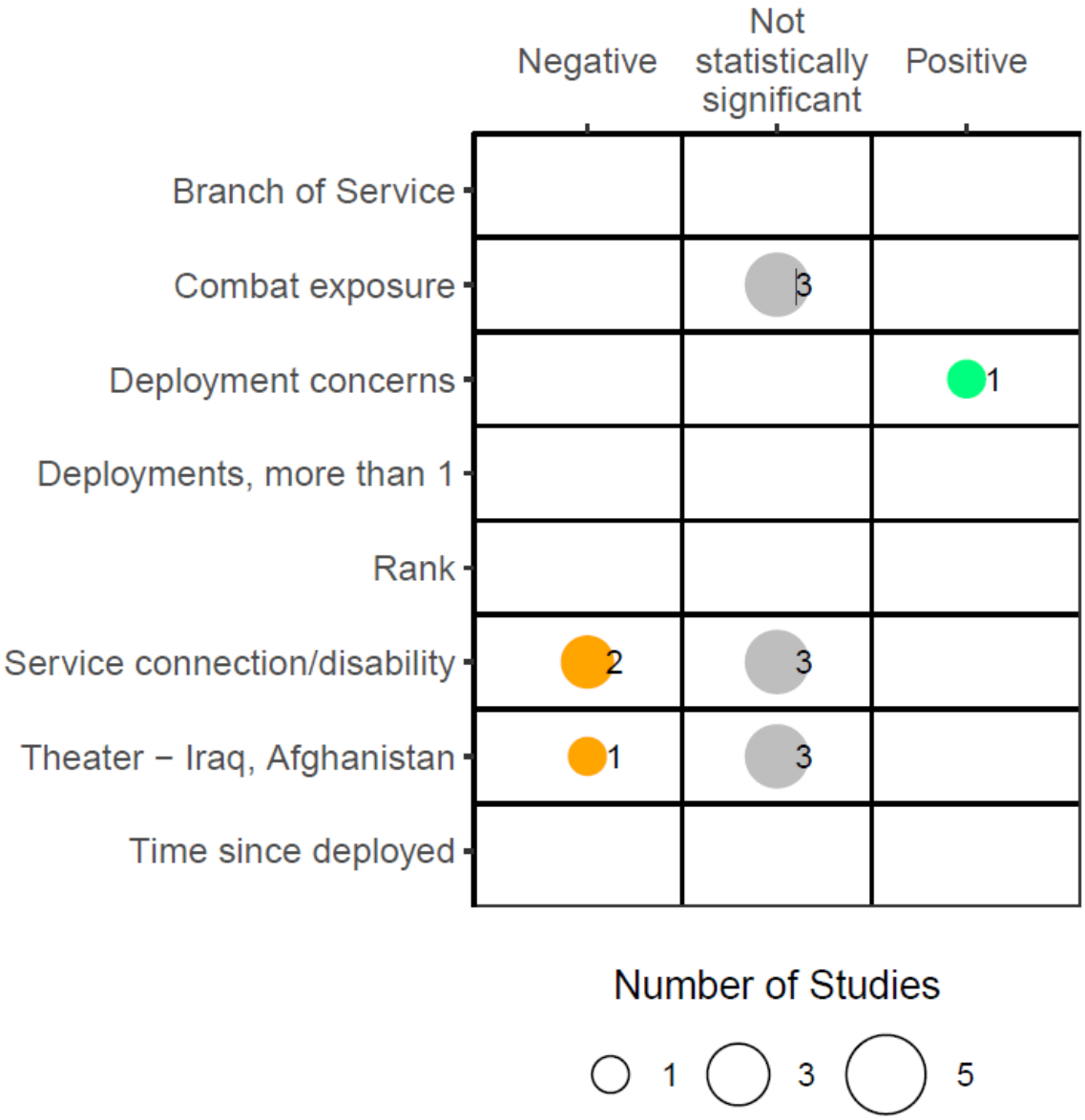
Figures 3.9 and 3.9a display the results of multivariate models that included patient military background as potential predictors of retention. Branch of service, rank, number of deployments, and the length of time since deployment had no association with retention; however, these variables were included in only one multivariate model each. Combat exposure had no

Figure 3.9. Military Background and Retention: Results of Multivariate Models



association with retention in all three studies where it was included as a potential predictor. Similarly, service connection was not associated with retention in four multivariate studies, despite being associated in two other studies. Only one of the five studies that examined whether being a veteran of the recent conflicts in Iraq and Afghanistan (as opposed to other theaters) had an effect on retention found significant results; in that study, OEF and OIF veterans had greater odds of dropout. The only military variable statistically associated with better retention was patient concerns regarding future deployment; however, only one study assessed this issue. None of the significant findings came from national VA studies, as displayed in Figure 3.9a.

Figure 3.9a. Military Background and Retention, VA-Wide Studies Removed



KQ 2. What Program Characteristics Are Associated with Treatment Retention?

Modality

Telehealth Versus In-Person Treatment

Gros et al., 2013, created a hierarchical logistic regression model with outpatient psychotherapy data; the effect of modality (telehealth versus in-person treatment) was not significant (*OR* = 1.28, 95% CI [0.45, 3.67]). Gros et al., 2018, constructed a Cox proportional hazards model with data from another sample and reported again that this variable was not statistically significant (*OR* not reported).

Regarding PE therapy, Hernandez-Tejada et al., 2014, found that whether a patient underwent treatment in person or via telehealth had no statistical association with treatment completion (*OR* = 0.80, 95% CI [0.42, 1.52]) when other patient characteristics were adjusted for in a logistic regression model. Acierno et al., 2017 conducted an RCT of in-person PE versus telehealth treatment (*n* = 150). Nineteen percent of the group assigned to in-person treatment dropped out, compared with 32 percent of those assigned to telehealth. This difference was not statistically significant.

The quality of evidence was rated low for no difference in retention between psychological treatment delivery in person versus telehealth.

Virtual Reality Exposure Versus Standard Prolonged Exposure

One RCT (Reger et al., 2016) examined the efficacy of virtual reality exposure (VRE) compared with both standard PE therapy and a minimal attention waitlist control for active-duty soldiers. VRE was informed by the PE treatment protocol, with an added component of eyes-open trauma exposure in a relevant virtual reality environment. Rates of attrition were high, yet similar between the two groups (44.5 percent VRE; 40.7 percent PE), with a Poisson regression coefficient of 0.05 ($p = 0.567$).

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Adding Medication to Psychological Interventions

Number of Medications

DeViva et al., 2017, found that the number of medications prescribed to a patient was not associated with completion of outpatient CPT or PE. In contrast, Fontana and Rosenheck, 1998, reported a significant negative bivariate correlation between length of stay in VA inpatient programs and number of medications prescribed ($r = –.07$, $p < 0.05$). Cook et al., 2013, reported that SSRIs were not associated with completion of SN management (*n* = 61) or IR (*n* = 63) programs for PTSD (*OR*s not reported).

The quality of evidence was rated insufficient to support a conclusion.

Health Services Characteristics

Distance from Patient

Four modeling studies included categorical variables that represented patient distance from a VA treatment facility. Hebenstreit et al., 2015, analyzed records from almost 40,000 PTSD patients across the United States; logistic regression analysis found that living more than ten miles away was not statistically associated with completion of minimally adequate outpatient treatment, but the direction was negative. Spoont et al., 2015, conducted hierarchal analysis of data from 6,788 VA patients and found that those who lived more than a 15-minute drive from the facility were significantly less likely to complete at least eight sessions of psychotherapy

(*OR* = 0.92, 95% CI [0.85, 0.99]). We could not determine the overlap between the VA populations included in the two studies. In addition, although the size of these studies is important, the specific type and intensity of treatment received may have varied widely among patients and affected retention.

DeViva et al., 2017, reported on 46 PTSD patients who chose to attend an evidence-based program after participating in a brief education session. Distance from a VA facility was not associated with treatment completion after other patient characteristics were adjusted for in a logistic regression model. (*OR* was not reported.) Finally, Szafranski et al., 2014, reported that distance from the facility was not associated with length of stay in VA inpatient treatment (*n* = 282).

The quality of evidence for a negative association between increasing distance and worse retention was rated low.

Summary

Few studies assessed the relationship between program characteristics and patient retention. Most of these studies focused on whether the treatment facility's distance from patients affected retention or whether retention could be improved by utilizing telehealth delivery. None of the four studies of telehealth versus in-person treatment found a significant difference in retention; three of these studies adjusted for important patient factors in multivariate models. One of the four studies that included distance from treatment facility reported a significant negative relationship between increased patient distance and retention, while another found a similar trend that was not statistically significant. Those two studies were much larger than the other two studies (thousands of patients, as opposed to *n* = 46 and *n* = 282). However, both utilized the national VA database, so overlap of populations and characteristic of psychotherapy could not be determined.

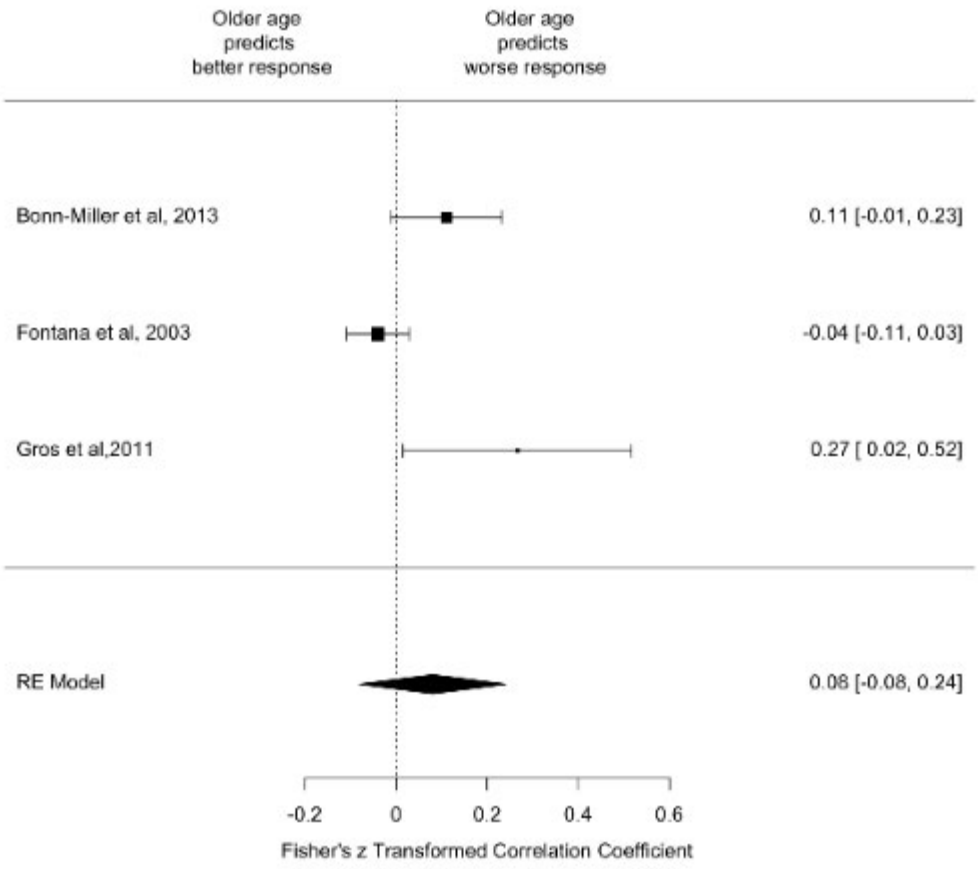
KQ 3. What Patient Characteristics Are Associated with Treatment Response?

Demographics

Age

Three studies (Bonn-Miller et al., 2013; Gros, Yoder, et al., 2011; Fontana, Ford, and Rosenheck, 2003) reported bivariate correlations between age and response to PTSD treatment. We pooled their results; as displayed in Figure 3.10, age was not significantly associated with response (*r* = 0.08, 95% CI [–0.08, 0.24]). Heterogeneity was substantial (I^2 = 78%) and significant (*p* = .01).

Figure 3.10. Meta-Analysis: Age and Treatment



Bray et al., 2016, presented results stratified by three age groups (total $N = 474$): 17 to 25, 26 to 34, and 35 years or older, at 12 months posttreatment. Patients ages 35 or older were significantly less likely to be classified as improvers, defined by any positive change in Posttraumatic Diagnostic Scale (PDS); 33 percent, 36 percent, and 17 percent improved, respectively. In an RCT of PE versus present-centered therapy (PCT) in female veterans and Army soldiers, Schnurr, 2016, found no difference in mean age between nonresponders, responders, patients no longer meeting diagnosis criteria, and patients experiencing remission.

Thirteen studies (Belsher, 2012; Bonn-Miller, 2013; Bray et al., 2016; Currier, 2014; Holder et al., 2018; Jeffreys et al., 2014; Korte, 2017; Levi et al., 2017; López et al., 2017; McLay et al., 2016; Tiet et al., 2015; Tuerk et al., 2011; Walter et al., 2014) included patient age in multivariate models. Sample sizes ranged from 72 to 992. Six models showed a significant association between age and change in PTSD severity but results conflicted. Across time in treatment, Walter et al., 2014, found increasing age was associated with greater improvement (coefficient = 0.08) as measured by the PTSD Checklist—Stressor Specific version (PCL-S) but with less improvement (coefficient = –0.10) in PTSD severity as measured by CAPS. Bonn-Miller et al., 2013, include age in a hierarchical linear model and found older age associated with less improvement in severity measured by the PTSD Checklist—Military version (PCL-M) from intake to discharge

(coefficient = –0.14) Likewise, Korte et al., 2017, included age in a path model and found older age associated with greater severity as measured by PCL scores (coefficient = 0.37) at the midtreatment point. Bray et al., 2016, found patients 35 years and older less likely to be classified as "improvers" at discharge (*OR* = 0.49, 95% [CI 0.24, 0.99]). Currier, Holland, and Drescher, 2014, created a logistic regression model to predict stable low PTSD versus improving moderate PTSD at discharge; older age was associated with the latter category.

The quality of evidence was rated insufficient to support a conclusion.

Education

In a study of outpatient PTSD treatment, Fontana, Ford, and Rosenheck, 2003, found that more years of education was correlated with greater decrease in PTSD severity measured by the Mississippi Scale for Combat-Related PTSD at both four and 12 months (r = –0.16 and –0.26, respectively; N = 554).

Bray et al., 2016, stratified results by education level; patients with a high school education or less were significantly more likely to be classified as improved at 12 months than those with some college or college graduates (p <.05). In an RCT of PE versus PCT in female veterans and Army soldiers, Schnurr, 2016, found no difference in the percentage of patients with education beyond high school between nonresponders, responders, patients no longer meeting diagnosis criteria, and patients experiencing remission.

Two studies (Levi et al., 2017; Walter et al., 2014) included years of education as a variable in regression models developed to identify predictors of response. Both measured PTSD severity using CAPS; one (Walter et al., 2014) also used the PCL-S. There was no significant association between education and improvement in CAPS score in either study. However, Walter et al., 2014, reported that more education was significantly associated with a better response (greater decrease in PTSD severity; coefficient = –0.34) measured by the PCL-S after a 12-session CPT program.

The quality of evidence that more education is associated with greater treatment response was rated low.

Employment

Fontana, Ford, and Rosenheck, 2003, reported that being employed was correlated with a greater decrease in PTSD severity as measured by the Mississippi Scale at both four and 12 months after outpatient treatment (r = –0.18 and –0.16, respectively). In an RCT of PE versus PCT in female veterans and Army soldiers, Schnurr and Lunney, 2016, found no difference in the percentage of patients who were employed among nonresponders, responders, patients no longer meeting diagnosis criteria, and patients experiencing remission.

Three studies (Levi et al., 2017; López et al., 2017; Walter et al., 2014) included employment status in four models developed to assess predictors of response. All were multilevel models; sample sizes ranged from 135 to 992. None found a significant association between employment and response, but employed patients tended to improve more.

The quality of evidence that being employed is associated with greater treatment response is rated low.

Marital Status

Bray et al., 2016, stratified results by marital status; unmarried patients were significantly more likely to be classified as improved at 12 months than were married patients ($p < .01$). Schnurr and Lunney, 2016, found no association between being married or living as married and response.

Five studies (Levi et al., 2017; López et al., 2017; McLay et al., 2016; Tiet et al., 2015; Walter et al., 2014) included marital status in six PTSD response models (Walter et al., 2014, created separated models for CAPS and PCL-S outcomes). Sample sizes ranged from 135 to 992. All but one were multilevel models; the other (McLay et al., 2016) was a stepwise linear regression model. None found a significant association. Two studies did not report statistical data, so direction of the relationship is unknown. The others favored married patients.

The quality of evidence that being married is associated with greater response was rated low.

Race/Ethnicity

Two studies reported bivariate correlations between race (coded as white or nonwhite) and improvement in PTSD severity. Fontana, Ford, and Rosenheck, 2003, found nonwhite race significantly associated with less improvement at four months ($r = 0.09$), while Gros et al., 2011, reported an r of 0.36 between race and change in severity measured by PCL-M that was not statistically significant ($N = 64$).

Four studies in five publications (Bray et al., 2016; Rosenheck and Fontana, 1996; Rosenheck, Fontana, and Cottrol, 1995; Schnurr and Lunney, 2016; Stecker et al., 2016) reported response outcomes stratified by race/ethnicity. Bray et al., 2016, found no statistical association between race and response. Rosenheck and Fontana, 1996, also reported no significant difference in response by race; another analysis of the same patients (Rosenheck, Fontana, and Cottrol, 1995) found that African American patients had a smaller improvement on control of violent behavior compared with whites. In contrast, Stecker et al., 2016, found that African American patients had a greater reduction in severity compared with whites at six months. In an RCT of PE versus PCT in female veterans and Army soldiers, Schnurr and Lunney, 2016, found no difference in the percentage of nonwhite patients between nonresponders, responders, patients no longer meeting diagnosis criteria, and patients experiencing remission.

Eight studies (Bray et al., 2016; Currier, Holland, and Drescher, 2014; Jeffreys et al., 2014; Korte et al., 2017; López et al., 2017; Tiet et al., 2015; Tuerk et al., 2011; Walter et al., 2014) included race/ethnicity as a variable in multivariate models. Five found race significantly associated with response to PTSD treatment. Jeffreys et al., 2014, found that being African American was negatively associated with change in PCL-M in a linear regression model. The association was statistically significant for PE treatment ($\beta = -5.45$) but not for CPT. Similarly,

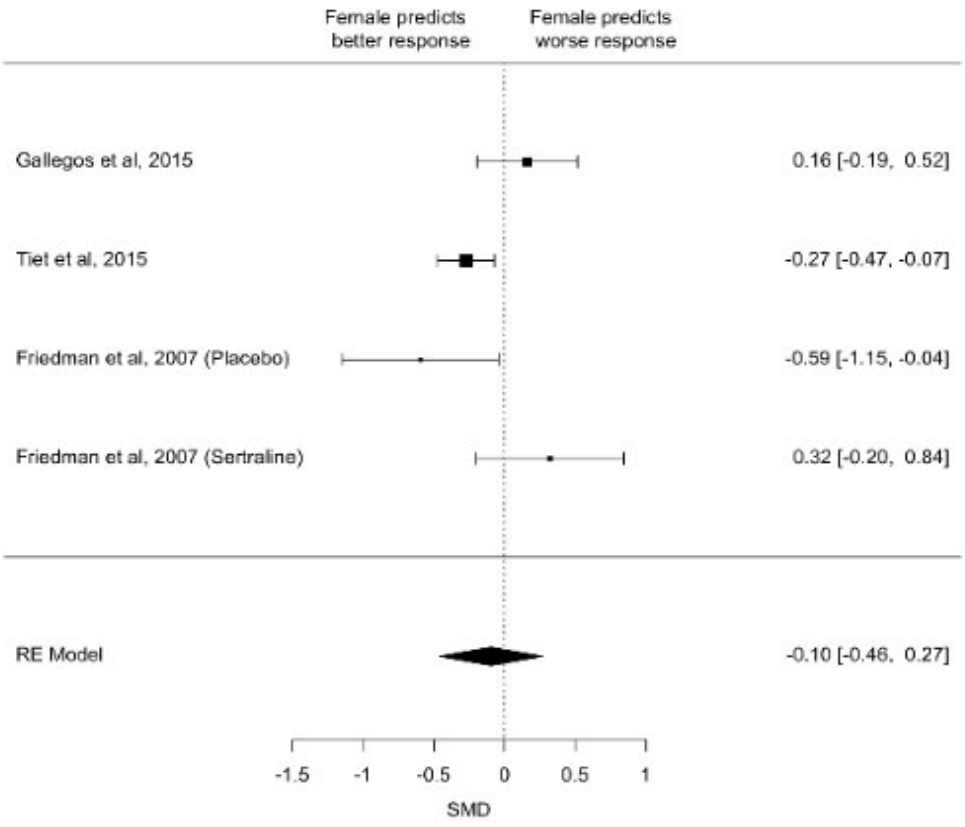
Tuerk et al., 2011, reported that African American race was associated with higher posttreatment PTSD severity ($\beta = 7.67$), measured by the PCL-M, adjusting for baseline severity. In contrast, Tiet et al., 2015, found that white race was associated with worse severity ($\beta = 2.84$) compared with people of color in a multilevel multivariate analysis predicting the PTSD Checklist—Civilian version (PCL-C) at follow-up, adjusting for PTSD severity at baseline. In their path model, Korte et al., 2017, found that white race was associated with worse PTSD symptoms midtreatment. Finally, Walter et al., 2014, found that white race was associated with greater improvement on the PCL-S than was nonwhite race ($\beta = 2.06$), but race was not a significant variable in the model that used CAPS to measure PTSD severity.

Sex

Currier, Holland, and Drescher, 2014, found that male sex correlated with a lower PCL-M score ($r = –0.12$) at four months follow-up after residential treatment.

Three studies (Friedman et al., 2007; Gallegos et al., 2015; Tiet et al., 2015) reported response as a continuous measure stratified by sex. Change in PTSD severity was measured at either three or four months. Friedman et al., 2007, reported results by arm (counseling with and without sertraline medication). Meta-analysis results are displayed in Figure 3.11. The association

Figure 3.11. Meta-Analysis: Treatment Response Stratified by Patient Sex



of sex with response was not statistically significant (*SMD* = –0.10, 95% CI [–0.46, 0.27]). There was substantial intrastudy heterogeneity (I^2 = 72%), which was statistically significant (Q = 9.96, p = .02).

Another study (Bray et al., 2016) reported no difference between men and women in the percent of responders, defined as improved on the PDS at 12 months postintervention.

Eight studies of current or former military personnel (Belsher et al., 2012; Bray et al., 2016; Currier, Holland, and Drescher, 2014; Korte et al., 2017; McLay et al., 2016; Tiet et al., 2015; Tuerk et al., 2011; Walter et al., 2014) included sex as a variable in models developed to predict response to treatment. Studies measured PTSD severity using CAPS and the PCL-C, PCL-M, and PCL-S. Sex was significantly associated with PTSD response in only two studies. Belsher et al., 2012, found female sex (β = –.09) to be associated with greater reductions in severity measured by the PCL. Walter et al., 2014, found female sex associated with decrease in CAPS (β = 3.34) but not in change in the PCL-S.

The quality of evidence was rated insufficient to support a conclusion regarding the effect of sex on treatment response.

Mental Health

Anger

Five studies with sample sizes ranging from 87 to 837 (Elliott et al., 2005; Forbes et al., 2005; Miles et al., 2015; Murphy et al., 2016; Tiet et al., 2015) included anger in regression models to identify predictors of response to PTSD treatment. One study (Murphy et al., 2016) used PSS-I scores to measure PTSD severity, while the other three used the CAPS scores (Forbes et al., 2005); or PCL-C (Elliott et al., 2005; Tiet et al., 2015). Tiet et al., 2015, did not find statistically significant results. Murphy et al., 2016, reported four nonlinear growth models showing positive association between anger and PTSD severity at discharge, and at six weeks, six months, and 12 months posttreatment. At 12 months posttreatment, results were not significant when six-month PSS-I scores were adjusted for. Forbes et al., 2005, found a statistically significant result showing that lower anger levels at baseline were associated with better PTSD outcomes three months posttreatment but did not report the model coefficient. Miles et al., 2015, found that pretreatment anger was negatively associated with posttreatment PTSD symptoms among veterans who completed CPT (β = –0.29, p <.05). Elliot et al., 2005, classified patients into three PTSD trajectory groups: (1) highest levels of PTSD symptoms at intake and greatest rate of improvement over time; (2) more moderate levels of PTSD symptoms at intake and consistent improvements over time; and (3) relatively low levels of PTSD symptoms at intake, deteriorating over the first six months, and returning to intake symptom levels by 24 months. Those in the first group had higher mean anger scores at baseline (*p*-values not reported).

The quality of evidence that baseline anger is associated with worse response to treatment was rated low.

Anxiety

Three studies with sample sizes ranging from 87 to 268 developed models to assess the association between anxiety and response to PTSD treatment. Two (Forbes et al., 2005; Miles et al., 2015) did not find significant association between anxiety and PTSD severity. Murphy et al., 2016, reported that an unadjusted model and a model adjusted for age and employment yielded statistically significant results showing positive association between scores on the seven-item Generalized Anxiety Disorder—7 (GAD-7) and PTSD scores 12 months posttreatment. However, the results were not significant when six-month health outcomes and PSS-I scores at six months were added to the model.

The quality of evidence was rated insufficient to support a conclusion.

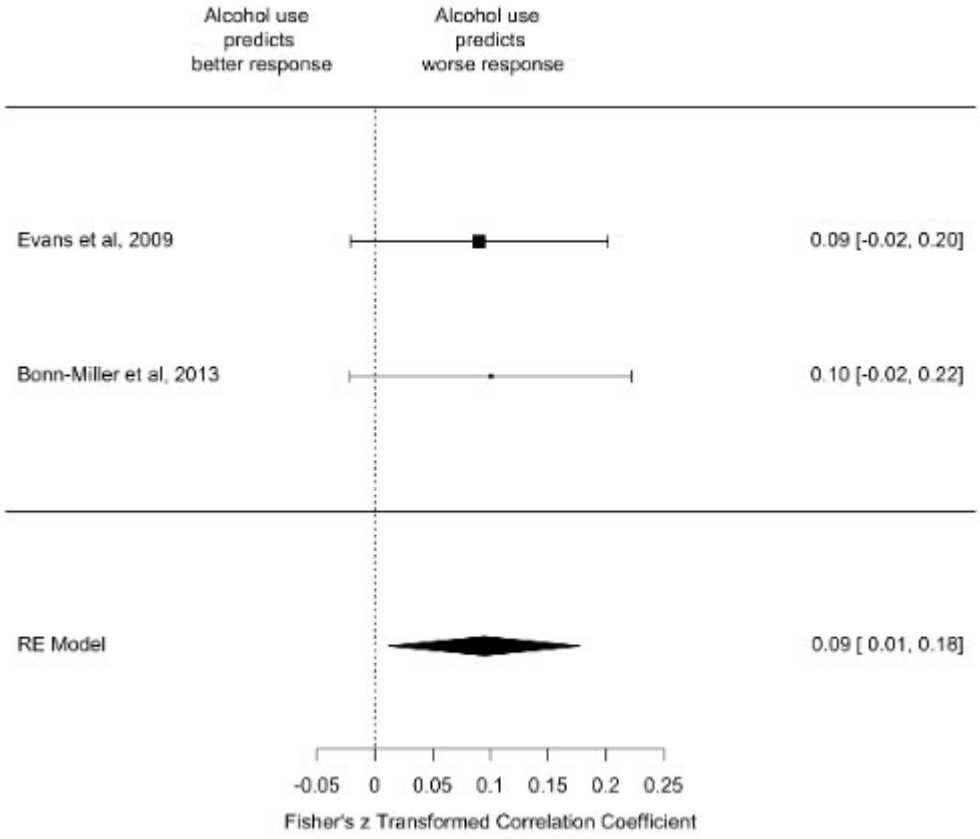
Alcohol Use

Five studies with sample sizes ranging from 60 to 508 included alcohol use or abuse in multivariate models identifying predictors of PTSD severity (Bonn-Miller et al., 2013; Forbes et al., 2005; Murphy et al., 2016; Richardson et al., 2014; Steindl et al., 2003). All used the Alcohol Use Disorders Identification Test (AUDIT) to assess alcohol use. To measure PTSD symptoms, one study used CAPS scores (Forbes et al., 2005), two used the PCL-M (Bonn-Miller et al., 2013; Richardson et al., 2014), one used overall PCL score (Steindl et al., 2003), and one used the PSS-I (Murphy et al., 2016). Murphy et al., 2016, found that higher alcohol consumption measured by AUDIT scores is associated with higher PSS-I scores 12 months posttreatment ($\beta = 0.13$, $p < 0.01$). Steindl et al., 2003, found that high magnitude of change in alcohol use during the treatment period has a positive association with change in overall PCL scores during the treatment ($\beta = 0.13$, $p < 0.01$). The other studies (Bonn-Miller et al., 2013; Forbes et al., 2005; Richardson et al., 2014) did not find significant results.

Two studies (Bonn-Miller et al., 2013; Evans, Cowlishaw, and Hopwood, 2009) reported bivariate correlations between the amount or severity of alcohol use and PTSD severity at treatment discharge. As displayed in Figure 3.12, Fisher's (1915) *z*-transformed correlation was statistically significant ($r = 0.09$, 95% CI [0.01, 0.18]), with greater alcohol use associated with higher PTSD severity. No heterogeneity was detected ($I^2 = 0\%$).

Evans, Cowlishaw, and Hopwood, 2009, used cross-lagged models to find that alcohol use at intake was positively associated with higher PCL-M scores at six- and 12-month follow-up (<0.01). Elliott et al., 2005, divided patients into three PTSD trajectory groups: (1) highest levels of PTSD symptoms at intake and greatest rate of improvement over time; (2) more moderate levels of PTSD symptoms at intake and consistent improvements over time; and (3) relatively low levels of PTSD symptoms at intake, deterioration over the first six months, and return to intake symptom levels by 24 months. The first group had higher mean AUDIT scores at baseline. McDowell and Rodriguez, 2013, found patients who scored 8 or higher on AUDIT had similar PTSD response to all other patients who participated in a six-week residential group CPT program. In a placebo-controlled trial of sertraline in VA PTSD patients, Friedman et al., 2007, found that a history of AUD had no association with response in either group (data not reported).

Figure 3.12. Meta-Analysis: Alcohol Use Severity and Treatment Response



The quality of evidence that more alcohol use at baseline is associated with less response to treatment was rated low.

Avoidance/Active Coping

Boden et al., 2012, used data from veterans in residential treatment for PTSD ($N = 636$) to conduct a prospective investigation of the association between avoidance and active coping with PTSD outcomes. Avoidance and active coping were measured using a revised version of the Brief COPE (Coping Orientation to Problems Experienced) Inventory. The authors used correlation and hierarchical multiple regression analysis controlling for baseline patient characteristics including baseline severity, change in active and avoidance coping, length of stay in treatment, and trauma severity. The addition of avoidance and active coping scores to the model, controlling for baseline characteristics including PTSD severity, length of stay in treatment, and trauma severity, significantly improved the prediction of total PTSD symptom severity as measured by the PCL-M ($p < 0.01$). Increases in PTSD severity from baseline until after treatment were significantly associated with changes in avoidance coping ($r = 0.19$, $p < .01$), while decreases in PTSD severity were associated with active coping ($r = –0.21$, $p < .01$).

Badour et al., 2012, also investigated reciprocal associations between avoidance coping and PTSD severity using data from veterans during and after residential PTSD treatment ($N = 1,073$).

The authors used a revised version of the Brief COPE Inventory to measure avoidance coping. Using cross-lagged path models controlling for baseline patient characteristics, length of stay, PTSD symptom severity (as measured by the PCL-M), and three PTSD symptom clusters (reexperiencing, avoidance/numbing, and hyperarousal), the authors found that avoidance coping at baseline predicted more severe PTSD at discharge ($\beta = 0.16$, $p < 0.001$) and the severity of PTSD symptoms at discharge predicted increased avoidance coping at follow-up ($\beta = 0.22$, $p < 0.05$). Baseline PTSD symptom severity was not associated with avoidance coping at discharge ($\beta = 0.09$, $p > 0.05$), whereas avoidance coping at discharge was not associated with PTSD severity at follow-up ($\beta = -0.02$, $p > 0.05$).

The quality of evidence that avoidance coping is associated with less response to treatment was rated low.

Depression

Seven studies with sample sizes ranging from 65 to 268 included depression scores in models developed to identify predictors of improvement in PTSD severity (Bonn-Miller et al., 2013; Elliott et al., 2005; Forbes et al., 2005; Korte et al., 2017; Miles et al., 2015; Murphy et al., 2016; Richardson et al., 2014). Four studies (Bonn-Miller et al., 2013; Elliott et al., 2005; Forbes et al., 2005; Korte et al., 2017) found no significant association between baseline depression and response to PTSD treatment. Richardson et al., 2014, found that an increase in depression scores on the BDI-II were associated with a smaller decrease in PTSD severity after treatment ($\beta = -0.44$). Similarly, Miles et al., 2015, found that pretreatment depression scores as measured by the ACS were associated with higher PTSD severity scores posttreatment ($\beta = -1.17$). Murphy et al., 2016, found that depression as measured by the Patient Health Questionnaire—9 (PHQ-9) associated with higher PSS-I scores at 12 months posttreatment when adjusting for age, employment status, and six-month health outcomes (Murphy et al., 2016). Murphy and colleagues' results were not significant when six-month PSS-I scores were added to the model. Stevens et al., 2017, conducted mediation analyses to find that baseline depression, as measured by the ten-item Center for Epidemiological Studies Depression Scale, and PTSD symptom severity measured by PCL-M scores, significantly mediated the relationship between CBT treatment and perceived impairment, measured by the Veterans RAND 12-Item Health Survey (VR-12) at 12-week follow-up based on a single mediation model ($p < .001$).

Two studies with sample sizes of 89 and 1822 used bivariate correlation to assess the association between baseline depression and PTSD severity posttreatment. Miles et al., 2015, found a significant result (correlation coefficient = 0.21). Evans et al., 2010 also found statistically significant positive correlations between depression and PTSD severity as measured by intrusion.

The quality of evidence was rated low for a negative effect of baseline depression on treatment response.

Family Functioning

Two studies (Evans et al., 2010; Evans, Cowlishaw, and Hopwood, 2009) included family dysfunction, as assessed via the Family Assessment Device—12 (FAD-12) in regression models to assess predictors of response; both studies utilized cross-lagged path regression models with data from prospective studies of male Australian veterans. Evans, Cowlishaw, and Hopwood, 2009, reported that greater family dysfunction (lower baseline FAD-12 score) is a significant predictor for the overall PCL-M score at 12 weeks posttreatment ($\beta = 0.16$, $p < 0.05$). Evans et al., 2010, also utilized FAD-12 as a predictor in the model, but additionally examined PCL subscores at three months and nine months postdischarge for 1,822 veterans. Baseline family functioning scores predicted intrusion, avoidance, and hyperarousal subscores at three-month follow-up ($\beta = 0.08$, 0.09, and 0.07 respectively; $p < 0.05$). Family functioning at the three-month follow-up predicted avoidance and hyperarousal at nine months ($\beta = 0.1$ and 0.09, respectively; $p < 0.05$).

The quality of evidence was rated insufficient to support a conclusion because the studies were by the same research group and it was difficult to determine the overlap of subject populations.

Lifetime Trauma

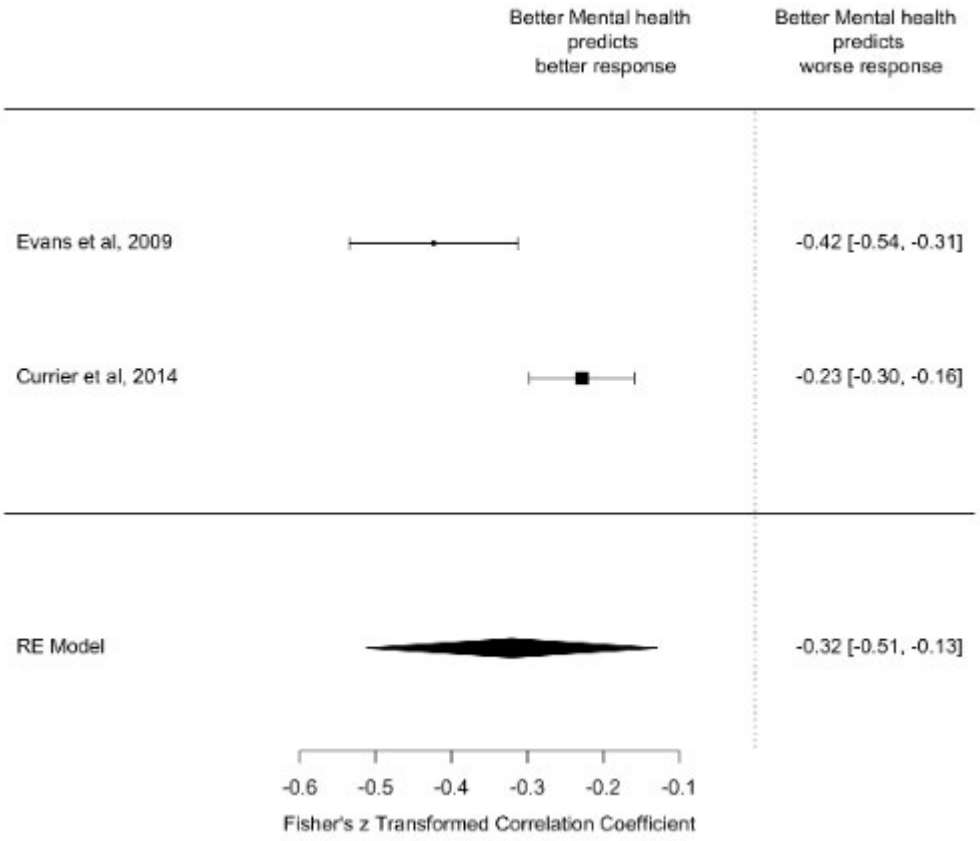
Bray et al., 2016, examined the longitudinal PTSD symptom course of 474 primary care, active-duty Army patients currently enrolled in 12-month collaborative mental health care, with an initial PCL-C score of ≥50. Using logistic regression, the authors investigated the association of trauma burden with improvement trajectory, as measured by the PTSD Outcome Measure on the PDS. Trauma was quantified with the Lifetime Trauma Burden Scale, 18 items adapted from the PDS and the National Comorbidity Study to capture potential events ranging from abuse to combat trauma to life-threatening accidents. Individuals with high combat exposure (*aOR* = 0.39, 95% CI [0.17, 0.87]; $p < 0.05$) and moderate combat exposure (*aOR* = 0.44, 95% CI [0.20, 0.98]; $p < 0.05$) were significantly less likely to be in the improver group, but once combat exposure was excluded, lifetime trauma burden was not a significant predictor.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Mental Health, General

Two studies reported bivariate correlations between treatment response and baseline mental health, measured by the General Health Questionnaire—28 (GHQ-28; Evans, Cowlishaw, and Hopwood, 2009) and the Medical Outcomes Study's 12-Item Short Form Health Survey (SF-12; Currier, Holland, and Drescher, 2014). Pooled results are displayed in Figure 3.13. Fisher's (1915) *z*-transformed correlation coefficient was very large and statistically significant ($r = –0.32$, 95% CI [–0.51, –0.13]) indicating that poorer mental health was associated with less improvement in PTSD severity. Very high heterogeneity was detected ($I^2 = 88.3\%$) reflected in wide CIs. One of

Figure 3.13. Meta-Analysis: Correlations, Baseline Mental Health and Follow-Up PTSD Severity



these studies (Currier, Holland, and Drescher, 2014) also developed a multivariate model; poorer mental health was associated with being categorized as having high PTSD severity posttreatment.

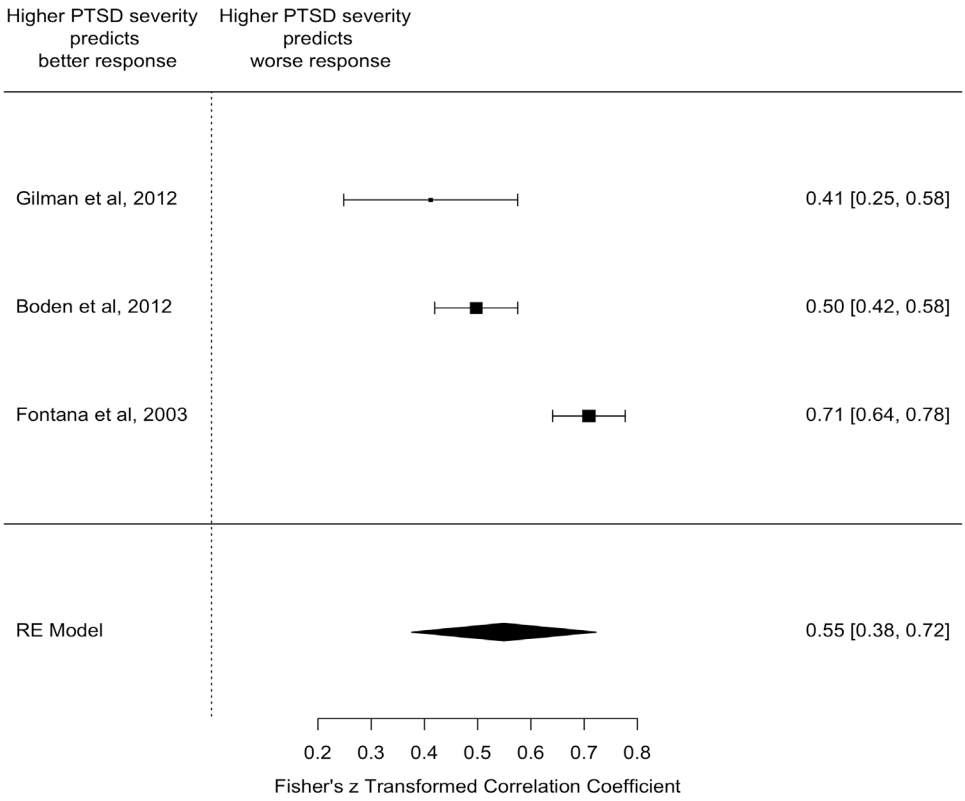
Quality of evidence was rated moderate for the association of worse baseline mental health with less response to treatment.

PTSD Severity, Baseline

Three studies (Boden et al., 2012; Fontana, Ford, and Rosenheck, 2003; Gilman, Schumm, and Chard, 2012) reported bivariate correlations between baseline and follow-up PTSD severity; each reported a significant relationship. We pooled the results using meta-analysis; results are displayed in Figure 3.14. Fisher's (1915) *z*-transformed correlation coefficient reflected a very large statistically significant association of greater baseline PTSD severity with greater PTSD severity at follow-up ($r = 0.55$, 95% CI [0.38, 0.72]). Substantially heterogeneity was detected ($I^2 = 90\%$).

Two studies (Elliott et al., 2005; Forbes et al., 2008) classified patients by intake PTSD severity and stratified response (change in severity) via three baseline severity categories. Both found that patients with moderate or low PTSD severity improved more than those with high/severe PTSD. An RCT (Wolf, Lunney, and Schnurr, 2016) found that baseline PTSD symptom severity

Figure 3.14. Meta-Analysis: Correlations, Baseline PTSD Severity and Follow-Up PTSD Severity



was significantly higher in the response group than in nonresponders. However, baseline PTSD severity was significantly lower among patients no longer meeting diagnostic criteria for PTSD (our definition of *remission*).

Seventeen studies (Badour et al., 2012; Belsher et al., 2012; Boden et al., 2012; Boden et al., 2013; Evans, Cowlishaw, and Hopwood, 2009; Forbes et al., 2005; Forbes et al., 2010; Gilman, Schumm, and Chard, 2012; López et al., 2017; McLay et al., 2016; Miles et al., 2015; Richardson et al., 2014; Rosen, Greenbaum, et al., 2013; Sripada et al., 2013; Steindl et al., 2003; Tiet et al., 2015; Tuerk et al., 2011) developed models that included baseline PTSD severity as a predictor variable. Change in severity was the dependent variable in five of these studies while follow-up severity score was the dependent variable in the others.

The results of the studies modeling "change in severity" are as follows. Boden et al., 2012, constructed a hierarchical linear model and found that higher baseline severity was associated with significantly less improvement. Rosen, Greenbaum, et al., 2013, an RCT of PE versus PCT, found that more significant symptoms at intake were associated with less improvement during treatment ($b = 0.24$, $p = 0.03$) regardless of intervention type. Richardson et al., 2014, found the relationship statistically insignificant ($p = 0.19$), but like the two aforementioned studies, in the negative direction. Tuerk et al., 2011, found "baseline PCL-M a significant predictor of the slope of change in PCL" in a study of PE but removed the variable from a later model due to low R^2.

Sripada et al., 2013, found that baseline PCL was not a significant predictor of change but did not report specific data.

Greater baseline PTSD severity was significantly associated with greater severity at follow-up in ten of 12 studies that tested this association.

The consistency of direction, large effect size, and quality of the studies led us to conclude there is high-strength evidence that greater PTSD severity at baseline is associated with less improvement.

Psychiatric Comorbidity, Nonspecific

Bray et al., 2016, used comorbidities as a predictor in their regression model investigating the predictors of PTSD severity ($n = 474$) posttreatment. The authors used PDS scores to measure PTSD severity in their data drawn from a randomized clinical trial. They formed a comorbidity index consisting of mental health and physical functioning indicators. Based on their adjusted models controlling for Army post, patient demographic characters, combat exposure, and lifetime trauma burden excluding combat, the authors found no significant association between number of psychiatric comorbidities and response to treatment. In an RCT of PE versus PCT in female veterans and Army soldiers, Schnurr and Lunney, 2016, found no difference in the percentage of patients with a current psychiatric comorbidity at baseline among nonresponders, responders, and patients no longer meeting diagnosis criteria. Patients experiencing remission were less likely to have a co-occurring psychiatric disorder.

The quality of evidence was rated insufficient to support a conclusion.

Social Support/Social Functioning

Fontana, Ford, and Rosenheck, 2003, conducted bivariate correlations between social support (measures of social climate and isolation) and the Mississippi Scale at treatment discharge. Negative correlations were reported for both social climate (correlation coefficient = –0.13, $p < 0.05$) and isolation (coefficient = –0.07, $p < 0.05$). At four and 12 months follow-up, the relationship was no longer significant for isolation, and was not reported for social climate.

Schnurr and Lunney, 2016, found no association between the CAPS social impairment score and response status in their RCT of PE versus PCT in female veterans and Army soldiers. However, the authors found higher mean social functioning scores, based on the 36-Item Short Form Health Survey (SF-36) among patients who remitted or no longer met PTSD diagnosis criteria than among those who did not.

Quality of evidence was rated low for a positive effect of increased social support on treatment response.

Substance Abuse/Substance Use Disorder

McDowell and Rodriguez, 2013, conducted stratified analysis to find that change in PTSD severity, as measured by PCL scores, at six weeks posttreatment did not significantly differ among patients with and without SUD. No potentially relevant factors were adjusted for.

Three studies with sample sizes ranging from 58 to 2,036 included substance abuse or SUD in multivariate models developed to identify predictors of PTSD treatment response (Bonn-Miller et al., 2013; Currier, Holland, and Drescher, 2014; Korte et al., 2017). Korte et al., 2017, did not find statistically significant results for this variable. Currier, Holland, and Drescher, 2014, found that substance abuse was associated with stable high PTSD compared with improving moderate PTSD ($\beta = 0.011$, $p = 0.007$) and with stable high PTSD compared with stable low PTSD ($\beta = 0.13$, $p = .013$). The association reversed for stable low PTSD compared with improving moderate PTSD ($\beta = –0.033$, $p = .012$). Bonn-Miller et al., 2013, included cannabis use disorder (CUD), amphetamine use disorder, cocaine use disorder, sedative use disorder, and opioid use disorder in a hierarchical regression model; the authors found that only CUD was negatively associated with change in PCL-M scores ($\beta = –0.14$, $p < 0.05$) at discharge from residential PTSD treatment.

Wilkinson, Stefanovics, and Rosenheck, 2015, conducted a longitudinal, observational study to examine the association between marijuana use and PTSD symptom severity outcome. Using data from a national evaluation of specialized PTSD programs ($N = 2,276$), the authors conducted multiple linear regression analyses and analyses of covariance controlling for demographic characteristics, history of incarceration, waitlist status, psychosis, chronic medical problems, war zone service, length of stay, expulsion from treatment, and baseline measures of violence, PTSD, drug and alcohol use, and employment. The analyses demonstrated that marijuana use was associated with more severe PTSD symptoms at intake, as measured by the Mississippi Scale, compared with those who never used marijuana and those who stopped using ($p < 0.01$). Follow-up assessments at four months showed that those who stopped using or never used had the lowest levels of PTSD severity ($p < 0.0001$).

Quality of evidence was rated low for a negative effect of substance abuse on treatment response.

Suicidality

Gallegos, Streltzov, and Stecker, 2016, examined the effectiveness of telephone-based CBT intervention on treatment-seeking behavior using an RCT among suicidal and nonsuicidal veterans who have PTSD ($N = 274$). Patients were randomized to the intervention or control condition (where participants did not receive the telephone intervention session). Using generalized equation models controlling for time, group by time, and suicidality, the authors found that those who were suicidal at baseline had higher PTSD severity at baseline ($p < 0.01$) and significant reduction of PTSD symptoms by six months follow-up ($p < 0.01$) as measured by the PCL-M. However, group by suicidality effects were not found over time for PTSD symptoms ($p > 0.05$).

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Traumatic Brain Injury, Mild

In a study investigating the impact of PE on PTSD treatment outcomes, Sripada et al., 2013, used data from veterans with PTSD with or without history of mild traumatic brain injury (mTBI; $N = 51$). PE was delivered in weekly sessions including (1) psychoeducation about reaction to trauma, self-assessment and treatment; (2) repeated exposure to situations avoided because of stress from trauma; (3) repeated PE to memories of trauma; and (4) emotional processing of the exposures. The authors used hierarchical modeling, controlling for number of weeks in treatment and baseline patient characteristics, to find that mTBI status did not significantly predict PTSD severity at follow-up as measured by PCL-S scores ($t(49) = -0.94$, $p = 0.35$) or the slope of scores over time ($t(49) = -0.39$, $p = .70$). Patients with a history of mTBI were in treatment for an average of 6.5 weeks, whereas those without a history of mTBI were in treatment for an average of 5.5 weeks.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Treatment Expectations

Two studies (Belsher et al., 2012; Price et al., 2015) examined treatment expectations as a predictor of response. Belsher et al., 2012, used a mixed-model longitudinal analysis of data from 725 veterans receiving care via the VA SIPPS; they showed that positive treatment expectations (for their three self-rated most important issues) are a statistically significant predictor of a lower PCL score at follow-up (model coefficient = –0.97; effect size = –0.1; $p < 0.01$). Price et al., 2015, conducted an RCT of VRE with 116 combat veterans. After utilizing a two-level piecewise model, with outcome expectancy (self-report scores ranging from 4 to 36) as a fixed effect, the authors showed a negative effect of outcome expectancy on both the CAPS and PTSD Symptom Scale score at posttreatment ($\beta = -1.18$ and –0.85, $p = 0.035$ and 0.002, respectively), with no evidence of differences across treatment groups. However, the relationship between predictor and outcome did not remain significant at follow-up.

The quality of evidence was rated insufficient to support a conclusion.

Military Background

Combat Exposure

Two studies (Ford, Fisher, and Larson, 1997; Friedman et al., 2007) compared response with treatment between military personnel who had or had not been exposed to combat. Pooled analysis, displayed in Figure 3.15, shows a significant association between combat exposure and worse response (*SMD* = 0.34, 95% CI [0.04, 0.64]). No heterogeneity was detected ($I^2 = 0\%$).

Three studies (Bonn-Miller et al., 2013; Currier, Holland, and Drescher, 2014; Fontana, Ford, and Rosenheck, 2003) reported bivariate correlations between the level of combat exposure, measured by the Combat Experiences Scale (CES) and PTSD severity at treatment discharge. As displayed in Figure 3.16, pooled Fisher's (1915) *z*-transformed correlation was not statistically significant ($r = 0.09$, 95% CI [–0.05, 0.25]). Very high heterogeneity was detected ($I^2 = 87.6\%$).

Figure 3.15. Meta-Analysis: Combat Exposure (Yes/No) and Treatment Response

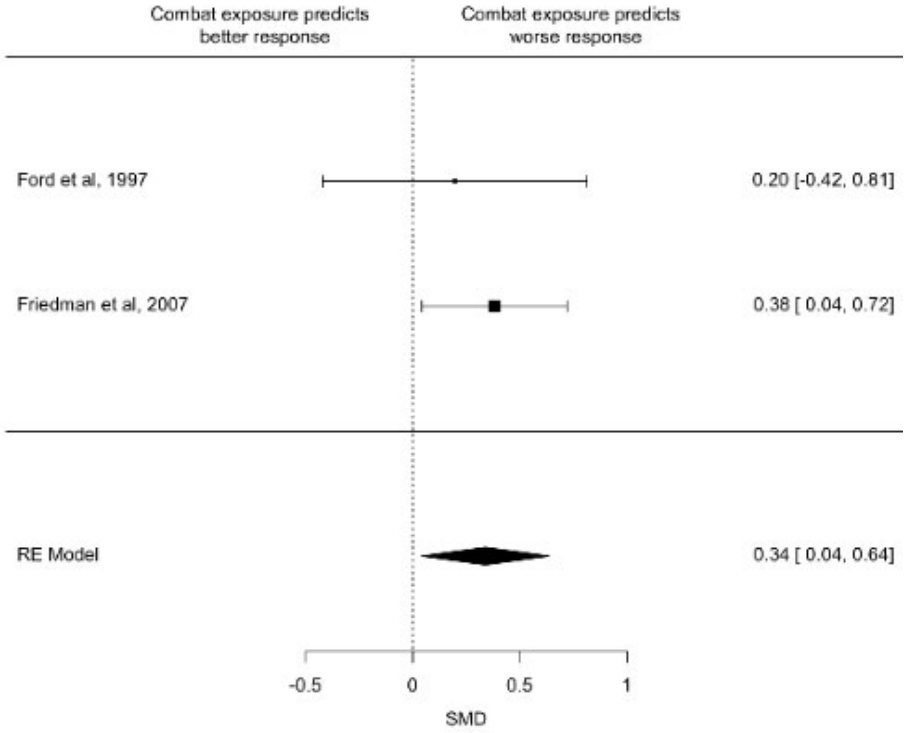
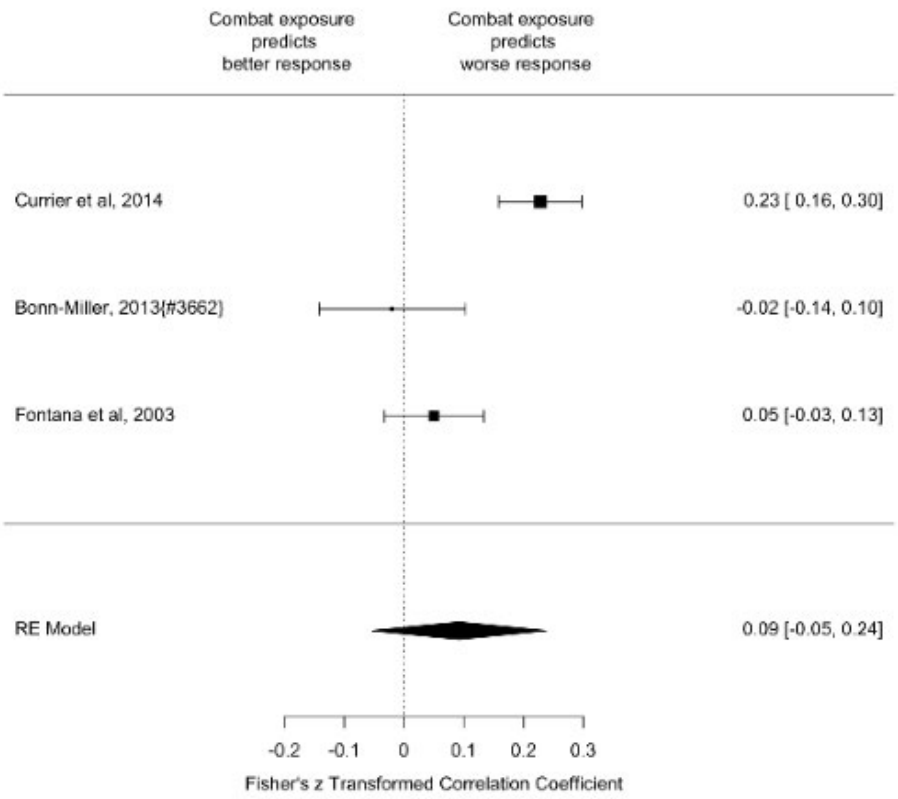


Figure 3.16. Meta-Analysis: Combat Exposure (Level) and Treatment Response



Five studies (Belsher et al., 2012; Bonn-Miller et al., 2013; Bray et al., 2016; Currier, Holland, and Drescher, 2014; McLay et al., 2016) included combat exposure in multivariate models. Both Bray et al., 2016, and Currier, Holland, and Drescher, 2014, found a statistically significant association between high levels of exposure, as measured by the CES and worse improvement trajectory. Belsher et al., 2012, found that receiving fire was not statistically associated with PTSD score following treatment. Bonn-Miller et al., 2013, found the association between CES score and change in PCL-M score not statistically significant; surprisingly, the beta (0.5) was positive rather than negative in a model that controlled for misuse of various drug types. McLay et al., 2016, did not report data, so the direction was unclear.

Quality of evidence was rated moderate for negative effect of combat exposure on treatment response.

Deployments, Number Of

McLay et al., 2016, conducted a retrospective analysis of self-reported data as part of the Psychological Health Pathways clinical tracking system, allowing for posttraumatic stress symptoms to be tracked in active-duty service members. The system was developed by the Naval Center for Combat and Operational Stress Control, and incorporates baseline data and updates every ten weeks for the duration of treatment. The authors used this system to evaluate EMDR via a record review of active-duty service members. They employed a stepwise linear regression model to predict changes in PCL-M, but found the number of deployments to not be a significant predictor of PCL-M (p >0.1). Other insignificant covariates in the model include age, gender, baseline PCL-M score, and number of types of therapy, among others (all p >0.1).

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Disability Status/Service Connection

Gros, 2011, reported on veterans diagnosed with PTSD who completed exposure therapy either through telehealth or in person. Although both the telehealth and in-person groups showed significant reductions in PCL-M scores, bivariate correlation did not show a significant relationship between disability status and treatment outcomes (r = .13, p >.05).

In an RCT of PE versus PCT in female veterans and Army soldiers, Schnurr and Lunney, 2016, found no association between service-connected disability and response status.

Five studies included disability status/service connection in multivariate models (Belsher et al., 2012; Gilman, Schumm, and Chard, 2012; Monson et al., 2006; Tuerk et al., 2011; Walter et al., 2014). Walter et al., 2014, found that requesting an increase in service connection was associated with less improvement at discharge from CPT programs, as measured by both CAPS and PCL-M scores. Belsher et al., 2012, reported that the effect of seeking service connection compensation on response was not statistically significant; the beta coefficient was positive. The other three multivariate analyses reported no significant association but did not report data, so direction could not be determined.

The quality of evidence was rated insufficient to support a conclusion.

Military Sexual Assault

Tiet et al., 2015, examined the impact of military sexual assault (MSA) on PTSD treatment outcomes in U.S. veterans enrolled at VA PTSD specialty treatment programs between October 2006 and December 2009 (n = 925 enrolled, n = 837 completed baseline study, n = 574 completed follow-up study). Of those who completed the baseline study and remained enrolled, 15 percent had experienced MSA, and of those, two-thirds were women. The study found that those who experienced MSA did not have worse treatment outcomes than those who did not. The authors conducted post hoc mediation analyses to assess whether MSA affected outcomes through length of stay (r = .15, t = 4.176, df = 1, p <0.001). MSA predicted a longer length of stay, and length of stay predicted lower PTSD at the four-month follow-up (p <.001, $r2$ = .0008); however, when this was controlled for, direct relationships between MSA and the outcomes continued to be nonsignificant.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

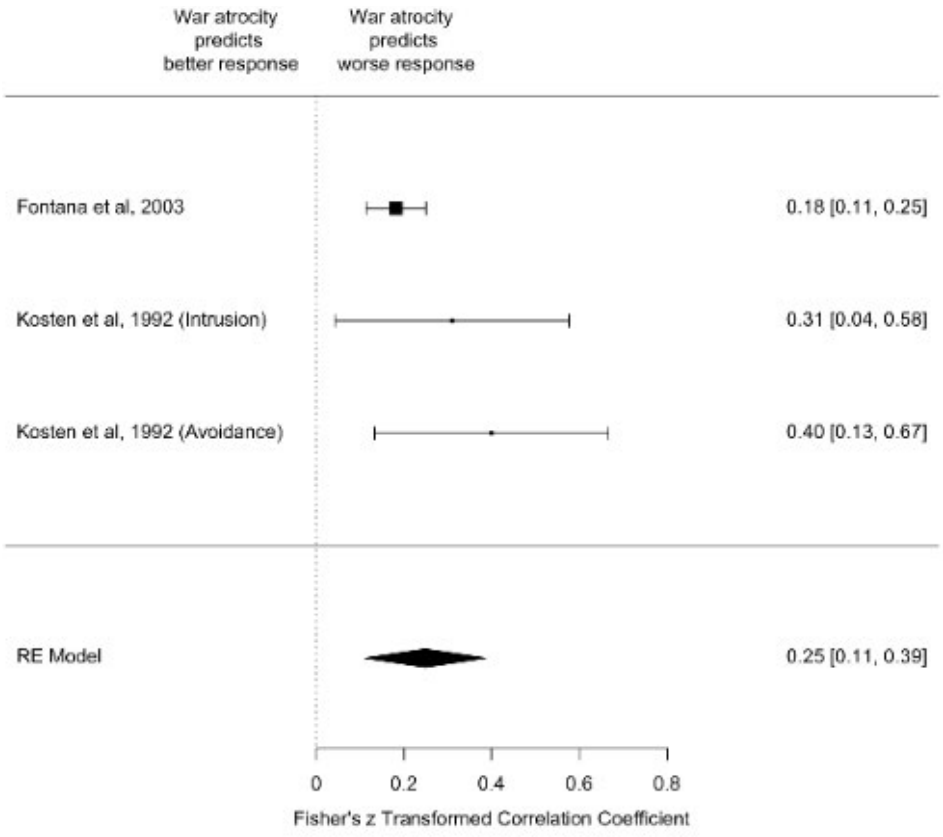
Participation in Atrocities

One study (Fontana, Ford, and Rosenheck, 2003) reported a bivariate correlation between participation in war atrocities and change in PTSD severity measured by the Mississippi Scale, while another (Kosten et al., 1992) reported correlations with posttreatment intrusion and avoidance symptoms. Pooled analysis, displayed in Figure 3.17, shows a significant association between participation in atrocities and posttreatment severity (r = 0.25, 95% CI [0.11, 0.39]). Low to moderate heterogeneity was detected (I^2 = 40%). Quality of evidence was rated low for a negative effect of participation in atrocities on response to treatment.

Service Branch and Rank

Maguen et al., 2014, conducted a retrospective analysis of data from veterans who served in Iraq or Afghanistan (OEF/OIF/OND) and received treatment through the VA (n = 39,690). The authors conducted multivariable logistic regression analysis to assess characteristics associated with a negative PTSD screen result at least one year after the initiation of treatment. Change in diagnosis status (remission) was not reported. Both *OR*s and adjusted odds ratios (*aOR*s) were reported. Variables in the model included demographics, timing of follow-up, primary care use, mental health clinic visits, and SSRI use. For service branch, the Army was used as a reference compared with the Air Force (OR = 1.17, p = 0.001; aOR = 1.19, p = 0.001), the Marines (OR = 1.11, p <0.001; aOR = 1.07, p = 0.039), and the Navy or Coast Guard (OR = 1.27, p <0.001; aOR = 1.29, p <0.001). That is, service in a branch other than the Army is associated with no longer screening positive for PTSD. For military rank, enlisted members were the reference group and the study reported that holding an officer's rank was associated with a negative PTSD

Figure 3.17. Meta-Analysis: Participation in Atrocities and Treatment Response



screen (*OR* = 1.26, $p < 0.001$; *aOR* = 1.22, $p = 0.001$. As mentioned earlier, the psychotherapy provided may vary widely among patients across VA sites.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Theater

Forbes et al., 2005, found that whether PTSD patients were war veterans or served in a peacekeeping force had no association with the CAPS score three months posttreatment; their model controlled for the baseline CAPS score and other important patient characteristics. Jeffreys et al., 2014, found that being an OEF/OIF/OND veteran was not associated with change in PCL-M compared with veterans of other conflicts. The authors conducted separate multivariate analyses for CPT and PE groups; neither resulted in statistical significance of the combat theater variable.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Other

Incarceration

Wilkinson, Stefanovics, and Rosenheck, 2015, retrospectively analyzed data from 2,276 veterans utilizing a specialized VA PTSD treatment program. Incarceration was measured as a

component of a "community adjustment variable," with 51.4 percent of veterans in the sample having been incarcerated at least once. The authors selected covariates through a series of bivariate analyses; incarceration was deemed significant at a $p < 0.01$ level and controlled for in the subsequent analysis of covariance (ANCOVA) and linear multiple regression analysis along with other significant demographic and treatment variables. Numerical results specific to incarceration were not reported. Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Physical Health

Currier, Holland, and Drescher, 2014, included physical health status as a potential predictor of posttreatment PTSD severity in a multinomial logistic regression analysis predicting class membership for the three-class model (stable low PTSD, stable high PTSD, and improving moderate PTSD) on veterans who completed a 60- to 90-day residential PTSD treatment program. All relationships involving health were statistically significant. Results for physical health status as a predictor are as follows: stable high PTSD versus improving moderate PTSD ($OR = –0.046$, $SE = 0.014$, $p = 0.001$); stable low PTSD versus improving moderate PTSD ($OR = 0.056$, $SE = 0.018$, $p = 0.002$); stable high PTSD versus stable low PTSD ($OR = –0.102$, $SE = 0.021$, $p < 0.001$). The authors also conducted bivariate correlations between physical health status and PCL score. Health was statistically associated with PTSD severity score at both posttreatment (correlation coefficient = –0.136, $p < 0.001$) and four-month follow-up (coefficient = –0.126, $p < 0.001$), with poorer health associated with higher severity.

Foa et al., 2018, randomized 219 active-duty service members with a PTSD into two types of PE therapy (massed or spaced therapy), PCT, or a minimal-contact control. Baseline mental and physical health status were assessed using the VR-12, and were included as covariates in the analysis. PTSD severity was measured by the PSS-I. Although results for health status in the linear mixed models were not specifically reported, the authors remark that nonsignificant covariates (defined as $p > 0.05$) were removed, but health status was kept as a predictor, leading to the assumption that this had a significant effect on the final model.

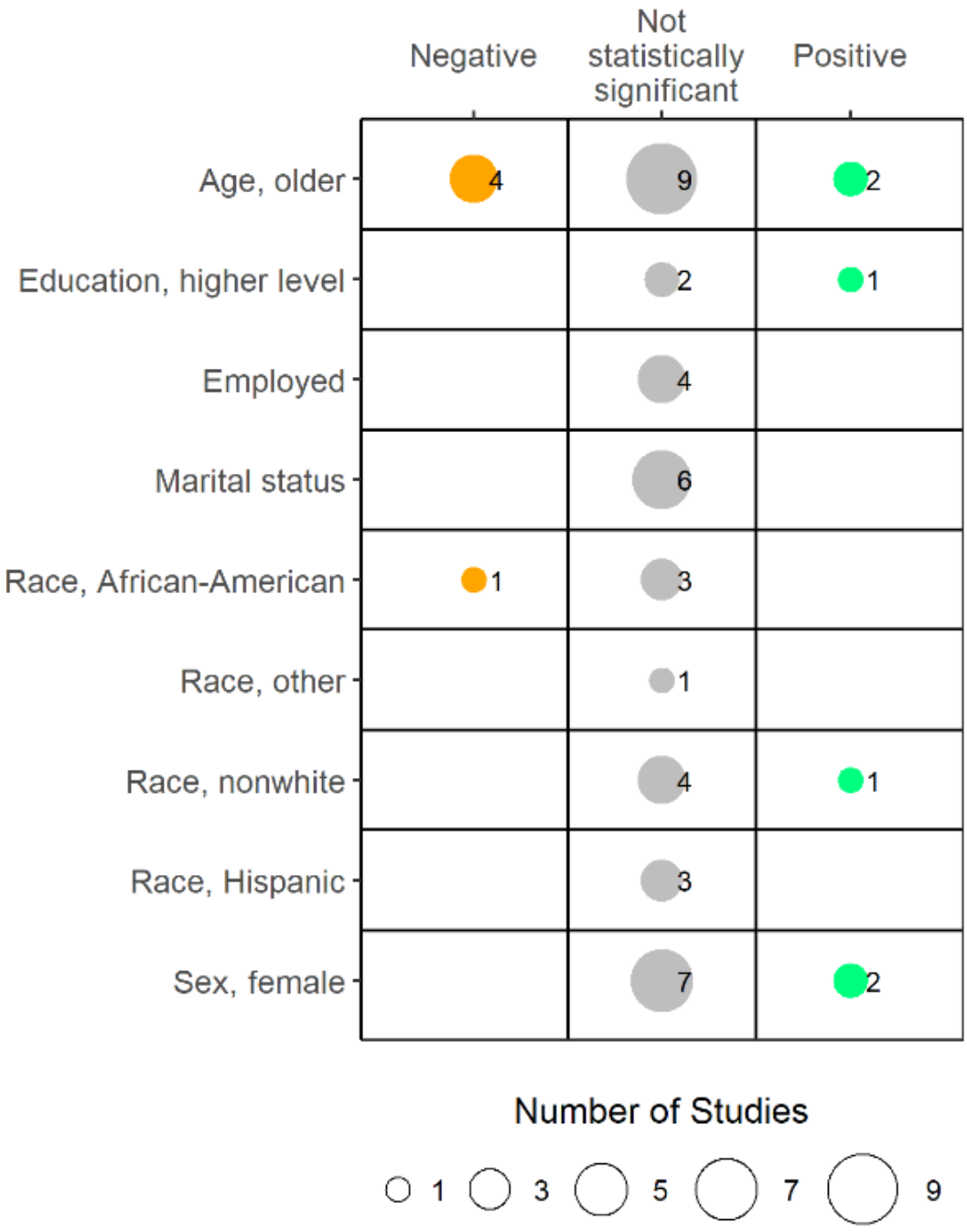
Finally, Schnurr and Lunney, 2016, found that nonresponders had a lower mean baseline SF-36 physical health score than responders, those no longer meeting PTSD diagnostic criteria, and remitters.

Quality of evidence was rated moderate for a positive effect of better physical health on treatment response.

Summary

Figure 3.18 displays the results of multivariate models that investigated demographic predictors of response. Fifteen multivariate models in 13 studies assessed the relationship between age and improvement in PTSD severity. Four reported a significant association between

Figure 3.18. Demographic Characteristics and Response: Results of Multivariate Models



increasing age and less improvement. The remaining multivariate analyses found no significant relationship, as did our meta-analysis of three other studies that presented bivariate correlations.

Eight models assessed the relationship between race/ethnicity and improvement in PTSD severity after treatment, as did three stratified analyses and two bivariate analyses. Many found no association, while the results of other studies conflicted. We were unable to pool data due to the heterogeneity of outcome measures and type of analysis conducted in the individual studies.

Three studies stratified response results by sex; we were able to pool them using meta-analysis. Pooled results were not statistically significant. Another study found no difference between men and women in the percentage of responders. One study reported a statistically significant bivariate correlation between male sex and lower PCL-M scores at follow-up, but this relationship was not significant in a multivariate regression model. Two other studies using regression models found female sex associated with great improvement in treatment. Sex was not a significant predictor in five other studies that developed models to predict improvement in response to treatment.

Four studies evaluated level of education as a predictor of response; three utilized multivariate modeling. Results were mixed. All four models assessing the relationship between employment status and response found no statistical association. One study reported a significant bivariate correlation between employment and greater response; however, that analysis did not adjust for other important possible confounders. The six multivariate models that included marital status found no significant relationship with response; one stratified analysis found unmarried patients more likely to respond to PTSD treatment. Again, the stratified analysis did not adjust for important potential confounders.

Figure 3.19 displays the results of multivariate analyses that included psychological and social characteristics as potential predictors of treatment response. Better physical and mental health at baseline were each assessed in one model; they were significantly associated with better response. Better treatment expectations were statistically associated with better response in the two studies where this variable was included in a model. Avoidance coping, and poorer family function were included in one model each; they were associated with worse response.

Traumatic brain injury (TBI) had no statistical association with response in one study. Mixed results were found for anger; all three studies that included comorbid anxiety found no significant effect on response. Depression was associated with worse response in two of the five multivariate models that included this comorbidity as a potential predictor; the three other studies found no statistical association with response.

Notably, greater baseline PTSD severity was significantly associated with greater severity at follow-up in ten of 12 studies that adjusted for this variable in multivariate models.

Figure 3.19a displays the results of multivariate models that included substance use as a potential predictor. Two studies found substance abuse disorder unrelated to response. Another model incorporated separate variables for different drug classes (i.e., opioids, amphetamines, sedatives); surprisingly, only marijuana use disorder and amphetamine use disorder were associated with worse response. Mixed results were found in five studies of AUD.

Figure 3.20 summarizes the results for military background characteristics that were included in multivariate analyses designed to identify predictors of response to PTSD treatment. Combat exposure had a significant negative association with response in three of five studies that adjusted for potential confounders. Two studies reported stratified results comparing patients who had or had not been exposed to combat; our meta-analysis found a large and statistically significant

Figure 3.19. Mental Health: Predictors of Response

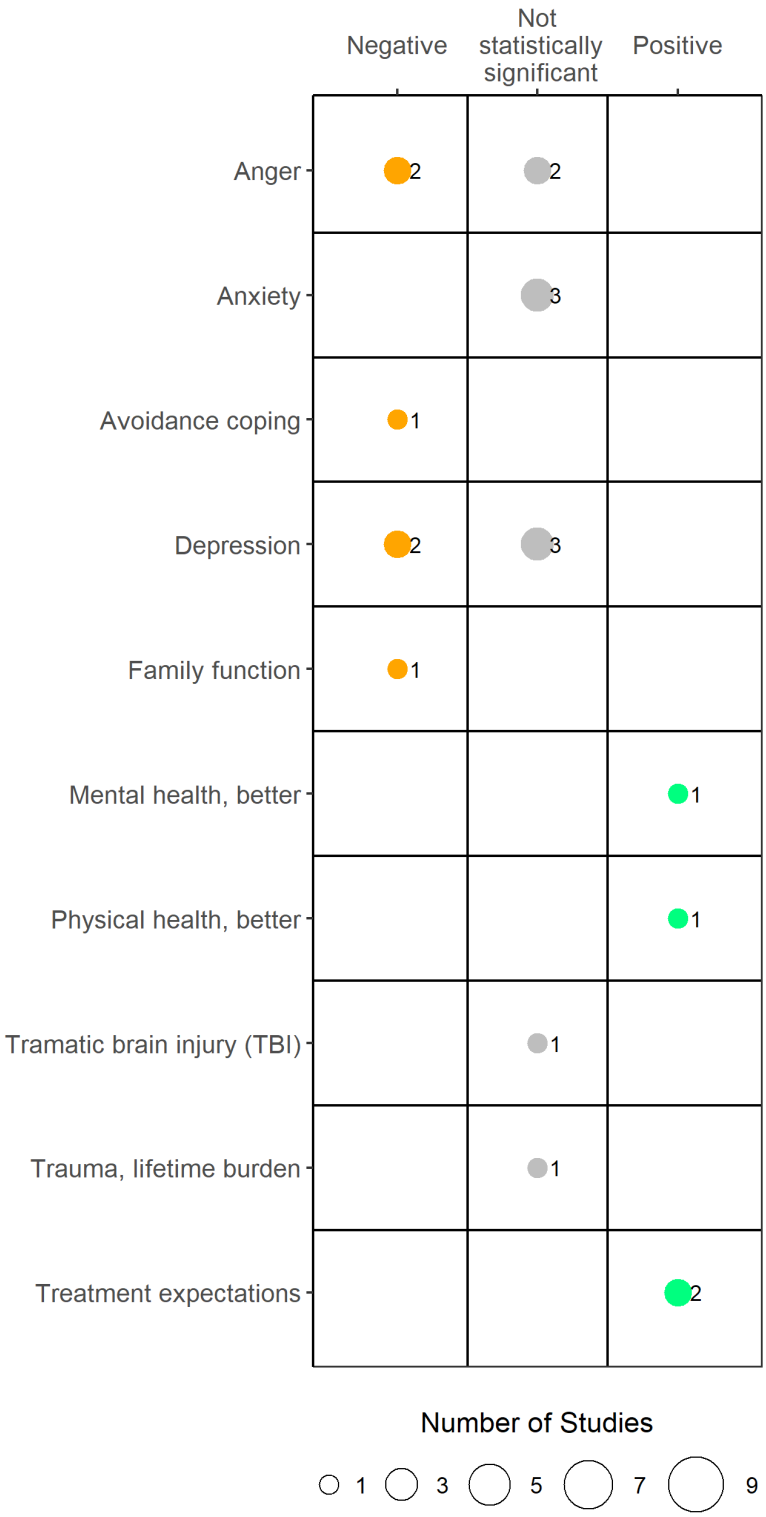
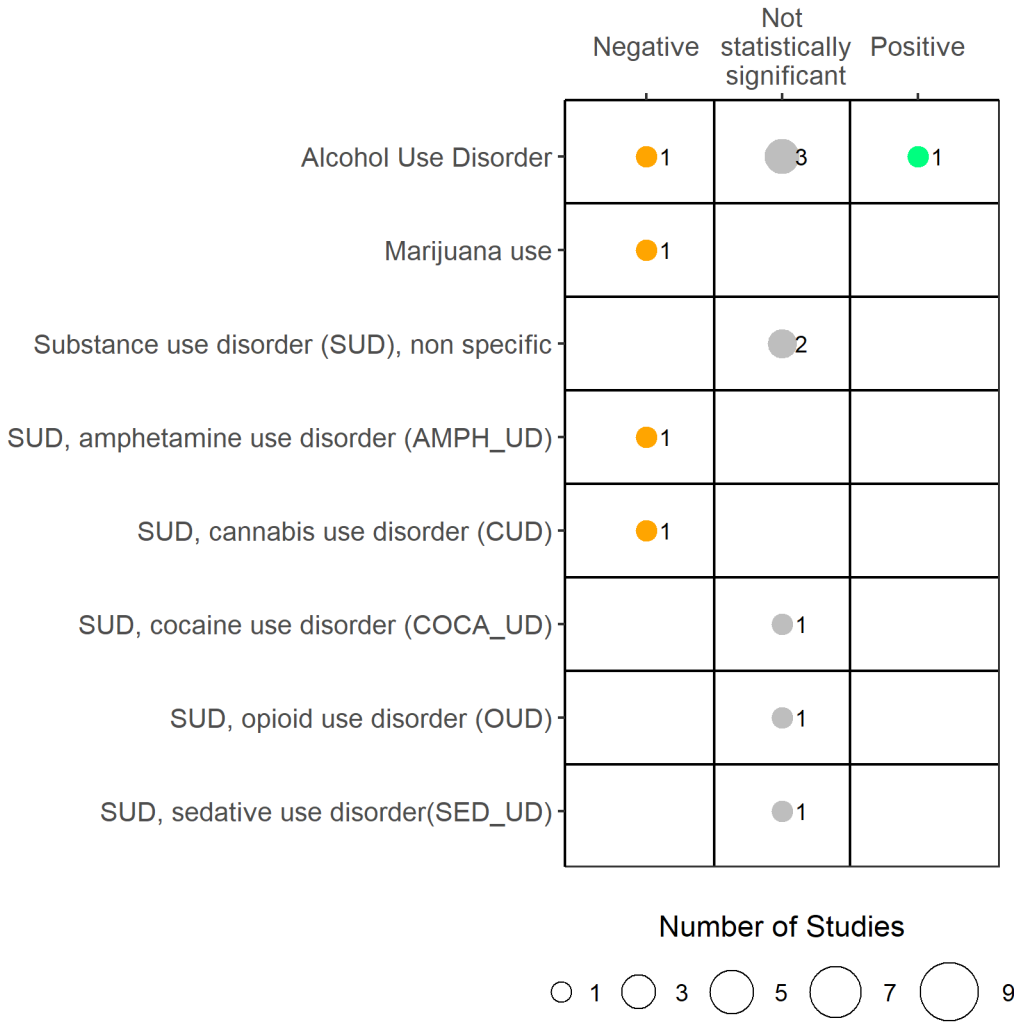


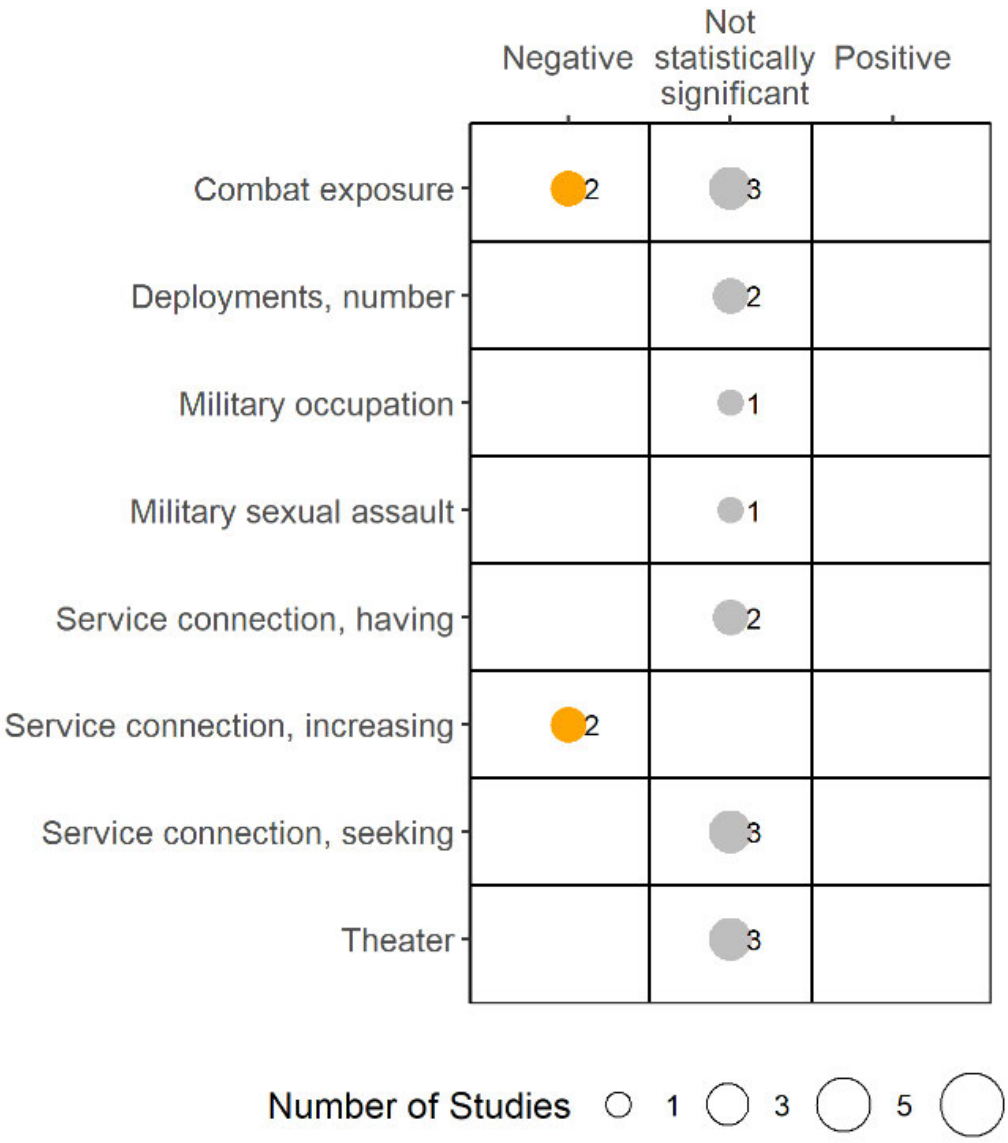
Figure 3.19a. Substance Use: Predictors of Response



difference in response, with patients exposed to combat having worse response. In contrast, our pooled analysis of three studies that reported bivariate correlations between the *level* of combat exposure and response found statistically insignificant results. Our meta-analysis of two studies of the association between participation in atrocities and response found a significant negative association.

One study included seeking an increase in service connection as a predictor in two multivariate models: one used CAPS as an outcome, while the other used the PCL, and both reported a significant negative association with response. Number of deployments (two studies), military occupation (one study), and theater/era (three studies) had no significant association with treatment response after adjusting for potential confounders. The one study of MSA reported no significant association with response.

Figure 3.20. Military Background and Response: Results of Multivariate Models



KQ 4. What Program Characteristics Are Associated with Treatment Response?

Delivery Mode

Group Versus Individual Counseling

Two studies evaluated whether group or individual counseling affected treatment response, with results generally favoring individual therapy over group therapy. Jeffreys et al., 2014 (n = 178), found that individual therapy was significantly associated with greater PTSD improvements than combined group-individual therapy (p <0.001), according to regressions controlling for patient demographics. Likewise, Resick et al., 2017, according to regression

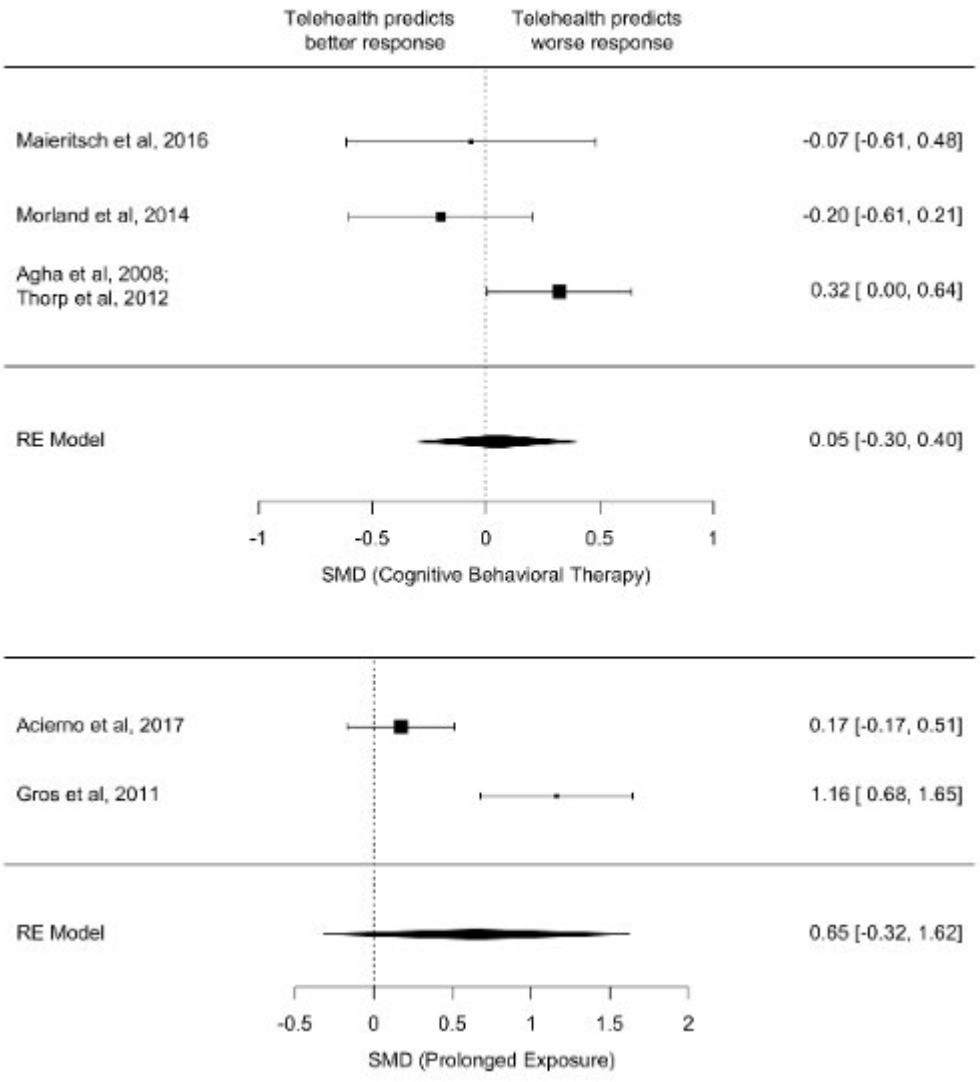
models controlling for patient demographics, found that patients in individual therapy showed twice as much improvement in PTSD symptoms (PCL and PSS-I scores) at two weeks posttreatment than group therapy patients, although there were no significant differences in PTSD symptoms or remission at six-month follow-up.

Quality of evidence was rated moderate that individual counseling is associated with greater response.

In-Person Versus Telehealth Treatment

Three studies (Agha, 2008; Maieritsch et al., 2016; Morland et al., 2014) randomized patients to either in-person or cognitive therapy via videoconferencing, while two studies (Acierno et al., 2017; Gros, Yoder, et al., 2011) randomized similar patients to PE conducted in person or via telehealth. We pooled the studies by intervention type; the results are displayed in Figure 3.21.

Figure 3.21. Meta-Analysis: Telehealth Versus In-Person Treatment



The difference in response to cognitive therapy was not statistically significant (*SMD* = 0.05, 95% CI [–0.30, 0.40]). Moderate heterogeneity was detected (I^2 = 53.3%), which was not statistically significant (Q = 4.33, p = .11). Similarly, the difference in response between PE delivered in person or via telehealth was not statistically significant (*SMD* = 0.65, 95% CI [–0.32, 1.62]). Substantial heterogeneity was detected (I^2 = 90.7%).

Quality of evidence was rated low that there is no difference in response between in-person and telehealth psychological interventions.

Virtual Reality Versus Standard Prolonged Exposure

Only one study (Reger et al., 2016) evaluated differences in treatment response between standard PE (using imagination) and VRE. The study randomized 162 active-duty soldiers (OEF/OIF; majority white, majority male) to either treatment. According to results from ITT analysis, linear mixed effects regression models (measuring reductions in both CAPS and PCL-C scores), VRE resulted in fewer reductions in PTSD symptoms than PE at posttreatment, 12-week follow-up, and 26-week follow-up. The differences, however, were not statistically significant.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Adding Features

Medication

Fontana, Ford, and Rosenheck, 2003, conducted bivariate correlations between PTSD-related medication use in outpatient treatment and improvement in PTSD severity measured by the Mississippi Scale. The correlation was not significant at discharge (p >0.05), but significant and positive at four months (coefficient = 0.32, p <0.05) and 12 months (coefficient = 0.32, p <0.05) posttreatment.

McLay et al., 2016, included the use of psychotropic medication as a binary predictor of posttreatment PCL-M score in a stepwise linear regression model for 331 active-duty service members with PTSD who were undertaking some form of evidence-based treatment (with a focus on EMDR). Of those enrolled in EMDR treatment, 13 percent were concurrently taking medication, and of those enrolled in a treatment without EMDR, 40 percent of participants were taking medication. However, medication use was found to be a nonsignificant predictor (p >0.1) of change in PCL-M scores after treatment.

The quality of evidence was rated insufficient to support a conclusion.

Number of Types of Therapy

McLay et al., 2016, conducted a stepwise linear regression controlling for demographics (age, gender, marital status, etc.) and other patient characteristics (e.g., number of deployments). They found that the number of different types of therapy (e.g., CBT, CPT) was not significantly associated with change in PTSD symptoms (as measured by PCL-M scores).

The quality of evidence was rated insufficient to support a conclusion.

Online Stress Management

One study (Engel et al., 2015) compared the effects of adding online CBT-based stress management with usual PTSD care. The authors found that the treatment program, DESTRESS-PC, was associated with significantly greater reductions in PTSD symptoms, but only in the short term. Whereas optimized usual care (OUC) only consisted of usual primary care PTSD treatment (supplemented by mild care management from registered nurses), DESTRESS-PC also consisted of homework assignments that taught patients strategies and techniques to manage various PTSD-related symptoms. A total of 80 veterans were randomized to receive OUC ($n = 37$) or DESTRESS-PC ($n = 43$) within the VA. Compared to OUC, DESTRESS-PC was associated with significantly greater reductions in PCL-C scores at six weeks ($p = 0.012$) with even larger, statistically significant decreases at 12 weeks ($p < 0.05$). The difference, however, was no longer significant at 18 weeks ($p = 0.093$), with average PCL-C scores even increasing by nearly one point for the DESTRESS-PC group, whereas scores continued to decrease for the OUC group by nearly five points.

The quality of evidence was rated insufficient to support a conclusion.

Telephone Follow-Up or Monitoring

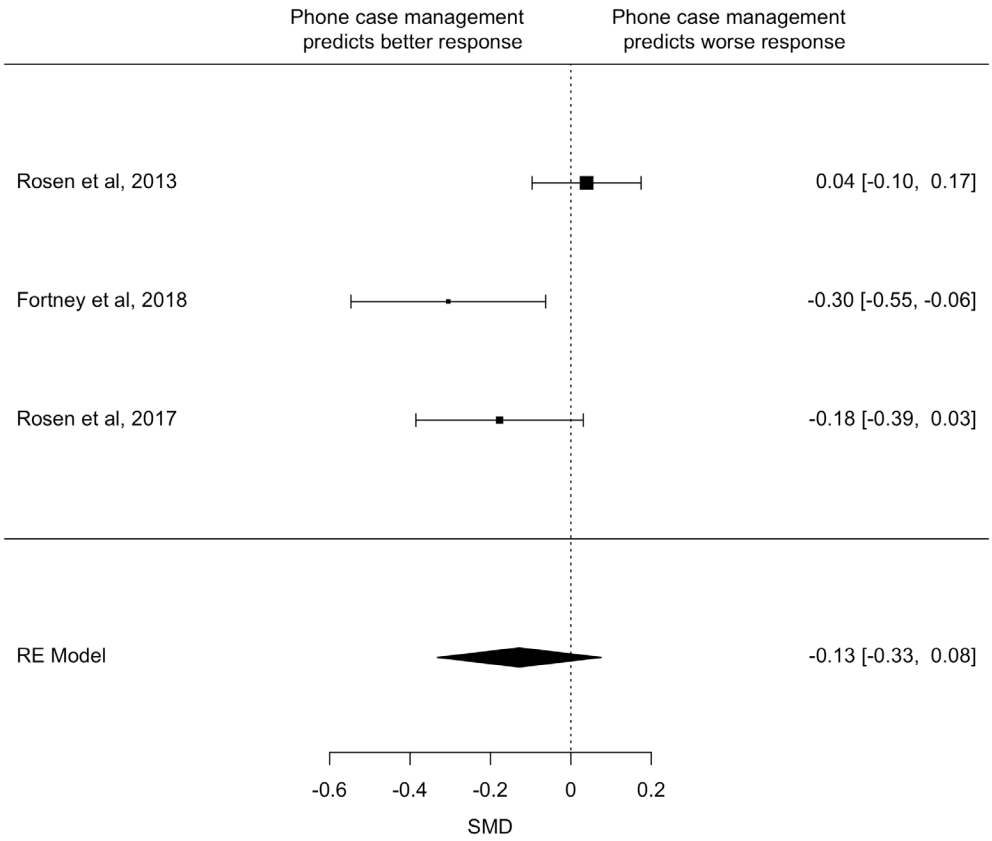
Three studies randomized patients to either usual outpatient care or the same plus: telemedicine outreach (Fortney et al., 2015), biweekly telephone monitoring and support (Rosen, Tiet, et al., 2013), or telephone care management (Rosen et al., 2017). The pooled difference in response was not statistically significant (*SMD* = –0.13, 95% CI [–0.33, 0.08]). Substantial ($I^2 = 70\%$) heterogeneity was detected. Results are displayed in Figure 3.22. Quality of evidence was rated low that adding telephone management or monitoring is not associated with increased response.

Treatment Intensity

Frequency of Sessions

Forbes et al., 2008, evaluated whether treatment intensity affected treatment response. Their study consisted of 4,339 male veterans who had been admitted to accredited PTSD treatment programs between 1995 and March 2008. Patients had undergone any of five different CBT programs in one of three intensity settings (*intensity* meaning days of treatment per week): high intensity (inpatient-outpatient programs in hospital settings, $n = 1{,}680$; residential programs, $n = 422$), moderate intensity (outpatient programs at a metropolitan hospital, $n = 1{,}697$; day hospital program in a nearby regional center, $n = 267$), and low intensity (setting was not described in the study; $n = 273$). At the three-month and nine-month follow-up periods, patients with severe PTSD (measured by CAPS scores at intake) had greater reductions in PTSD symptoms (measured by PCL scores) in high- and moderate-intensity programs, whereas

Figure 3.22. Meta-Analysis: Telephone Management or Monitoring



mild-PTSD patients performed better in low-intensity programs. Moderate-intensity programs were beneficial across all PTSD severity levels.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Foa et al., 2018, evaluated whether the concentration of treatment periods affected treatment response. Veterans from Iraq and/or Afghanistan (n = 219) were randomized to either "massed" (ten sessions over two weeks) or "spaced" (ten sessions over eight weeks) treatment periods for PE therapy. Patients who underwent massed therapy had consistently higher mean PCL-S and PSS-I scores (indicating that massed therapy performed slightly worse than spaced therapy) at postintervention and at two-week, 12-week, and six-month follow-up periods. However, the difference in outcomes between the two therapies was not significant at any point and even decreased by the 12-week and six-month follow-up periods.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Number of Sessions

Five studies included the number of treatment sessions attended in their analyses. According to a Pearson correlation test, Gilman, Schumm, and Chard, 2012 (n = 164) noted that the association between the number of CPT sessions and PTSD symptom severity at discharge (CAPS scores, PCL) was not statistically significant. Using regression analysis, both López et al., 2017 (n = 154; hierarchical multiple linear regression) and McLay et al., 2016 (n = 311; stepwise linear regression model) found the association between number of treatment sessions attended and PTSD symptom severity (using PCL-M scores for both) not statistically significant, although in the positive direction. According to linear regression results, Fortney, 2015 (n = 265) found that attending eight or more sessions of CPT was significantly associated with improved PTSD symptoms (PDS scores; p = 0.02). Furthermore, Hobfoll et al., 2016 (n = 174), who studied patients enrolled in an online CBT intervention known as Vets Prevail, found individuals who experienced remission of symptoms completed an average of 6.11 lessons versus those who did not experience symptom remission, who completed an average of 5.19 lessons (p <0.05).

Quality of evidence is low that attending more sessions is associated with better treatment response.

Setting

Inpatient, Day Hospital, Residential, and Outpatient

Creamer et al., 2002, conducted a retrospective study of 202 Vietnam veterans at four accredited PTSD programs in Australia, testing whether day hospital or inpatient-outpatient treatment settings significantly affected treatment response. According to generalized linear model regressions controlling for time in treatment, there were no significant differences between the two programs in PTSD symptom levels (PCL scores) at three and nine months postdischarge. Day hospital programs performed equally as well as more expensive and more restrictive inpatient-outpatient treatment programs. Similarly, a study by Fontana and Rosenheck (1997) on 785 male Vietnam veterans found that long-term specialized inpatient, short-term PTSD treatment, and general psychiatric treatment were all significantly associated with PTSD symptom reductions (for CAPS, but not Mississippi Scale, scores; p <0.0001). PTSD symptom improvements were generally greater for short-term and general psychiatric programs, but the differences in symptom improvement between long- and short-term programs were not tested for significance. A study by Walter et al., 2014, conducted a multilevel model regression analysis (controlling for demographics, time in program, and service connection) on 992 veterans (from the Vietnam War, the First Gulf War, and OEF/OIF) admitted to either outpatient (n = 514) or residential (n = 478) treatment programs within the VA. Walter and colleagues' analysis found that outpatient treatment programs (one-on-one CPT) were significantly (p <0.001) associated with greater symptom reduction (CAPS and PCL-S scores) than residential treatment programs (both one-on-one and group CPT). The authors do note the possibility of selection bias,

especially when considering that the sample was not randomized (for example, residential patients could seek outpatient treatment after having been unsuccessfully treated, or vice versa).

The quality of evidence was rated insufficient to support a conclusion.

Length of Treatment

Brief Versus Long Program Design

Two studies evaluated whether the length of the treatment program affected treatment response. Johnson and Lubin, 2002, conducted a retrospective study of 90 veterans (gender was not reported) who had been enrolled in either brief treatment or long-term treatment in a hospital setting; all participated in outpatient treatment after discharge. At hospital treatment discharge and three-year follow-up, the authors found no significant differences in PTSD symptom levels (measured by the Mississippi Scale or the PCL) between the brief and long-term treatment. Fontana and Rosenheck, 1997, conducted a quasi-experimental study of 785 male Vietnam veterans who were (nonrandomly) enrolled in either of three treatments within the VA: (1) long-term specialized inpatient; (2) short-term specialized evaluation or brief-treatment PTSD units; or (3) general psychiatric treatment. Regression analyses evaluating changes in PTSD symptoms over time for all three treatment models (controlling for patient characteristics) showed that, across all models, all patients' PTSD symptoms significantly improved (p <0.001) at discharge according to CAPS scores, but not according to the Mississippi Scale. At four months, eight months, and 12 months after discharge, for both CAPS and the Mississippi Scale, patients in the long-term program generally performed worse than short-term and general psychiatric patients. However, the differences in symptom improvements between these programs were not tested for statistical significance. Furthermore, the authors note that improvements for short-term and general psychiatric units, though statistically significant, were only modestly significant clinically.

The quality of evidence was rated insufficient to support a conclusion.

Length of Stay

Seven studies found greater length of stay in treatment associated with greater reductions in PTSD symptoms, at least within a few months after treatment. Both Badour et al., 2012 (n = 1,073; cross-lagged path models) and Boden et al., 2012 (n = 636; hierarchical multiple regression analysis, controlling for patient symptoms) found that length of stay in treatment was significantly associated with reduced PTSD severity (PCL-M scores) at three months follow-up but not at discharge from treatment. Sripada et al., 2013 (n = 51; hierarchical linear model) also found that the number of weeks spent in treatment was significantly associated with decreases in PTSD symptoms over time (PCL-S scores, p <0.001). Using data from four-month follow-up after discharge, Tiet et al., 2015 (n = 837; multilevel multivariate regression) also found that length of stay in treatment was significantly associated with lower PTSD symptoms (PCL-C scores; p <0.008).

Belsher et al., 2012, Tuerk et al., 2011, and Walter et al., 2014, all used a version of the PCL to measure PTSD severity and found length of stay significantly associated with response.

The quality of evidence was rated high that longer stay is associated with increased response to treatment.

Location

Facility Distance from Patient

Maguen et al., 2014, examined data from almost 40,000 OIF/OND veterans with PTSD diagnosis in a retrospective design. Using a logistic regression model, they set distance to the closest VA facility as a potential predictor; participants 11–25 miles away from the nearest facility were statistically less likely than those living within ten miles to have a negative PCL screen (*aOR* = 0.88, $p < 0.001$) one year after treatment initiation. Living 26–50 miles away, or more than 50 miles away, was not shown to be a significant predictor. Again, care received may have varied widely among patients.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Metropolitan Versus Regional (Suburban)

The Forbes et al., 2008, study on treatment intensity also evaluated whether regional or metropolitan treatment settings made a difference in treatment outcomes. Both regional and metropolitan moderate-intensity programs showed significant improvements in PTSD symptoms (PCL scores; *n* = 1,956). Patients in locally delivered regional programs, however, showed greater improvement, although the difference was not tested for significance. Similarly, mild PTSD patients (CAPS intake scores) demonstrated greater improvement in PTSD symptoms (PCL scores) from locally delivered regional programs than from metropolitan programs.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Other Treatment Characteristics

Clinician Race

Rosenheck, Fontana, and Cottrol, 1995, conducted a retrospective study of 4,726 male veterans and found that race could be a significant factor in patient retention. However, there were no significant differences in PTSD symptom improvement (SCID scores) between any of four combinations of racial pairings (white clinician/white patient, white clinician/black patient; black clinician/black patient, black clinician/white patient). The analysis adjusted for baseline patient characteristics (gender, psychological measures, military history); clinician characteristics (professional background, veteran status); and variation in clinical practice across sites.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Patient Type Mix

Johnson et al., 1999, conducted a study of 75 Vietnam veterans evaluating whether the composition of patients affected treatment outcomes. "Homogeneous" treatment kept PTSD-only and dual-diagnosis patients separated, while "heterogeneous" combined the two cohorts for several activities (e.g., community meetings, art therapy). The authors used regression models to test for differences in treatment outcomes between these programs ("homogeneous" versus "heterogeneous"). The groups showed no difference in improvements in PTSD symptoms (Mississippi Scale) between admission and one-year follow-up.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Treatment Fidelity

Holder et al., 2018, conducted a secondary analysis of 72 majority female, majority nonwhite veterans randomized to CPT; using a hierarchical linear model regression analysis they evaluate whether treatment fidelity affected treatment outcomes. "Good" treatment fidelity, compared with therapists with "below average" fidelity, was significantly associated with greater PTSD symptom reduction (PCL scores; $p < 0.05$). Fidelity scores were aggregate performance measures for four total therapists collected by a doctoral-level clinician who was not a member of the study team and was a national trainer for CPT. Final fidelity scores were based on therapists' treatment adherence (whether the therapist demonstrated the necessary behaviors for CPT), competence (a seven-point Likert scale on how well the therapist applied CPT elements given each client's individual problems), and other important aspects of treatment (e.g., reviewing homework, appropriate empathy).

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Summary

Regarding treatment response, there were far fewer studies of program characteristics than patient characteristics. Investigated predictors include delivery mode, intensity, setting, and location, among others.

The strongest predictor of treatment response was patient retention length. This was true for residential, inpatient, and outpatient treatment. All seven studies that included length of stay in multivariate models found a significant positive association with response. The five studies that included total number of treatment sessions as a potential predictor in their analyses consistently reported better response with more treatment; however, this relationship was not always statistically significant.

Regarding method of delivery, the two studies of individual therapy versus group therapy found the former associated with greater response, at least in the short term. Those studies adjusted for many other important characteristics via multivariate models. The only RCT of

standard PE versus VRE found no difference in response. Our meta-analyses found that differences in response between in-person or telehealth delivery were not statistically significant for PE (two RCTs) or CPT (three RCTs). However, heterogeneity was high (I^2 = 90.7% for PE); one RCT of each of CPT and found telehealth worse. None of the RCTs found telehealth better.

Regarding adding features, our meta-analysis of three RCTs found adding telephone monitoring or management to outpatient PTSD treatment did not have a significant effect on response. Substantial heterogeneity was detected (I^2 = 70.4%). The three studies of adding DoD-recommended medication to standard interventions also had mixed results. One small RCT found adding stress inoculation associated with better response in the short term, but the differences in response were not significant after treatment ended.

Other aspects of treatment were assessed in only one study each. Patient mix and clinician race were not significant predictors of response in one multivariate analysis each. Finally, distance from treatment facility and treatment fidelity were significant predictors of response in one multivariate analysis each.

KQ 5. What Patient Characteristics Are Associated with Remission?

Dissociation, Baseline PTSD Severity

Using a subset of data from a larger, randomly controlled trial of female veteran and active-duty military personnel, Wolf, Lunney, and Schnurr, 2016, examined whether the dissociative subtype of PTSD can be associated with differential response to PTSD treatment (n = 235). The original study had included a modification of the Trauma Symptom Inventory's Dissociation scale, which was used to generate a dissociation score for analysis with both an exposure-focused therapy (PE) and a non-exposure-focused therapy (PCT). A latent growth curve model set the high PTSD and dissociative class (mean CAPS score = 83.98) as the reference group for both the moderate PTSD (CAPS = 67.75) and high PTSD (CAPS = 91.03) classes. At all three follow-up points (to six months), logistic regression revealed that a statistically higher percentage of participants remitted in the moderate PTSD group than in both the high PTSD and the high PTSD and dissociative groups (which also did not differ statistically from one another). At six months, remission rates were 50.53 percent of the moderate PTSD group; 26.15 percent of the high PTSD group; and 26.09 percent of the high PTSD and dissociative group.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Demographic Characteristics

An analysis of the same study (Schnurr and Lunney, 2016) classified patients into four PTSD symptom change categories: no response, response, loss of diagnosis, and remission. Remission required a loss of diagnosis plus a CAPS score of less than 20. Age, education beyond high

school, nonwhite race, employment status, and being married or living as married were all unrelated to loss of diagnosis or remission.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Psychiatric Comorbidity

Schnurr and Lunney, 2016, found that only participants in the response group were more likely than those in the remission group to have a current comorbid psychiatric diagnosis at baseline.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Physical Health

Patients in the nonresponder group had significantly worse baseline physical health, as measured by the SF-36, than patients in the three other groups.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Service Connection/Disability Status

Schnurr and Lunney, 2016, also found service connection/disability status unrelated to loss of diagnosis or remission.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Social Impairment/Social Functioning

Schnurr and Lunney, 2016, found no difference in the CAPS social impairment score among the four groups; however, patients in the loss of diagnosis and remission groups had better baseline social function as measured by the SF-36.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Summary

The only study reporting patient characteristics associated with remission during or after treatment found that a statistically higher percentage of participants classified as having moderate PTSD than high PTSD or high PTSD and dissociation were in remission at six months posttreatment. This study also found demographic characteristics and service connection not statistically associated with loss of diagnosis or remission. Better social function and physical health had a positive statistically relationship with these outcomes, while co-occurring psychiatric diagnosis had a negative statistical association. Quality of evidence for this KQ is rated insufficient due to lack of replication.

KQ 6. What Program Characteristics Are Associated with Remission?

Delivery mode

Individual Versus Group Cognitive Processing Therapy

Resick et al., 2017, examined the effects of therapy delivery mechanisms for CPT in 268 active-duty service members using an RCT design to randomize participants between individual- and group-delivery CPT. Symptom severity and frequency were assessed with both the PCL-S and PSS-I, and the remission cutoff was tied to the PSS-I diagnosis. To analyze PSS-I remission rates, the authors used a generalized linear proportions model for binary data. While the patients assigned to individual-delivery CPT had score improvements nearly twice those in group-delivery CPT ($p = 0.02$), the difference in remission rates at six-month follow-up did not reach statistical significance (group delivery, 37%, $SE = 5\%$; individual delivery, 49%, $SE = 5\%$).

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Video Teleconferencing Versus In-Person Treatment

Morland et al., 2014, enrolled a population of rural and ethnically diverse veterans in an RCT to compare delivery mechanisms for CPT, cognitive only (CPT-C; $n = 125$). Participants received a standard protocol 12 sessions of CPT-C; one group received sessions in person (standard for CPT-C), and a second group received session remotely, through video teleconferencing (VTC). Diagnoses were based on CAPS, with a cutoff for diagnosis of 65. A noninferiority analysis suggested a lack of significant differences between VTC and in-person delivery at the follow-up points (zero, three, and six months). Given this apparent noninferiority, remission rates were reported as an aggregate of the two groups, with rates of 29.0 percent at posttreatment, 29.8 percent at three-month follow-up, and 26.4 percent at six-month follow-up.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Intensity

Massed Versus Spaced Therapy

Foa et al., 2018, examined the effects of trauma-focused therapy sessions in an RCT with both active-duty and OIF/OND veterans ($n = 366$). One PE group received therapy sessions closely spaced—that is, "massed therapy" (ten sessions over two weeks), another PE group received "spaced therapy" (ten sessions over eight weeks), a third group received PCT with standard protocol (ten sessions over eight weeks) as a comparison for the spaced PE, and a fourth group received minimal contact (weekly phone calls with a therapist, one per week for four weeks). The PCL-S self-report was used to assess diagnosis rates differentials. A series of mixed-model analyses compared massed PE with minimal contact at the two-week follow-up, massed PE to spaced PE at two and 12 weeks, and spaced PE to PCT at eight weeks posttreatment.

Reductions in the PTSD diagnosis rates were significant at the two-week follow-up for massed PE (45.4%;; $p = 0.009$; $d = 0.30$), as well as at the eight-week follow-up for both spaced PE (46.4%; ; $p < 0.001$; $d = 0.41$) and PCT (40.3%; $p < 0.001$; $d = 0.37$). For minimal contact, diagnostic rate reductions were not significant at two weeks. Compared to minimal contact, massed PE had a significantly lower rate of PTSD diagnosis at the two-week follow-up (54.6% versus 77.1% for minimal contact; difference, 22.5%; $p = 0.005$; $d = 0.32$). Compared to spaced PE at the 12-week follow-up, the rates of PTSD diagnosis for massed PE was shown to be below the noninferiority margin of 14.3 percent, with a differential of only 0.5 percent (one-sided 95% CI, [−∞ to 11.5%]; $p = .02$ for noninferiority). Finally, the rates of PTSD diagnosis did not differ between PCT and spaced PE.

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Adding Components

Psychotherapy With, Versus Without, EMDR

McLay et al., 2016, gathered data from a clinical tracking system developed by the Naval Center for Combat and Operational Stress Control, representing approximately 10 percent of the active-duty patient population seeking mental health treatment from Naval Medical Center San Diego between 2009 and 2012. The tracking system contained patient responses on the PCL-M, self-report measures with a score of 17 to 85. The authors note that, although the PCL-M has high internal consistency and correlation with the gold-standard CAPS, it does not involve a clinician rating or reporting on the specific root trauma and so can only be used to generate a loose or strict diagnosis of posttraumatic stress symptoms. “Loose” criteria were defined by the authors as a self-report of 1 plus moderate symptoms from Criterion B; a self-report of 3 plus moderate symptoms from Criterion C; and a self-report of 2 plus moderate symptoms from Criterion D. “Strict” posttraumatic stress was assigned if “loose” PCL-M criteria were met, along with a total score of 50 or higher. A total of 331 patients received some form of EBP (CBT, CPT, non-trauma-focused therapy [NTFT], etc.), and 46 of those received EMDR (either alone or in conjunction with another form of EBP). Despite attending fewer sessions on average (3.02 versus 3.46, $p < 0.05$), patients receiving EMDR had a greater percentage meeting criteria for remission posttreatment than those patients only receiving other forms of psychotherapy (39.1 percent versus 21.4 percent, *p*-values not reported).

Due to lack of additional studies, the quality of evidence was rated insufficient to support a conclusion.

Summary

Four studies investigated program characteristics potentially associated with remission. An RCT of individual versus group therapy found the difference in remission rates not statistically significant at six months. An RCT of in-person versus telehealth (videoconference) delivery of

CPT reported a noninferiority analysis that suggested a lack of significant differences in remission at all follow-up points (treatment end, three months, and six months posttreatment). One RCT compared "spaced" PE (ten sessions over eight weeks) with "massed" PE (ten sessions over two weeks) and found the rates of PTSD diagnosis at 12 weeks to be below the noninferiority margin of 14.3 percent, with a differential of only 0.5 percent between the two groups. Finally, a cohort study of active-duty Navy personnel reported that a group receiving psychotherapy plus EMDR had a higher percentage of patients meeting criteria for remission posttreatment than those receiving other forms of psychotherapy alone; in this study, the PCL-M "loose" criteria were used for PTSD diagnosis.

In sum, very few studies of PTSD treatment for active military or veterans reported remission. Intensity, group versus individual therapy, in-person versus telehealth treatment, and adding EMDR to other psychotherapy were investigated in one study each. In addition, no study reported follow-up longer than six months posttreatment. Thus, quality of evidence for this KQ is rated insufficient.

Chapter 4. Discussion

This chapter begins with a summary of findings, organized according to the KQs. We then compare our findings with those of prior relevant systematic reviews, describe the strengths and limitations of the body of evidence, and discuss the implications of our findings.

Summary of Findings

After a very thorough search and comprehensive literature screening procedure, we identified 70 studies in 84 articles reporting baseline patient characteristics and/or intervention characteristics associated with retention in treatment, response to treatment, and remission among active military or veterans. Only 21 studies were rated as good quality according to the QUIPS instrument, which focuses on the ability to accurately detect predictors.

Quality of evidence was low or insufficient for most patient and treatment characteristics due to inconsistent results, imprecision, potential publication bias, and study limitations, as displayed in Table 4.1.

Moderate-quality evidence indicates that older age is associated with better retention. Length of stay in PTSD treatment was the strongest predictor of response; quality of evidence was rated high. There is also high-quality evidence that more severe PTSD at treatment entry is associated with less response. Moderate-quality evidence shows that poorer baseline mental health, more combat experience, and participation in atrocities are associated with worse response to treatment, while response is associated with better baseline physical health. Individual therapy was associated with greater response than group therapy; quality of evidence was moderate. No predictors of remission during or after treatment were assessed in more than one study.

Details are described herein and displayed in Table 4.1, along with the quality of evidence rating for each predictor variable for each KQ. For each, the table displays the number and type of studies, references for each study, summary of results, and whether the quality of evidence was downgraded due to study limitations, inconsistency, indirectness, imprecision, or publication bias. Study limitations are based on the Cochrane Risk of Bias tool (for RCTs) and QUIPS criteria described in Chapter 2. Consistency refers to consistency of the direction (positive or negative) of effect, regardless of statistical significance. Precision refers to the width of CIs; results are imprecise if the CIs span effect sizes with possible different conclusions (i.e., the results are not statistically significant). Directness reflects how well various aspects of studies (e.g., population, comparison group, measurement) address the question. As we included only studies on military populations, and only studies that used validated measures of response, no evidence was downgraded for indirectness. The quality of evidence was downgraded for predictors where the majority of evidence came from observational studies from potentially

Table 4.1. Quality of Evidence and Summary of Findings

KQ Predictor	Number of Studies, Type, and Citations	Reasons for Downgrading Quality (Study Limitations, Inconsistency, Indirectness, Imprecision, Publication Bias)	Findings: Direction/ Magnitude of Effect	GRADE of Evidence for Outcome
KQ 1. Treatment retention and patient characteristics				
Age	One bivariate correlation (Szafranski et al., 2014); seven multivariate models (Garcia et al., 2011; Gros et al., 2013; Gros et al., 2018; Hebenstreit et al., 2015; Hernandez-Tejada et al., 2014; Jeffreys et al., 2014; Spoont et al., 2015).	Publication bias	Four multivariate analyses found significant positive association of older age with treatment completion; all other models reported same direction, but not significant; bivariate correlation shows opposite direction, but not significant.	Moderate for positive effect of increasing age
Sex	Three multivariate models (Gros et al., 2013; Hernandez-Tejada et al., 2014; Mott, Mondragon, et al., 2014).	Inconsistency, imprecision, publication bias	One study found significant positive association of female sex with completion; others found conflicting results that were not statistically significant.	Insufficient
Race/ethnicity	Three studies presenting stratified results (Mott, Mondragon, et al., 2014; Gros et al., 2013; Rosenheck, Fontana, and Cottrol, 1995), two of which also presented multivariate models; six additional multivariate models (Cook et al., 2013; Gros et al., 2018; Hebenstreit et al., 2015; Hernandez-Tejada et al., 2014; Spoont et al., 2009; Spoont et al., 2015).	Inconsistency for Asians, Latinos; imprecision for all	Meta-analysis of stratified data: results not significant (RR = 0.95, 95% CI [0.67, 1.36]); multivariate models produced conflicting or nonsignificant results; African Americans consistently had worse retention (with exception of one study), but this did not always reach statistical significance.	Low for worse retention for African Americans
Education	One stratified analysis (Mott et al., 2014); one multivariate analysis (Cook et al., 2013).	Unclear consistency, imprecision	Stratified analysis found higher education significantly associated with retention; multivariate analysis found no association, direction not reported.	Insufficient

KQ Predictor	Number of Studies, Type, and Citations	Reasons for Downgrading Quality (Study Limitations, Inconsistency, Indirectness, Imprecision, Publication Bias)	Findings: Direction/ Magnitude of Effect	GRADE of Evidence for Outcome
Employment status	Two stratified analyses (Gros et al., 2013; Mott, Mondragon, et al., 2014); both also reporting multivariate models; one additional multivariate model (Hernandez-Tejada et al., 2014).	Inconsistency, imprecision, publication bias	Meta-analysis of stratified data: results not significant (RR = 1.17, 95% CI [0.77, 1.79]); multivariate models reported nonsignificant results in conflicting directions.	Insufficient
Income	Three multivariate models (Hernandez-Tejada et al., 2014; Mott, Mondragon, et al., 2014; Spoont et al., 2015).	Inconsistency, imprecision, publication bias	One study found patients in the highest income category more likely to complete treatment; two studies reported nonsignificant conflicting results.	Insufficient
Marital status	Two studies presenting both stratified results and multivariate models (Mott, Mondragon, et al., 2014; Gros et al., 2013); two other multivariate models (Hebenstreit et al., 2015; Hernandez-Tejada et al., 2014).	Consistency but imprecision, study limitations	Meta-analysis of stratified data: results not significant (RR = 0.79, 95% CI [0.52, 1.20]); multivariate models produced nonsignificant results; findings of all studies were in the same direction, favoring married patients.	Low for positive effect of marriage
Avoidance coping	Three multivariate models (Badour et al., 2012; Cook et al., 2013; Hebenstreit et al., 2015).	Unclear consistency, imprecision, study limitations	Two multivariate models found no significant effect, direction unclear; one found patients with high emotional numbing less likely to complete treatment than those with avoidance coping.	Insufficient
Baseline PTSD severity	Two bivariate correlations (Badour et al., 2012; Szafranski et al., 2014); six multivariate models (Gros et al., 2013; Gros et al., 2018; Hebenstreit et al., 2015; Hernandez-Tejada et al., 2014; Khoo, Dent, and Oei, 2011; Miles et al., 2015; Spoont et al., 2015).	Consistency but publication bias	Meta-analysis of correlations: positive relationship between length of stay and baseline severity approached statistical significance (r = 0.05, 95% CI [0.00, 0.11]; p = 0.06); six multivariate models showed consistent positive direction for more severity, but only statistically significant in one model.	Low for better retention among more severe patients
Co-occurring	One bivariate correlation (Szafranski et al.,	Study limitations	Bivariate correlation found more	Moderate for

KQ Predictor	Number of Studies, Type, and Citations	Reasons for Downgrading Quality (Study Limitations, Inconsistency, Indirectness, Imprecision, Publication Bias)	Findings: Direction/ Magnitude of Effect	GRADE of Evidence for Outcome
disorders, number of	2014); one multivariate model (Hebenstreit et al., 2015).		co-occurring mental health disorders associated with longer stay; multivariate model found that patients with at least two co-occurring disorders were more likely to complete minimal acceptable treatment than patients with none; effect sizes large.	better retention among those with more co-occurring disorders
Depression	One bivariate correlation (Szafranski et al., 2014); four multivariate models (Gros et al., 2013; Gros et al., 2018; Hernandez-Tejada et al., 2014; Miles et al., 2015).	Consistency but imprecision, publication bias	Depression had consistent negative direction, but never reached statistical significance.	Low for negative effect of depression
Treatment expectations	One mixed-model longitudinal analysis (Belsher et al., 2012); one multivariate model (Cook et al., 2013).	Imprecision, study limitations (low total sample size)	Positive direction of higher treatment expectations with longer stay; statistically significant in one study.	Low for positive effect of higher expectations
Social support	Two multivariate analyses (Mott, 2014; Szafranski et al., 2014).	Imprecision, consistency unclear	No significant effect; specific findings not reported.	Insufficient
Substance abuse/SUD	Two studies presenting stratified data (DeViva et al., 2017; Mott, Stanley, et al., 2014); one multivariate model (Szafranski et al., 2014).	Inconsistency, imprecision, study limitations (two studies may overlap)	Both stratified analyses reported no significant difference; one did not report data, so direction is unknown, while the other found positive direction; multivariate analysis found statistically significant association of screening positive for illicit drugs with worse retention.	Insufficient
Suicidality	Two multivariate models (Mott et al., 2014; Szafranski et al., 2014).	Unclear consistency, imprecision	Both reported no significant effect; one did not report data, so direction is unknown, while the other found positive direction.	Insufficient
Service connection/ disability status	Two studies presenting stratified data on dropout rate (DeViva et al., 2017; Mott, Mondragon, et al., 2014); four multivariate models (Gros et al., 2013; Gros et al., 2018; Spoont et al., 2015; Tuerk et al., 2011); two other analyses (Belsher et al., 2012; Fontana and Rosenheck, 1998).	Consistency but imprecision, publication bias	Meta-analysis of stratified data: service connection associated with greater risk of dropout (RR = 1.84, 95% CI [1.16, 2.92]); two of four multivariate models found receiving disability statistically associated with dropout; one other study found statistical association with length of	Low for negative effect of existing service connection at baseline

KQ Predictor	Number of Studies, Type, and Citations	Reasons for Downgrading Quality (Study Limitations, Inconsistency, Indirectness, Imprecision, Publication Bias)	Findings: Direction/ Magnitude of Effect	GRADE of Evidence for Outcome
			stay.	
Combat exposure	Three multivariate analyses in two studies (Cook et al., 2013; Gros et al., 2013).	Unassessable consistency, imprecision, publication bias	One study reported a higher percentage of combat exposed patients dropped out, but this variable was not significant in multivariate analysis; the other reported an insignificant association but did not report direction or exact data.	Insufficient
Theater	Five multivariate models (Gros et al., 2018; Hernandez-Tejada et al., 2014; Jeffreys et al., 2014; Mott, Mondragon, et al., 2014; Spoont et al., 2015).	Inconsistency, publication bias, study limitations	Four studies reported nonsignificant and conflicting results; one found OEF/OIF/OND vets significantly less likely to complete treatment.	Insufficient
KQ 2. Treatment retention and intervention characteristics				
In-person versus telehealth treatment	Three multivariate models (Gros et al., 2013; Gros et al., 2018; Hernandez-Tejada et al., 2014).	Inconsistency, publication bias	No statistically significant results reported.	Low for no difference in effect
Facility distance from patient	Four multivariate models (DeViva et al., 2017; Hebenstreit et al., 2015; Szafranski et al., 2014; Spoont et al., 2015).	Consistency but imprecision, publication bias	All studies reported negative direction; one result was statistically significant; two of the studies used the VA national database, so populations may overlap.	Low for negative effect of increased distance
Medications	One bivariate correlation (Fontana and Rosenheck, 1998); two multivariate models (Cook et al., 2013; DeViva et al., 2017).	Inconsistency, publication bias, study limitations	One significant negative bivariate correlation between number of medications and inpatient treatment length of stay; both multivariate models produced insignificant results.	Insufficient
KQ 3. Treatment response and patient characteristics				

KQ Predictor	Number of Studies, Type, and Citations	Reasons for Downgrading Quality (Study Limitations, Inconsistency, Indirectness, Imprecision, Publication Bias)	Findings: Direction/ Magnitude of Effect	GRADE of Evidence for Outcome
Age	Three bivariate correlations (Bonn-Miller et al., 2013; Fontana, Ford, and Rosenheck, 2003; Gros, Yoder, et al., 2011); two studies presenting stratified results (Bray et al., 2016; Schnurr, 2016); 15 multivariate models in 13 articles (Belsher et al., 2012; Bonn-Miller et al., 2013; Bray et al., 2016; Currier, Holland, and Drescher, 2014; Holder et al., 2018; Jeffreys et al., 2014; Korte et al., 2017; Levi et al., 2017; López et al., 2017; McLay et al., 2016; Tiet et al., 2015; Tuerk et al., 2011; Walter et al., 2014).	Inconsistency, imprecision, publication bias	Meta-analysis of correlations: no significance (r = 0.08, 95% CI [–0.08, 0.24]); one stratified analysis found older patients significantly less likely to respond, the other found no association; four models found older age significantly associated with less improvement, two models found older age significantly associated with greater response; the rest found age insignificant.	Insufficient
Race/ethnicity	Two bivariate correlations (Fontana, Ford, and Rosenheck, 2003; Gros, Yoder, et al., 2011); four studies in five articles presenting stratified results by race/ethnicity (Bray et al., 2016; Rosenheck and Fontana, 1996; Rosenheck, Fontana, and Cottrol, 1995; Schnurr, 2016; Stecker et al., 2016); eight multivariate models (Bray et al., 2016; Currier, Holland, and Drescher, 2014; Jeffreys et al., 2014; Korte et al., 2017; López et al., 2017; Tiet et al., 2015; Tuerk et al., 2011; Walter et al., 2014).	Inconsistency, publication bias	One significant correlation (r = 0.09) between being nonwhite and lower response; one stratified analysis found African Americans improved significantly more than whites; multivariate models had mixed/conflicting results.	Insufficient
Sex	One bivariate correlation (Currier, Holland, and Drescher, 2014); three studies stratifying results by gender (Friedman et al., 2007; Gallegos et al., 2015; Tiet et al., 2015); nine multivariate models in eight articles (Belsher et al., 2012; Bray et al., 2016; Currier, Holland, and Drescher, 2014; Korte et al., 2017; McLay et al., 2016; Tiet et al., 2015; Tuerk et al., 2011; Walter et al.,	Inconsistency, imprecision, publication bias	One significant correlation (r = –0.12) of male sex with lower severity four months posttreatment; meta-analysis of stratified data: sex not significant predictor of response at three or four months (SMD = –0.10, 95% CI [–0.46, 0.27]); two multivariate models found female sex associated with greater response, rest found sex insignificant.	Insufficient

KQ Predictor	Number of Studies, Type, and Citations	Reasons for Downgrading Quality (Study Limitations, Inconsistency, Indirectness, Imprecision, Publication Bias)	Findings: Direction/ Magnitude of Effect	GRADE of Evidence for Outcome
	2014).			
Education	One bivariate correlation (Fontana, Ford, and Rosenheck, 2003); two studies presenting stratified results (Bray et al., 2016); three multivariate models in two studies (Levi et al., 2017; Walter et al., 2014).	Consistency in multivariate models, but publication bias	One correlation: more years of education associated with significantly greater reduction in severity at four and 12 months; stratified results: one found those with high school education or less improved significantly more at 12 months; one reported no association, although direction was positive for more education; one model found more education associated with significantly better response; the rest found more education association with better response, but not statistically significant.	Low for positive effect of higher education
Employment status	One bivariate correlation (Fontana, Ford, and Rosenheck, 2003); one stratified analysis (Schnurr, 2016); four multivariate models in 3 studies (Levi et al., 2017; López et al., 2017; Walter et al., 2014).	Consistency in multivariate models, but imprecision, publication bias	Correlation: being employed associated with significantly greater decrease in PTSD severity at four and 12 months posttreatment; stratified analysis: no association; multivariate models: direction was positive, but results not statistically significant.	Low for positive effect of employment
Marital status	Two studies presenting stratified results (Bray et al., 2016; Schnurr, 2016); six multivariate models in five studies (Levi et al., 2017; López et al., 2017; McLay et al., 2016; Tiet et al., 2015; Walter et al., 2014).	Consistency in multivariate models, but publication bias	Stratified results: one study found married patients more likely to respond; the other found a higher total percentage of those who responded, loss diagnosis, or remitted were married or cohabitating; multivariate models: positive direction, but association never statistically significant.	Low for positive effect of marriage
Baseline PTSD severity	Three bivariate correlations (Boden et al., 2012; Fontana, Ford, and Rosenheck, 2003; Gilman, Schumm, and Chard, 2012); three studies stratified by severity category (Elliott et al., 2005; Forbes et al., 2008; Wolf, Lunney, and Schnurr, 2016); 17 multivariate models	None	Meta-analysis of correlations: higher baseline severity associated with significantly higher posttreatment severity (r = 0.55, 95% CI [0.38, 0.72]); stratified results: all found patients with moderate or low severity improved more than those with high/severe	High for negative effect of higher severity

KQ Predictor	Number of Studies, Type, and Citations	Reasons for Downgrading Quality (Study Limitations, Inconsistency, Indirectness, Imprecision, Publication Bias)	Findings: Direction/ Magnitude of Effect	GRADE of Evidence for Outcome
	(Badour et al., 2012; Belsher et al., 2012; Boden et al., 2012; Boden et al., 2013; Evans, Cowlishaw, and Hopwood, 2009; Forbes et al., 2005; Forbes et al., 2010; Gilman, Schumm, and Chard, 2012; López et al., 2017; McLay et al., 2016; Miles et al., 2015; Richardson et al., 2014; Rosen, Greenbaum, et al., 2013; Sripada et al., 2013; Steindl et al., 2003; Tiet et al., 2015; Tuerk et al., 2011). five of these models predicted "change in severity," while 12 predicted "follow-up severity."		PTSD; multivariate models: baseline severity significantly associated with posttreatment severity in ten of 12 studies, significantly associated with less improvement change in severity in three of five studies.	
Mental health, general	Two bivariate correlations (Evans, Cowlishaw, and Hopwood, 2009; Currier, Holland, and Drescher, 2014); one of these (Currier, Holland, and Drescher, 2014) conducted a multivariate model.	Study limitations	Meta-analysis of correlations found poorer mental health significantly associated with less improvement (r = –0.32, 95% CI [–0.51, –0.13]); multivariate model found poorer mental health significantly associated with higher severity posttreatment.	Moderate for negative effect of poorer mental health
Psychiatric comorbidity, nonspecific	Two stratified analyses (Bray et al., 2016; Schnurr, 2016).	Consistency but imprecision, study limitations	No statistical association, but negative direction.	Insufficient
Depression	Two bivariate correlations (Evans et al., 2010; Miles et al., 2015); seven multivariate models (Bonn-Miller et al., 2013; Elliott et al., 2005; Forbes et al., 2005; Korte et al., 2017; Miles et al., 2015; Murphy et al., 2016; Richardson et al., 2014).	Consistency but imprecision, publication bias	Bivariate correlations: baseline depression significantly associated with greater posttreatment PTSD severity; multivariate models: three studies reported depression significantly associated with lower response; the rest found same direction, but results not statistically significant.	Low for negative effect of depression
Anger	Five multivariate analyses (Elliott et al., 2005; Forbes et al., 2005; Miles et al., 2015; Murphy et al., 2016; Tiet et al., 2015).	Consistent (with one exception), but publication bias, imprecision	Three studies found higher anger associated with significantly less response; one study found anger not significant; one study found higher anger significantly associated with greater response.	Low for negative effect of baseline anger
Anxiety	Three multivariate models (Forbes et al.,	Inconsistency,	Mixed insignificant results.	Insufficient

KQ Predictor	Number of Studies, Type, and Citations	Reasons for Downgrading Quality (Study Limitations, Inconsistency, Indirectness, Imprecision, Publication Bias)	Findings: Direction/ Magnitude of Effect	GRADE of Evidence for Outcome
	2005; Miles et al., 2015; Murphy et al., 2016).	imprecision, publication bias		
Avoidance coping	One multivariate model (Boden et al., 2012); one path model (Badour et al., 2012).	Study limitations (path model did not control for baseline severity, 42% follow-up rate)	Multivariate model found significantly worse response among those with avoidance coping compared with those with active coping; path model found baseline avoidance coping associated with more severe PTSD at discharge.	Low for negative effect of avoidance coping
Alcohol abuse/ AUD	Two bivariate correlations (Bonn-Miller et al., 2013; Evans, Cowlishaw, and Hopwood, 2009); one stratified comparison (McDowell and Rodriguez, 2013); five multivariate models (Bonn-Miller et al., 2013; Forbes et al., 2005; Murphy et al., 2016; Richardson et al., 2014; Steindl et al., 2003); three other analyses (Elliott et al., 2005; Evans et al., 2010; Friedman et al., 2007).	Inconsistency, publication bias	Meta-analysis of correlations: higher baseline AUDIT score associated with significantly greater PTSD severity at discharge (r = 0.09, 95% CI [0.01, 0.18]); stratified comparison found AUD not significant; one multivariate model found higher baseline AUDIT score significantly associated with greater PTSD severity 12 months posttreatment; one other analysis found AUD significantly associated with less response at six and 12 months; other models found mixed insignificant results.	Low for negative effect of greater alcohol use
Other substance abuse/SUD	One stratified analysis (McDowell and Rodriguez, 2013); three multivariate models (Bonn-Miller et al., 2013; Currier, Holland, and Drescher, 2014; Korte et al., 2017).	Consistency but imprecision, publication bias	Stratified result: response did not differ significantly between patients with and without SUD; one multivariate analysis found SUD associated with significantly worse response trajectory; one found only marijuana use disorder (not harder drugs) significantly associated with worse response; one found worse response, but not statistically significant.	Low for negative effect of substance abuse
Social support/ social function	One correlation study (Fontana, Ford, and Rosenheck, 2003); one stratified analysis (Schnurr, 2016).	Study limitations	Correlations: social isolation and poor social climate associated with worse response; stratified analysis: better social function associated with loss of diagnosis and remission.	Low for positive effect of social support

KQ Predictor	Number of Studies, Type, and Citations	Reasons for Downgrading Quality (Study Limitations, Inconsistency, Indirectness, Imprecision, Publication Bias)	Findings: Direction/ Magnitude of Effect	GRADE of Evidence for Outcome
Physical health	One stratified analysis (Schnurr, 2016); two multivariate analyses (Currier, Holland, and Drescher, 2014; Foa et al., 2018).	Consistency but study limitations	Stratified analysis: better health associated with response; multivariate analyses: both found worse health associated with worse response (one did not report specifics).	Moderate for positive effect of better physical health
Combat exposure	Two studies presenting stratified results (Ford, Fisher, and Larson, 1997; Friedman et al., 2007); three bivariate correlations (Bonn-Miller et al., 2013; Currier, Holland, and Drescher, 2014; Fontana, Ford, and Rosenheck, 2003); five multivariate models (Belsher et al., 2012; Bonn-Miller et al., 2013; Bray et al., 2016; Currier, Holland, and Drescher, 2014; McLay et al., 2016).	Consistency but publication bias	Meta-analysis of stratified results: combat exposure associated with significantly worse response (SMD = 0.34, 95% CI [0.04, 0.64]); meta-analysis of bivariate correlations of level of exposure with response not significant (r = 0.09, 95% CI [–0.05, 0.25]); two multivariate models found level of exposure significantly associated with worse improvement trajectory.	Moderate for negative effect of combat exposure
Participation in atrocities	Two bivariate correlations (Fontana, Ford, and Rosenheck, 2003; Kosten et al., 1992).	Study limitations, but large effect	Meta-analysis of bivariate correlations found participation in atrocities associated with higher severity posttreatment (r = 0.25, 95% CI [0.11, 0.39]).	Low for negative effect of atrocities
Disability status/service connection	One bivariate correlation (Gros, Yoder, et al., 2011); one stratified analysis (Schnurr, 2016); five multivariate studies (Belsher et al., 2012; Gilman, Schumm, and Chard, 2012; Monson et al., 2006; Tuerk et al., 2011; Walter et al., 2014).	Inconsistency, imprecision, publication bias	Bivariate correlation not significant; stratified analysis found no association, one multivariate analysis found patients requesting increased service connection had worse response, while the other studies found no statistically significant association.	Insufficient
Theater/service era	Three multivariate models in two studies (Forbes et al., 2005; Jeffreys et al., 2014).	Publication bias, study limitations (only one study on effect of OEF/OIF theater)	One study found Iraq/Afghanistan vets had significantly less response; the other found no significant difference between peacekeepers and wartime veterans.	Insufficient
KQ 4. Treatment response and intervention characteristics				
Medication	One bivariate correlation (Fontana, Ford, and Rosenheck, 2003); one multivariate model (McLay et al., 2016).	Consistency but imprecision, study limitations	Correlation found medication led to significantly greater response to post-outpatient treatment; model	Insufficient

KQ Predictor	Number of Studies, Type, and Citations	Reasons for Downgrading Quality (Study Limitations, Inconsistency, Indirectness, Imprecision, Publication Bias)	Findings: Direction/ Magnitude of Effect	GRADE of Evidence for Outcome
			found no significant association with EMDR response (direction not reported).	
Group versus individual counseling	Two multivariate models (Jeffreys et al., 2014; Resick et al., 2017).	Consistency but imprecision, publication bias	Both found individual counseling associated with significantly better response.	Moderate for better response to individual counseling
In-person versus telehealth treatment	Three RCTs on cognitive therapy (Agha, 2008; Maieritsch et al., 2016; Morland et al., 2014); 2 RCTs on PE (Acierno et al., 2017; Gros, Yoder, et al., 2011).	Inconsistency, imprecision for cognitive therapy; consistency but imprecision for PE	Meta-analysis for cognitive therapy: no difference in response (SMD = 0.05, 95% CI [–0.30, 0.40)]; meta-analysis for PE: no difference in response (SMD = 0.65, 95% CI [–0.32, 1.62]).	Low for no difference
Telephone follow-up or monitoring	Three RCTs (Fortney et al., 2015; Rosen et al., 2017; Rosen, Tiet, et al., 2013).	Inconsistency, imprecision	Meta-analysis: no difference in response (SMD = –0.13, 95% CI [–0.33, 0.08]).	Low for no effect
Number of sessions attended	One stratified analysis (Hobfoll et al., 2016); one correlation (Gilman, Schumm, and Chard, 2012); three multivariate models (Fortney et al., 2015; López et al., 2017; McLay et al., 2016).	Consistency but imprecision, publication bias	Stratified analysis found significant difference: responders attended one more session on average; correlation not statistically significant; one multivariate analysis found attending eight or more sessions associated with significantly greater response.	Low for better response with more sessions
Length of stay	Seven multivariate analyses (Badour et al., 2012; Belsher et al., 2012; Boden et al., 2012; Sripada et al., 2013; Tiet et al., 2015; Tuerk et al., 2011; Walter et al., 2014).		All studies found statistically significant association of longer stay with greater response.	High for better response with increased length of stay
KQ 5. Remission and patient characteristics				
No				Insufficient

KQ Predictor	Number of Studies, Type, and Citations	Reasons for Downgrading Quality (Study Limitations, Inconsistency, Indirectness, Imprecision, Publication Bias)	Findings: Direction/ Magnitude of Effect	GRADE of Evidence for Outcome
characteristics included in more than one study				
KQ 6. Remission and intervention characteristics				
No characteristics included in more than one study				Insufficient

NOTE: The table includes predictors reported in at least two studies.

overlapping populations; this affects retention findings more than response findings, as most multivariate analyses of the VA database assessed retention rather than response. We conducted a sensitivity analysis by removing the studies of the national VA database; the general conclusions remain unchanged.

For usability and to conserve length, Table 4.3 includes only predictor variables assessed in at least two studies. Quality of evidence is considered insufficient when only one study exists; those potential predictors are described in the sections after the table.

KQ 1: Retention and Patient Characteristics

According to the modified GRADE system, the quality of evidence could not be rated high for any patient characteristics. Ratings for most potential predictors of retention were downgraded for publication bias because the majority of evidence came from multivariate analyses of data from the VA database; it was difficult to determine the overlap of patients in these studies. We conducted a sensitivity analysis by removing the studies of the national VA database; the general conclusions remain unchanged.

Being older was the only predictor of better retention supported by moderate-quality evidence. Even so, half of the identified studies reporting on age found the association not statistically significant, although the direction of findings was the same in all but one study. Only three studies reported on sex; results were mixed, so quality of evidence was rated insufficient to formulate a conclusion. Mixed results were found regarding race/ethnicity. African Americans consistently had worse retention, although the difference was not always statistically significant. The exception is one study of VA outpatient counseling patients that found African Americans had significantly better retention; the same authors found conflicting results in their analysis of a later VA cohort. We rated the quality of evidence of worse retention for African Americans as low. All three studies assessing employment status found no statistically significant association with retention; evidence was rated insufficient. Four studies reported statistically insignificant effects of being married; however, the direction of effect was always positive. Quality of evidence was rated low.

More severe PTSD at baseline was often associated with better retention; quality of evidence was rated low. All six multivariate models that included baseline PTSD score as an independent variable reported this direction of findings, but the rating was downgraded because baseline severity was statistically significant in only one. Two studies reported only bivariate analyses; our pooling of these two studies approached statistical significance ($p = 0.06$) in favor of a positive relationship baseline PTSD score and length of stay. We also identified two studies that included “number of co-occurring mental health disorders” as a predictor in multivariate models; both found more comorbidities associated with better retention. Quality of evidence was rated moderate due to consistency, good study quality, and large effect size. These findings may seem counterintuitive; however, more severe patients may receive stronger encouragement or more incentive to remain in treatment longer.

There was a trend of worse retention among patients already having service-connected disability, but findings were not always statistically significant. The body of evidence for service connection was downgraded for precision (statistical significance) and possible publication bias, leading to a low-quality rating. There is also low-quality evidence that higher treatment expectations are associated with better retention and that depression is associated with worse retention.

Quality of evidence was rated insufficient for income, SUD, combat exposure, and theater due to inconsistency or study limitations. Quality of evidence was also rated insufficient for anxiety, anger, treatment history, beliefs about psychotherapy, exposure to civilian trauma, participation in atrocities, military rank, and number of deployments because they were included as potential predictors in only one study each.

KQ 2: Retention and Treatment Characteristics

Few treatment characteristics were assessed in more than one study. None of the three studies of in-person versus telehealth treatment reported a statistically significant difference in retention when adjusting for important confounders; direction of results conflicted, so quality of evidence was rated low for no difference between modalities. Results were mixed in three studies of adding medication to psychological therapy (insufficient quality of evidence). One study reported no difference in retention between standard PE and VRE; evidence is insufficient due to lack of replication.

Four studies assessed the effect of distance from facility; although the direction of effect was consistently negative, the association was statistically significant in only one. In addition, two of these studies used data from the VA national database and populations may have overlapped. Thus, quality of evidence is low.

KQ 3: Response and Patient Characteristics

Many studies assessed the relationship between response to treatment and age, race/ethnicity, and sex. Quality of evidence for these potential predictors was rated insufficient as the results of several studies were in direct conflict, while many others reported results that were not statistically significant. Three studies reported a positive effect of more education; results were statistically significant in two of these. A fourth study reported a statistically significant association of better response with having a high school or lower education, while another found no association. Quality of evidence was rated low.

Four studies included a variable representing employment status in multivariate analyses; direction of effect was positive but never statistically significant. Another study reported a significant bivariate correlation between employment and greater response; however, bivariate analyses do not adjust for other important possible confounders. A stratified comparison in another study found no association. Thus, the quality of evidence is rated low for employment.

The six multivariate models that included marital status found consistent positive direction of the effect of being married, but this association was never statistically significant. Thus, quality of evidence was rated low.

We pooled the results of three studies that reported bivariate correlations between baseline and follow-up PTSD severity; we found a very large statistically significant negative association. In three stratified analyses, patients with moderate or low PTSD severity improved significantly more than those with high/severe PTSD. Five studies reported on multivariate models where change in severity was the dependent variable: three found baseline severity significantly associated with worse response, while the other two reported findings in a similar direction that were not statistically significant. The consistency of direction, large effect size, and quality of the studies led us to rate the quality of evidence high that higher severity at baseline is associated with less improvement.

Our meta-analysis of two studies that reported bivariate correlations between baseline mental health and response found a large and significant association between better mental health and decrease in PTSD severity score posttreatment. One of these studies reported the relationship was statistically significant in a model adjusting for important confounders. Quality of evidence was rated moderate. Depression was significantly associated with worse response in two multivariate models; three other multivariate studies reported similar direction but no statistically significant association. Thus, quality of evidence was rated low. Five studies included anger in multivariate models. A statistically significant association of anger with worse response was reported in three, while one reported that a higher anger score was significantly associated with greater response. Quality of evidence was rated low because of the direct conflict. Three studies that included comorbid anxiety found conflicting results; thus, quality of evidence was rated insufficient.

Patients with AUD or SUD tended to have consistently worse response; the relationship was not always statistically significant, so quality of evidence was rated low for both AUD and SUD. One model incorporated separate variables for different drug classes (i.e., opioids, amphetamines, sedatives); surprisingly, only marijuana use disorder and amphetamine use disorder were associated with worse response.

Social support and social function had statistically significant positive effects in two studies; however, these studies did not adjust for other potential predictors, so quality of evidence is low. Better physical health had a significant positive effect in three studies; quality of evidence is moderate.

Level of combat exposure had a significant negative association with response in two of five studies that adjusted for potential confounders. Two studies reported stratified results comparing patients who had or had not been exposed to combat; our meta-analysis found a large and statistically significant difference in response, with patients exposed to combat having worse response. In contrast, our pooled analysis of three studies that reported bivariate correlations between the *level* of combat exposure and response found statistically insignificant results.

Quality of evidence was rated moderate. Our meta-analysis of two studies of the association between participation in atrocities and response found a large and significant negative association. Quality of evidence was rated low.

One study found seeking an increase in service connection had a significant negative association with response. Other studies reported no statistically significant associations between service connection/disability status and treatment response. Thus, quality of evidence was rated insufficient. Regarding theater, one study found Iraq/Afghanistan vets had significantly less response than patients who served in other eras. Another study found no significant difference between peacekeepers and wartime veterans. Quality of evidence for theater was rated insufficient.

TBI had no statistical association with response in one study. Military occupation, number of deployments, worse family function, marijuana use, and dissociation were each investigated in only one study. Quality of evidence for these potential predictors was rated insufficient due to lack of replication.

KQ 4: Response and Treatment Characteristics

Retention was the strongest predictor of treatment response; this was true for residential, inpatient, and outpatient treatment. All seven studies that included length of stay in multivariate models found a statistically significant positive association. Quality of evidence was rated high. Patients who attended more treatment sessions had greater response in five studies; however, this relationship was not always statistically significant (low quality of evidence).

Regarding delivery mode, individual therapy was found superior to group therapy in two studies (moderate quality of evidence). Meta-analyses of in-person versus telehealth delivery of CPT (three RCTs) and PE (two RCTs) found no significant difference in response. However, considerable heterogeneity was detected, leading to a low quality of evidence rating. In one RCT, standard PE versus VRE showed no statistical difference in response.

Regarding adding a service or component, one of two studies assessing the effect of using medication with psychological interventions found a statistically significant positive result; the other reported no significant association without providing quantitative results. Meta-analysis of three RCTs found that adding telephone monitoring or management to outpatient PTSD treatment did not have a significant effect on response. However, results of the individual studies were mixed, leading to substantial heterogeneity. Quality of evidence was low. One study adding an online CBT-based stress management program found better response than outpatient psychotherapy alone at six and 12 weeks but not at 18 weeks.

Treatment fidelity, patient mix, patient/clinician racial congruence, urban versus suburban location, and facility distance from patients were investigated in one study each. Quality of evidence was rated “insufficient” for these potential predictors of treatment response.

KQ 5: Remission and Patient Characteristics

Only one study meeting inclusion criteria reported patient characteristics associated with remission during or after treatment in military populations. This secondary analysis of data from an RCT (n = 235) of PCT versus PE in women found a negative association of both more severe PTSD and dissociative disorder with remission; multivariate analysis adjusted for other potential confounders. The authors reported a stratified analysis that found demographic characteristics and service connection not associated with loss of diagnosis or remission. Better social function and physical health were associated with these outcomes, while co-occurring psychiatric diagnosis had a negative association.

Despite the high quality of this study, quality of evidence was rated insufficient for these predictors due to lack of additional research.

KQ 6: Remission and Treatment Characteristics

Only four studies of program characteristics and remission met the inclusion criteria. One RCT found no difference in remission at six months between patients in individual or group therapy. An RCT of telehealth (videoconference) versus in-person delivery of CPT found no difference in remission at treatment end, three months, and six months posttreatment. An RCT of "spaced" PE (ten sessions over eight weeks) versus "massed" PE (ten sessions over two weeks) reported similar remission rates at 12 weeks. Finally, a cohort study of active-duty Navy personnel reported higher remission rates at treatment end for patients receiving psychotherapy plus EMDR than those receiving psychotherapy alone. Despite the high quality of these studies, the quality of evidence is insufficient for all predictors due to lack of replication.

Prior Systematic Reviews

No systematic reviews specifically on retention of military populations in PTSD treatment programs were identified. Imel et al., 2013, conducted a systematic review and meta-analysis on treatment characteristics and dropout in 42 randomized control trials (17 head-to-head comparisons) of psychotherapy treatments for PTSD; the review was neither limited to nor focused on the military. Studies with pharmacological components were excluded. Treatments were scored by level of trauma focus: trauma specific (3), trauma inclusive/neutral (2), and trauma avoidant (1). The primary outcome measure was overall dropout/retention rate, with potential predictors including trauma focus, group versus individual modality, and number of sessions. Meta-analysis was restricted to direct comparisons of active treatments; retention was not affected by trauma focus and dropout was not significantly different among active treatments. Differences in trauma focus between treatments in the same study did not predict dropout. However, trauma focused treatments resulted in higher dropout as compared with PCT. Group modality (b = .12, p = .009, 95% CI 3% to 21%) and greater number of sessions (b = .01,

p = .009, 95% CI [0.3% to 1.5%]) were associated with increased dropout, but not when studies of interventions versus passive treatment were dropped. Group modality and greater number of sessions predicted dropout.

Regarding treatment response, Goodson et al., 2011, synthesized 24 studies to examine the effectiveness of psychotherapeutic treatments for veterans with combat-related PTSD in inpatient and outpatient VA settings. Both observational studies and trials were included. Studies of veterans with subclinical or non-combat-related PTSD were excluded; the primary outcome was a decrease in PTSD severity. Interventions were categorized as exposure-based therapy (12 studies), other CBT (two studies), inpatient therapy (seven studies), and miscellaneous treatment (three studies). A meta-analysis of the ten controlled trials found treatments incorporating exposure-based interventions showed the highest within-group effect size. The within-group effect size for treatment overall was d = 0.43; for exposure-based studies, d = 1.10; for CPT, d = 1.00; for trauma-focused therapy, d = 0.81; and for inpatient programs, d = 0.19. However, the meta-analysis included studies with heterogeneous comparators; for example, some studies compared an intervention with TAU while others compared an intervention with a waiting list. In addition, the categories should not have been mutually exclusive, as inpatient treatment can involve multiple components, including CBT. Thus, the quality of the meta-analysis is low. The authors' meta-regression analyses found effect sizes were not moderated by hours of treatment, study sample size, or year.

A Cochrane review (Hetrick et al., 2010) assessed whether the combination of psychotherapy and pharmacotherapy is more effective in treating PTSD than either intervention alone. The review did not focus on military populations. Only four RCTs met the inclusion criteria; three involved adults and one involved children/adolescents. Diagnoses (including subclinical diagnoses) arose from the following four events: interpersonal events, disaster or accidents, combat, and witnessing an event. As no data pooling was possible, the authors reported insufficient evidence to support any hypothesis about combination therapy, but the four trials individually suggested no benefit of combination therapy. Our systematic review identified two studies that met our inclusion criteria. One reported a positive bivariate correlation between medication use in outpatient treatment and greater response at four and 12 months posttreatment. The other used a stepwise linear regression to adjust for important potential confounders and found no effect. Thus, we found insufficient evidence to formulate a conclusion.

A systematic review 48 randomized control trials examined whether women and men diagnosed with PTSD respond differently to trauma-focused psychotherapy interventions (Wade et al., 2016). Participants reported military-related trauma in nine studies, sexual assault in nine, and child abuse in seven. Out of the 48 trials, 25 had a mixed gender sample, 18 were of women only, and five included only men. The primary outcome was severity of PTSD using standardized clinician-rated measures at treatment end, three months posttreatment, and six months posttreatment, and the secondary outcome was severity of PTSD using standardized self-rated measures. A direct-effects meta-analysis of the 25 studies that included both men and women

showed evidence of a gender effect (mean difference = 11.53, 95% CI [1.82, 21.24], $p = .02$). However, a second direct effects meta-analysis that only compared men and women of the same trauma type showed no significant association between gender and intervention effect (mean difference = 5.89, 95% CI [–17.42, 29.21], $p = .62$). Our project identified eight studies reporting the results of multivariate analyses that included sex in addition to other potential confounders. Seven found no significant association between sex and response to PTSD treatment. One of the seven reported an additional model using the PCL rather than the CAPS score; this model found female sex associated with improved response. One other multivariate study found improved response associated with female sex.

We identified no systematic reviews on remission of PTSD during or after treatment. The only systematic review on remission (Morina et al., 2014) examined 42 prospective observational studies to determine the rates of "spontaneous" long-term remission (for at least ten months) among individuals who did not undergo PTSD-specific treatment. Only one study of military personnel was included. Nearly 50 percent of participants in the 42 studies showed spontaneous remission of PTSD diagnosis after an average of three years. Only two potential predictors had a statistically significant association with increased remission: short-term (less than five months postdiagnosis) versus chronic PTSD; and participants with natural disaster–linked PTSD compared to those with physical disease–linked PTSD. Gender, race, relationship status, and employment status were not statistically associated with remission; these results echo the findings of the one study we identified on patient characteristics and remission. However, because the authors focused on "spontaneous" remission without treatment, this review has less applicability to our project than the other reviews on nonmilitary PTSD.

Strengths and Limitations

This review has several strengths: an a priori research design, duplicate study selection and data extraction of study information, a comprehensive search of electronic databases, risk of bias assessments, and use of comprehensive quality of evidence assessments to formulate review conclusions.

Only studies of military personnel and veterans were included in this report, and patients were required to have a PTSD diagnosis. It is possible that in some large observational studies, some patients did not have "military PTSD" per se. For example, it is possible for a veteran to be diagnosed with PTSD after an event (e.g., an accident, assault, or rape) unrelated to military service.

To avoid missing relevant studies, we reviewed 758 full-text articles to identify reports of patient and treatment characteristics associated with retention, response, and remission. This is important for several reasons. The primary goal of many included studies was to assess program efficacy or effectiveness. Retention was sometimes reported in studies where response was the primary outcome; retention rates were not mentioned in the study abstract. Similarly, patient and

treatment characteristics associated with outcomes were not the primary focus of some studies, so were not reported in the abstract or even in an article's discussion section. It was only through obtaining and reviewing entire articles that these findings were discovered. Of course, one resulting limitation is that some studies were powered to detect program efficacy but not predictors of outcomes. Ten of the 70 included studies were not powered to detect predictors, according to the study authors. Another 44 of the 70 studies did not report a power analysis; many were very large observational studies of patient records that likely had more than adequate power.

The quality/risk of bias of each included study was assessed based on publicly available information. We reviewed all identified journal articles corresponding to each included study and checked the ClinicalTrials.gov database for any missing information on methods. We did not contact authors with questions on methodology due to resource limitations. In our experience, authors of older studies are often unreachable, unresponsive, or do not have time to find the requested information.

Retention was defined by VA researchers who analyzed data from the national patient database as attending at least eight or nine sessions of psychotherapy, regardless of type (CBT, CPT, PE). There were a few other studies that used inconsistent definitions of dropout such as dropout that occurred "prior to reaching treatment goals, typically longer than retention in RCTs" (Garcia et al., 2011) or was indicated by "attending less than two-thirds of recommended appointments" (Jeffreys et al., 2014). To be included in our retention meta-analyses, studies were required to report a dichotomous outcome representing dropout prior to completion of treatment program.

Other limitations vary according to the design of the included studies. Regarding clinical trials, randomization is used to attempt to balance potential patient-level confounders in each group. However, as mentioned earlier, such studies may be underpowered to detect predictors. In contrast, observational studies involving multivariate analyses of large data sets have sufficient power and adjust for confounders but are associated with potential publication bias.

Forty-one studies were peer-reviewed articles reporting on VA patients; we determined that at least five publications included the same patients that other publications did, for a total of 36 studies. Although admission dates and site locations were extracted whenever reported, it was extremely difficult to determine the overlap of VA patient populations, especially when the national VA database was utilized. For example, Wilkinson, Stefanovics, and Rosenheck, 2015, included 2,276 patients enrolled in specialized intensive VA programs from 1992 to 2011; Tiet et al., 2015, analyzed data from seven VA PTSD specialty intensive treatment programs at five sites across the United States from October 2006 to December 2009 (n = 837); and Spoont et al., 2015, studied all patients receiving medications and/or psychotherapy sessions from June 2008 through July 2009 (n = 6,778). It was impossible to determine the population overlap in such cases; thus, the same patients may have been included in multiple studies described in this report. The quality of evidence was downgraded for predictors where the majority of evidence came

from observational studies from potentially overlapping populations; this affected our ratings on retention, as the majority of multivariate analyses of the VA database assessed retention rather than response. We conducted a sensitivity analysis by removing the studies of the national VA database; the general conclusions remain unchanged.

Notably, we did not evaluate whether care described in each study adhered to specific standards, as the necessary information was not described in most large observational studies, and especially those reporting secondary analyses of VA administrative data. Treatment focus and fidelity may vary widely among patients in these studies and may not be equivalent to the care delivered in the RCTs and small cohort studies, where the interventions are well described (e.g., number of hours, timing, frequency, provider type and qualifications) and monitored by study personnel. Such unmeasured differences in treatment across studies of the same intervention may have contributed to differences in outcome. Surprisingly, we identified only one study of PTSD in current or former military personnel that examined whether treatment fidelity was associated with greater response to treatment. This secondary analysis of data from a small ($N = 72$) study of CPT found good treatment fidelity associated with better response.

We conducted meta-analyses of stratified data and bivariate correlations when results on the same predictor variable and outcome were identified; we calculated the I^2 statistic to assess heterogeneity. However, some undetected heterogeneity may exist. The I^2 statistic is dependent on statistical power, which is primarily influenced by the number of studies and secondarily by the size of the studies; most meta-analyses included only two or three studies, and study sample size was often small compared with typical studies of medications and health care interventions.

We meta-analyzed bivariate correlations between predictor variables and outcomes; most were reported in large observational studies as preparation for development of multivariate models. These correlations do not adjust for potential confounders such as patient demographics, military background, and psychological comorbidities. Thus, *the quality of evidence was downgraded for findings based solely on correlations*. Finally, few studies reported remission, and none of these followed patients more than a year after treatment entry. Thus, the quality of evidence for patient and program characteristics associated with remission during or after treatment was rated insufficient.

Implications for Future Research and Practice

Making clinical and policy recommendations is beyond the scope of the systematic review; the goal of this report was to summarize, synthesize, and assess the quality of the existing evidence.

Retention (length of stay) was the greatest predictor of treatment response; no predictors of retention with high-quality evidence were identified. Moderate quality evidence supports an association of increasing age with treatment retention; young patients should be targeted with incentives to keep them in treatment.

We identified evidence (of low quality) that patients with service-connected disability are less likely to complete treatment. These patients could be identified at admission and focused efforts to retain them implemented.

Anger, anxiety, treatment history, exposure to atrocities or civilian trauma, and number of deployments were assessed as potential predictors of retention in only one study each, so no strong conclusions can be drawn. Further research on the influence of these factors is recommended. Surprisingly, no studies of the relationship between alcohol use patterns or AUD and retention in outpatient PTSD treatment were identified; this area warrants attention.

Regarding treatment characteristics, none of the identified studies of in-person versus telehealth treatment found a significant difference in retention after adjusting for potential confounders (low quality of evidence). Our meta-analyses found no difference in response to CBT or PE between in-person or telehealth treatment. Thus, patients should be allowed to select their preference for in-person or remote treatment, especially given the mixed results identified regarding the effect of facility distance on retention. Notably, no studies of therapeutic alliance met our inclusion criteria; future research in this area could advance the field.

Only one study each on the effects of TBI and number of deployments was identified; more research in these areas is warranted given the prevalence of TBI and the high number of deployments in Iraq/Afghanistan-era veterans.

A multivariate analysis ($N = 2,715$) of patients in VA residential programs (Sripada et al., 2019) published after our literature search found female sex, more education, and more psychological and social/contextual protective factors associated with greater response. Being African American, having a personality disorder, application for disability-related compensation, and more severe physical pain were associated with worse response. As we identified no other studies of the relationship between pain and response to PTSD treatment, this is an important area for future study and possible intervention, especially given the controversies surrounding opioids and pain management in the United States.

Meta-analysis of three RCTs found that adding telephone monitoring or management to outpatient PTSD treatment did not have a significant effect on response; additional research with larger samples and longer follow-up is needed to increase the quality of evidence, as considerable heterogeneity was detected.

The effect of treatment fidelity on response was assessed in only one small ($N = 72$) study; additional studies are strongly suggested.

Future research should use standardized definitions to categorize response and retention in various types of treatment (outpatient psychotherapy, inpatient treatment, and residential treatment). The vast majority of studies use standardized instruments such as CAPS or the PCL to measure changes in PTSD severity, but dichotomous categories of response (versus nonresponse) varied among studies. Continuous outcomes studies using different instruments or different versions of the same instrument can be converted to *SMD*s to pool results using

meta-analysis. Such pooling of results is not possible with categorical outcomes with conflicting definitions.

Finally, few studies of predictors of remission during or after PTSD treatment of military personnel or veterans were identified. None followed patients more than one year after treatment entry. One study (Hebenstreit et al., 2015) included in our evidence for retention followed 39,690 VA patients receiving outpatient mental health care in a national database one year after entering treatment. A negative PTSD screen at follow-up was associated with female sex, older age, white race, having never married, holding an officer rank, non-Army service, closer proximity to the nearest VA facility, and earlier initiation of treatment after the end of the last deployment. The study was excluded from our evidence on remission because: (1) it included all patients, regardless of whether they had a PSTD diagnosis or were treated for PTSD; (2) for many patients, PTSD symptoms were assessed with only the four-item Primary Care PTSD Screen, which is mainly used in VA primary care settings and other non–mental health settings rather than as a standard diagnostic tool; and (3) 75 percent had positive PTSD screen at baseline, but there was no analysis of variables associated with changing from a positive screen at entry to negative screen at follow-up. Our project required a *DSM* or *ICD* diagnosis or score on a validated reliable instrument such as CAPS for inclusion in the evidence on remission. A new multivariate analysis of the national VA database including only patients with diagnosed PTSD and defining remission as no longer meeting diagnosis criteria per the psychiatric *DSM* or *ICD* or a score of less than 20 points on CAPS is strongly encouraged.

Appendix A. Search Strategy

PubMed
English, Human
PTSD OR "post traumatic stress" OR "posttraumatic stress" OR "Stress Disorders, Post-Traumatic"[Mesh]
AND
Military OR combat OR veteran* OR soldier*
AND
Intervention OR interventions OR program OR programs OR programme OR programmes OR initiative OR initiatives OR treatment OR treatments OR therapy OR therapies OR exposure OR exposures OR desensitization OR medication OR medications OR pharma* OR sertraline OR Zoloft OR paroxetine OR paxil OR Pexeva OR Brisdelle OR fluoxetine OR Prozac OR Sarafem OR venlafaxine OR Effexor OR nefazodone OR imipramine OR Tofranil OR phenelzine OR Nardil

PubMed
Human, English
PTSD OR "post traumatic stress" OR "posttraumatic stress" OR "Stress Disorders, Post-Traumatic"[Mesh]
AND
Military OR combat OR veteran* OR soldier*
AND
Intervention OR interventions OR program OR programs OR programme OR programmes OR initiative OR initiatives OR treatment OR treatments OR therapy OR therapies OR exposure OR exposures OR desensitization OR medication OR medications OR pharma* OR sertraline OR Zoloft OR paroxetine OR paxil OR Pexeva OR Brisdelle OR fluoxetine OR Prozac OR Sarafem OR venlafaxine OR Effexor OR nefazodone OR imipramine OR Tofranil OR phenelzine OR Nardil
AND
SR/MA filters

PsycInfo
English, Human, Academic Journals
(PTSD OR "post traumatic stress" OR "posttraumatic stress" OR DE "Post-traumatic stress"
AND
"Randomized Controlled Trial" OR "Randomized controlled trials" OR "Randomised controlled trial" OR "Randomised controlled trials" OR RCT OR "randomized clinical trial" OR

“Randomized clinical trials” OR “randomised clinical trial” OR “Randomised clinical trials” OR MR clinical trial
AND
Military OR combat OR veteran* OR soldier*
NOT
MR Literature Review OR MR Systematic Review OR MR Meta Analysis)

PsycInfo
English, Human, Academic Journals
(PTSD OR “post traumatic stress” OR “posttraumatic stress” OR DE “Post-traumatic stress”
AND
“observational study” OR “observational studies” OR MR Longitudinal study OR MR prospective study OR MR retrospective study
AND
Military OR combat OR veteran* OR soldier*
AND
Intervention OR interventions OR program OR programs OR programme OR programmes OR initiative OR initiatives OR treatment OR treatments OR therapy OR therapies OR exposure OR exposures OR desensitization OR medication OR medications OR pharma* OR sertraline OR Zoloft OR paroxetine OR paxil OR Pexeva OR Brisdelle OR fluoxetine OR Prozac OR Sarafem OR venlafaxine OR Effexor OR nefazodone OR imipramine OR Tofranil OR phenelzine OR Nardil
NOT
MR Literature Review OR MR Systematic Review OR MR Meta Analysis)

PsycInfo
Human, English, Journals
PTSD OR “post traumatic stress” OR “posttraumatic stress” OR DE “Post-traumatic stress”
AND
Military OR combat OR veteran* OR soldier*
AND
Intervention OR interventions OR program OR programs OR programme OR programmes OR initiative OR initiatives OR treatment OR treatments OR therapy OR therapies OR exposure OR exposures OR desensitization OR medication OR medications OR pharma* OR sertraline OR Zoloft OR paroxetine OR paxil OR Pexeva OR Brisdelle OR fluoxetine OR Prozac OR Sarafem OR venlafaxine OR Effexor OR nefazodone OR imipramine OR Tofranil OR phenelzine OR Nardil
AND
MR Literature Review OR MR Systematic Review OR MR Meta Analysis

PILOTS (Published International Literature on Traumatic Stress
English, Human
RCT
PTSD OR "post traumatic stress" OR "posttraumatic stress"
AND
Military OR combat OR veteran* OR soldier*
AND
MAINSUBJECT.EXACT.EXPLODE("Randomized Clinical Trial")

PILOTS
English, Human
Observational
PTSD OR "post traumatic stress" OR "posttraumatic stress"
AND
Military OR combat OR veteran* OR soldier*
AND
Intervention OR interventions OR program OR programs OR programme OR programmes OR initiative OR initiatives OR treatment OR treatments OR therapy OR therapies OR exposure OR exposures OR desensitization OR medication OR medications OR pharma* OR sertraline OR Zoloft OR paroxetine OR paxil OR Pexeva OR Brisdelle OR fluoxetine OR Prozac OR Sarafem OR venlafaxine OR Effexor OR nefazodone OR imipramine OR Tofranil OR phenelzine OR Nardil
AND
(MAINSUBJECT.EXACT.EXPLODE("Longitudinal Study") OR "observational study" OR "Observational studies")
NOT
MAINSUBJECT.EXACT.EXPLODE("Systematic Review") OR
MAINSUBJECT.EXACT.EXPLODE("Meta Analysis")

PILOTS
English, Human
SR/MA
PTSD OR "post traumatic stress" OR "posttraumatic stress"
AND
Military OR combat OR veteran* OR soldier*
AND
Intervention OR interventions OR program OR programs OR programme OR programmes OR initiative OR initiatives OR treatment OR treatments OR therapy OR therapies OR exposure OR exposures OR desensitization OR medication OR medications OR pharma* OR sertraline OR

Zoloft OR paroxetine OR paxil OR Pexeva OR Brisdelle OR fluoxetine OR Prozac OR Sarafem OR venlafaxine OR Effexor OR nefazodone OR imipramine OR Tofranil OR phenelzine OR Nardil
AND
MAINSUBJECT.EXACT.EXPLODE("Systematic Review") OR
MAINSUBJECT.EXACT.EXPLODE("Meta Analysis")

Cochrane CENTRAL
PTSD OR "post traumatic stress" OR "posttraumatic stress"
AND
Military OR combat OR veteran* OR soldier*

Cochrane Database of Abstracts of Reviews of Effects (through Issue 2 of 4, April 2015, when it ceased production)
PTSD OR "post traumatic stress" OR "posttraumatic stress"
AND
Military OR combat OR veteran* OR soldier*

Embase
Human, English (RCT)
PTSD OR "post traumatic stress" OR "posttraumatic stress" OR "posttraumatic stress disorder"exp
AND
Military OR combat OR veteran* OR soldier*
AND
medication OR medications OR pharma* OR sertraline OR Zoloft OR paroxetine OR paxil OR Pexeva OR Brisdelle OR fluoxetine OR Prozac OR Sarafem OR venlafaxine OR Effexor OR nefazodone OR imipramine OR Tofranil OR phenelzine OR Nardil OR 'drug therapy'/exp
AND
'Randomized Controlled Trial'/exp

Embase
Human, English (SR/MA)
PTSD OR "post traumatic stress" OR "posttraumatic stress" OR 'posttraumatic stress disorder'/exp
AND
Military OR combat OR veteran* OR soldier*
AND

medication OR medications OR pharma* OR sertraline OR Zoloft OR paroxetine OR paxil OR Pexeva OR Brisdelle OR fluoxetine OR Prozac OR Sarafem OR venlafaxine OR Effexor OR nefazodone OR imipramine OR Tofranil OR phenelzine OR Nardil OR 'drug therapy'/exp
AND
'systematic review'/exp OR 'meta analysis'/exp

Embase
Human, English
PTSD OR "post traumatic stress" OR "posttraumatic stress" OR 'posttraumatic stress disorder'/exp
AND
Military OR combat OR veteran* OR soldier*
AND
medication OR medications OR pharma* OR sertraline OR Zoloft OR paroxetine OR paxil OR Pexeva OR Brisdelle OR fluoxetine OR Prozac OR Sarafem OR venlafaxine OR Effexor OR nefazodone OR imipramine OR Tofranil OR phenelzine OR Nardil OR 'drug therapy'/exp
AND
'observational study'/exp

Appendix B. Excluded Publications

What follows is a list of publications not meeting inclusion criteria, with reasons for exclusion.

Abramowitz, E. G., Y. Barak, I. Ben-Avi, and H. Y. Knobler, "Hypnotherapy in the Treatment of Chronic Combat-Related PTSD Patients Suffering from Insomnia: A Randomized, Zolpidem-Controlled Clinical Trial," *International Journal of Clinical and Experimental Hypnosis*, Vol. 56, No. 3, July 2008, pp. 270–280. Reason for exclusion: interventions not recommended by DoD guidelines.

Abramowitz, E. G., and P. Lichtenberg, "A New Hypnotic Technique for Treating Combat-Related Posttraumatic Stress Disorder: A Prospective Open Study," *International Journal of Clinical and Experimental Hypnosis*, Vol. 58, No. 3, 2010, pp. 316–328. Reason for exclusion: interventions not recommended by DoD guidelines.

Acierno, R., D. F. Gros, K. J. Ruggiero, M. A. Hernandez-Tejada, R. G. Knapp, C. W. Lejuez, W. Muzzy, B. C. Frueh, L. E. Egede, and P. W. Tuerk, "Behavioral Activation and Therapeutic Exposure for Posttraumatic Stress Disorder: A Noninferiority Trial of Treatment Delivered in Person Versus Home-Based Telehealth," *Depression and Anxiety*, Vol. 33, No. 5, 2016, pp. 415–423. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Acosta, M. C., K. Possemato, S. A. Maisto, L. A. Marsch, K. Barrie, L. Lantinga, C. Fong, H. Xie, M. Grabinski, and A. Rosenblum, "Web-Delivered CBT Reduces Heavy Drinking in OEF-OIF Veterans in Primary Care with Symptomatic Substance Use and PTSD," *Behavior Therapy*, Vol. 48, No. 2, March 2017, pp. 262–276. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Ahearn, E. P., T. Juergens, T. Cordes, T. Becker, and D. Krahn, "A Review of Atypical Antipsychotic Medications for Posttraumatic Stress Disorder," *International Clinical Psychopharmacology*, Vol. 26, No. 4, 2011, pp. 193–200. Reason for exclusion: review.

Ahearn, E. P., A. Krohn, K. M. Connor, and J. R. T. Davidson, "Pharmacologic Treatment of Posttraumatic Stress Disorder: A Focus on Antipsychotic Use," *Annals of Clinical Psychiatry*, Vol. 15, Nos. 3–4, 2003, pp. 193–201. Reason for exclusion: review.

Ahmadi, K., M. Hazrati, M. Ahmadizadeh, and S. Noohi, "REM Desensitization as a New Therapeutic Method for Post-Traumatic Stress Disorder: A Randomized Controlled Trial," *Acta Medica Indonesia*, Vol. 47, No. 2, April 2015, pp. 111–119. Reason for exclusion: study does not report treatment retention, response, or remission.

Ahmadi, K., G. Karami, S. Noohi, A. Mokhtari, H. Gholampour, and A. Rahimi, "The Efficacy of Cognitive Behavioral Couple's Therapy (CBCT) on Marital Adjustment of PTSD-Diagnosed Combat Veterans," *Europe's Journal of Psychology*, Vol. 5, No. 2, 2009, pp. 31–40. Reason for exclusion: study does not report treatment retention, response, or remission.

Ahmadi, N., L. Moss, E. Simon, C. B. Nemeroff, and N. A.-Vaidya, "Efficacy and Long-Term Clinical Outcome of Comorbid Posttraumatic Stress Disorder and Major Depressive Disorder After Electroconvulsive Therapy," *Depression and Anxiety*, Vol. 33, No. 7, 2016, pp. 640–647. Reason for exclusion: interventions not recommended by DoD guidelines.

Ahmadizadeh, M. J., K. Ahmadi, J. Anisi, and A. Ahmadi, "Assessment of Cognitive Behavioral Therapy on Quality of Life of Patients with Chronic War-Related Post-Traumatic Stress Disorder," *Indian Journal of Psychological Medicine*, Vol. 35, No. 4, 2013, pp. 341–345. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Albright, D. L., and B. Thyer, "Does EMDR Reduce Post-Traumatic Stress Disorder Symptomatology in Combat Veterans?" *Behavioral Interventions*, Vol. 25, No. 1, 2010, pp. 1–19. Reason for exclusion: review.

Albright, G., R. Goldman, K. M. Shockley, F. McDevitt, and S. Akabas, "Using an Avatar-Based Simulation to Train Families to Motivate Veterans with Post-Deployment Stress to Seek Help at the VA," *Games for Health*, Vol. 1, No. 1, 2012, pp. 21–28. Reason for exclusion: study does not report treatment retention, response, or remission.

Alderman, C. P., J. T. Condon, and A. L. Gilbert, "An Open-Label Study of Mirtazapine as Treatment for Combat-Related PTSD," *Annals of Pharmacotherapy*, Vol. 43, No. 7, 2009, pp. 1220–1226. Reason for exclusion: medications not recommended by DoD guidelines.

Andrus, M. R., and E. Gilbert, "Treatment of Civilian and Combat-Related Posttraumatic Stress Disorder with Topiramate," *Annals of Pharmacotherapy*, Vol. 44, No. 11, November 2010, pp. 1810–1816. Reason for exclusion: review.

Arhin, A. O., K. Gallop, J. Mann, S. Cannon, K. Tran, and M. C. Wang, "Acupuncture as a Treatment Option in Treating Posttraumatic Stress Disorder-Related Tinnitus in War Veterans: A Case Presentation," *Journal of Holistic Nursing*, Vol. 34, No. 1, March 2016, pp. 56–63. Reason for exclusion: study does not report treatment retention, response, or remission.

Ashford, J. W., and T. W. Miller, "Effects of Trazodone on Sleep in Patients Diagnosed with Post-Traumatic Stress Disorder (PTSD)," *Journal of Contemporary Psychotherapy*, Vol. 26, No. 3, 1996, pp. 221–233. Reason for exclusion: medications not recommended by DoD guidelines.

Attari, A., F. Rajabi, and M. R. Maracy, "D-Cycloserine for Treatment of Numbing and Avoidance in Chronic Post Traumatic Stress Disorder: A Randomized, Double Blind, Clinical Trial," *Journal of Research in Medical Sciences*, Vol. 19, No. 7, 2014. Reason for exclusion: medications not recommended by DoD guidelines.

Aukst-Margetić, B., B. Margetić, G. Tošić, and A. Bilić-Prcić, "Levomepromazine Helps to Reduce Sleep Problems in Patients with PTSD," *European Psychiatry*, Vol. 19, No. 4, 2004, pp. 235–236. Reason for exclusion: study does not report treatment retention, response, or remission.

Azad Marzabadi, E., and S. Morteza Hashemi Zadeh, "The Effectiveness of Mindfulness Training in Improving the Quality of Life of the War Victims with Post Traumatic Stress Disorder (PTSD)," *Iranian Journal of Psychiatry*, Vol. 9, No. 4, 2014, pp. 228–236. Reason for exclusion: not military populations.

Back, S., "Integrated Treatment of OEF/OIF Veterans with PTSD and Substance Use Disorders (COPE)," ClinicalTrials.gov, 2011. As of April 2, 2020: https://clinicaltrials.gov/ct2/show/NCT01338506. Reason for exclusion: study does not report treatment retention, response, or remission.

Back, S. E., K. T. Brady, S. C. Sonne, and M. L. Verduin, "Symptom Improvement in Co-Occurring PTSD and Alcohol Dependence," *Journal of Nervous and Mental Disease*, Vol. 194, No. 9, 2006, pp. 690–696. Reason for exclusion: not military populations.

Back, S. E., J. L. McCauley, K. J. Korte, D. F. Gros, V. Leavitt, K. M. Gray, M. B. Hamner, S. M. DeSantis, R. Malcolm, K. T. Brady, and P. W. Kalivas, "A Double-Blind, Randomized, Controlled Pilot Trial of N-Acetylcysteine in Veterans with Posttraumatic Stress Disorder and Substance Use Disorders," *Journal of Clinical Psychiatry*, Vol. 77, No. 11, November 2016, pp. e1439–e1446. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Badour, C. L., J. C. Flanagan, D. F. Gros, T. Killeen, I. Pericot-Valverde, K. J. Korte, Nicholas P. Allan, and S. E. Back, "Habituation of Distress and Craving During Treatment as Predictors of Change in PTSD Symptoms and Substance Use Severity," *Journal of Consulting and Clinical Psychology*, Vol. 85, No. 3, March 2017, pp. 274–281. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Badour, C. L., D. F. Gros, D. D. Szafranski, and R. Acierno, "Sexual Problems Predict PTSD and Depression Symptom Change Among Male OEF/OIF Veterans Completing Exposure Therapy," *Psychiatry*, Vol. 79, No. 4, Winter 2016, pp. 403–417. Reason for exclusion: sample size not <50.

Badura-Brack, A. S., R. Naim, T. J. Ryan, O. Levy, R. Abend, M. M. Khanna, T. J. McDermott, D. S. Pine, and Y. Bar-Haim, "Effect of Attention Training on Attention Bias Variability and PTSD Symptoms: Randomized Controlled Trials in Israeli and U.S. Combat Veterans," *American Journal of Psychiatry*, Vol. 172, No. 12, December 2015, pp. 1233–1241. Reason for exclusion: interventions not recommended by DoD guidelines.

Baker, D. G., B. I. Diamond, G. Gillette, M. Hamner, D. Katzelnick, T. Keller, T. A. Mellman, E. Pontius, M. Rosenthal, P. Tucker, B. A. vander Kolk, and R. Katz, "A Double-Blind, Randomized, Placebo-Controlled, Multi-Center Study of Brofaromine in the Treatment of Post-Traumatic Stress Disorder," *Psychopharmacology*, Vol. 122, No. 4, 1995, pp. 386–389. Reason for exclusion: medications not recommended by DoD guidelines.

Balderrama-Durbin, C., D. K. Snyder, J. Cigrang, G. W. Talcott, J. Tatum, M. Baker, D. Cassidy, S. Sonnek, R. E. Heyman, and A. M. Smith Slep, "Combat Disclosure in Intimate Relationships: Mediating the Impact of Partner Support on Posttraumatic Stress," *Journal of Family Psychology*, Vol. 27, No. 4, 2013, pp. 560–568. Reason for exclusion: study does not report treatment retention, response, or remission.

Baniasadi, M., G. Hosseini, M. R. Fayyazi Bordbar, A. Rezaei Ardani, and H. Mostafavi Toroghi, "Effect of Pregabalin Augmentation in Treatment of Patients with Combat-Related Chronic Posttraumatic Stress Disorder: A Randomized Controlled Trial," *Journal of Psychiatric Practice*, Vol. 20, No. 6, November 2014, pp. 419–427. Reason for exclusion: medications not recommended by DoD guidelines.

Barabasz, A. F., M. Barabasz, C. Clear Christensen, B. French, and J. G. Watkins, "Efficacy of Single-Session Abreactive Ego State Therapy for Combat Stress Injury, PTSD, and ASD," *International Journal of Clinical and Experimental Hypnosis*, Vol. 61, No. 1, 2013, pp. 1–19. Reason for exclusion: interventions not recommended by DoD guidelines.

Bardeen, J. R., and T. A. Daniel, "A Longitudinal Examination of the Role of Attentional Control in the Relationship Between Posttraumatic Stress and Threat-Related Attentional Bias: An Eye-Tracking Study," *Behavior Research and Therapy*, Vol. 99, 2017, pp. 67–77. Reason for exclusion: not military populations.

Barnes, V. A., A. Monto, J. J. Williams, and J. L. Rigg, "Impact of Transcendental Meditation on Psychotropic Medication Use Among Active Duty Military Service Members with Anxiety and PTSD," *Military Medicine*, Vol. 181, No. 1, 2016, pp. 56–63. Reason for exclusion: interventions not recommended by DoD guidelines.

Barrera, T. L., J. M. Mott, R. F. Hofstein, and E. J. Teng, "A Meta-Analytic Review of Exposure in Group Cognitive Behavioral Therapy for Posttraumatic Stress Disorder," *Clinical Psychology Review*, Vol. 33, No. 1, 2013, pp. 24–32. Reason for exclusion: review.

Bartoszek, G., S. M. Hannan, J. Kamm, B. Pamp, and K. P. Maieritsch, "Trauma-Related Pain, Reexperiencing Symptoms, and Treatment of Posttraumatic Stress Disorder: A Longitudinal Study of Veterans," *Journal of Traumatic Stress*, Vol. 30, No. 3, 2017, pp. 288–295. Reason for exclusion: study does not report treatment retention, response, or remission.

Bartzokis, G., T. Freeman, and V. Roca, "Risperidone in the Treatment of Chronic Combat-Related Post Traumatic Stress Disorder," *International Journal of Neuropsychopharmacology*, Vol. 5, Supp. 1, 2002. Reason for exclusion: medications not recommended by DoD guidelines.

Bartzokis, G., P. H. Lu, J. Turner, J. Mintz, and C. S. Saunders, "Adjunctive Risperidone in the Treatment of Chronic Combat-Related Posttraumatic Stress Disorder," *Biological Psychiatry*, Vol. 57, No. 5, March 1, 2005, pp. 474–479. Reason for exclusion: medications not recommended by DoD guidelines.

Battaglia, C., J. Peterson, E. Whitfield, S. J. Min, S. L. Benson, T. M. Maddox, and A. V. Prochazka, "Integrating Motivational Interviewing into a Home Telehealth Program for Veterans with Posttraumatic Stress Disorder Who Smoke: A Randomized Controlled Trial," *Journal of Clinical Psychology*, Vol. 72, No. 3, March 2016, pp. 194–206. Reason for exclusion: study does not report treatment retention, response, or remission.

Battersby, M. W., J. Beattie, R. G. Pols, D. P. Smith, J. Condon, and S. Blunden, "A Randomised Controlled Trial of the Flinders Program of Chronic Condition Management in Vietnam Veterans with Co-Morbid Alcohol Misuse, and Psychiatric and Medical Conditions," *Australian and New Zealand Journal of Psychiatry*, Vol. 47, No. 5, May 2013, pp. 451–462. Reason for exclusion: not PTSD.

Battista, M. A., R. Hierholzer, H. R. Khouzam, A. Barlow, and S. O'Toole, "Pilot Trial of Memantine in the Treatment of Posttraumatic Stress Disorder," *Psychiatry*, Vol. 70, No. 2, Summer 2007, pp. 167–174. Reason for exclusion: medications not recommended by DoD guidelines.

Becker, M. E., M. A. Hertzberg, S. D. Moore, M. F. Dennis, D. S. Bukenya, and J. C. Beckham, "A Placebo-Controlled Trial of Bupropion SR in the Treatment of Chronic Posttraumatic Stress Disorder," *Journal of Clinical Psychopharmacology*, Vol. 27, No. 2, April 2007, pp. 193–197. Reason for exclusion: medications not recommended by DoD guidelines.

Beidel, D. C., B. C. Frueh, S. M. Neer, C. A. Bowers, B. Trachik, T. W. Uhde, and A. Grubaugh, "Trauma Management Therapy with Virtual-Reality Augmented Exposure Therapy for Combat-Related PTSD: A Randomized Controlled Trial," *Journal of Anxiety Disorders*, Vol. (no pagination), 2017. Reason for exclusion: Predictors (tx features, patient characteristics) not reported.

Beidel, D. C., B. C. Frueh, S. M. Neer, and C. W. Lejuez, "The Efficacy of Trauma Management Therapy: A Controlled Pilot Investigation of a Three-Week Intensive Outpatient Program for Combat-Related PTSD," *Journal of Anxiety Disorders*, Vol. 50, 2017, pp. 23–32. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Beidel, D. C., B. C. Frueh, T. W. Uhde, N. Wong, and J. M. Mentrikoski, "Multicomponent Behavioral Treatment for Chronic Combat-Related Posttraumatic Stress Disorder: A Randomized Controlled Trial," *Journal of Anxiety Disorders*, Vol. 25, No. 2, March 2011, pp. 224–231. Reason for exclusion: sample size not <50.

Békés, V., D. Beaulieu-Prévost, S. Guay, G. Belleville, and A. Marchand, "Women with PTSD Benefit More from Psychotherapy Than Men," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 8, No. 6, 2016, pp. 720–727. Reason for exclusion: not military populations.

Belsher, B. E., L. H. Jaycox, M. C. Freed, D. P. Evatt, X. Liu, L. A. Novak, D. Zatzick, R. M. Bray, and C. C. Engel, "Mental Health Utilization Patterns During a Stepped, Collaborative Care Effectiveness Trial for PTSD and Depression in the Military Health System," *Medical Care*, Vol. 54, No. 7, 2016, pp. 706–713. Reason for exclusion: study does not report treatment retention, response, or remission.

Bergen-Cico, D., K. Possemato, and W. Pigeon, "Reductions in Cortisol Associated with Primary Care Brief Mindfulness Program for Veterans with PTSD," *Medical Care*, Vol. 52, No. 12, Suppl. 5, December 2014, pp. S25–31. Reason for exclusion: interventions not recommended by DoD guidelines.

Berger, W., M. V. Mendlowicz, C. Marques-Portella, G. Kinrys, L. F. Fontenelle, C. R. Marmar, and I. Figueira, "Pharmacologic Alternatives to Antidepressants in Posttraumatic Stress Disorder: A Systematic Review," *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, Vol. 33, No. 2, 2009, pp. 169–180. Reason for exclusion: review.

Bertović, G., G. Varenina, T. Frančišković, and Ljiljana Moro, "Evaluation of Short-Term Group Psychotherapeutic Treatment of Soldiers Suffering from Psychical Traumas," *Psychologische Beiträge*, Vol. 34, Nos. 3–4, 1992, pp. 280–288. Reason for exclusion: Not in English.

Betancourt, T. S., S. E. Gilman, R. T. Brennan, I. Zahn, and T. J. VanderWeele, "Identifying Priorities for Mental Health Interventions in War-Affected Youth: A Longitudinal Study," *Pediatrics*, Vol. 136, No. 2, 2015, pp. e345–e350. Reason for exclusion: not military populations.

Bhatnagar, R., L. F. Phelps, K. Rietz, T. Juergens, D. Russell, N. Miller, and E. P. Ahearn, "The Effects of Mindfulness Training on Post-Traumatic Stress Disorder Symptoms and Heart Rate Variability in Combat Veterans," *Journal of Alternative and Complementary Medicine*, Vol. 19, No. 11, 2013, pp. 860–861. Reason for exclusion: interventions not recommended by DoD guidelines.

Biggs, Q. M., C. S. Fullerton, J. E. McCarroll, X. Liu, L. Wang, N. M. Dacuyan, D. F. Zatzick, and R. J. Ursano, "Early Intervention for Post-Traumatic Stress Disorder, Depression, and Quality of Life in Mortuary Affairs Soldiers Postdeployment," *Military Medicine*, Vol. 181, Nos. 11–12, 2016, pp. e1553–e1560. Reason for exclusion: study does not report treatment retention, response, or remission.

Blais, R. K., K. D. Hoerster, C. Malte, S. Hunt, and M. Jakupcak, "Unique PTSD Clusters Predict Intention to Seek Mental Health Care and Subsequent Utilization in US Veterans with PTSD Symptoms," *Journal of Traumatic Stress*, Vol. 27, No. 2, 2014, pp. 168–174. Reason for exclusion: study does not report treatment retention, response, or remission.

Bleiberg, K. L., and J. C. Markowitz, "A Pilot Study of Interpersonal Psychotherapy for Posttraumatic Stress Disorder," *American Journal of Psychiatry*, Vol. 162, No. 1, 2005, pp. 181–183. Reason for exclusion: not military populations.

Boden, M. T., R. Kimerling, J. Jacobs-Lentz, D. Bowman, C. Weaver, D. Carney, R. Walser, and J. A. Trafton, "Seeking Safety Treatment for Male Veterans with a Substance Use Disorder and Post-Traumatic Stress Disorder Symptomatology," *Addiction*, Vol. 107, No. 3, March 2012, pp. 578–586. Reason for exclusion: interventions not recommended by DoD guidelines.

Boden, M. Tyler, R. Kimerling, M. Kulkarni, M. O. Bonn-Miller, C. Weaver, and J. Trafton, "Coping Among Military Veterans with PTSD in Substance Use Disorder Treatment," *Journal of Substance Abuse Treatment*, Vol. 47, No. 2, August 2014, pp. 160–167. Reason for exclusion: not PTSD.

Bonn-Miller, M. O., A. A. Vujanovic, and K. D. Drescher, "Cannabis Use Among Military Veterans After Residential Treatment for Posttraumatic Stress Disorder," *Psychology of Addictive Behaviors*, Vol. 25, No. 3, 2011, pp. 485–491. Reason for exclusion: interventions not recommended by DoD guidelines.

Bormann, J. E., S. Hurst, and A. Kelly, "Responses to Mantram Repetition Program from Veterans with Posttraumatic Stress Disorder: A Qualitative Analysis," *Journal of Rehabilitation Research and Development*, Vol. 50, No. 6, 2013, pp. 769–784. Reason for exclusion: interventions not recommended by DoD guidelines.

Bormann, J. E., L. Liu, S. R. Thorp, and A. J. Lang, "Spiritual Wellbeing Mediates PTSD Change in Veterans with Military-Related PTSD," *International Journal of Behavioral Medicine*, Vol. 19, No. 4, December 2012, pp. 496–502. Reason for exclusion: interventions not recommended by DoD guidelines.

Bormann, J. E., D. Oman, K. H. Walter, and B. D. Johnson, "Mindful Attention Increases and Mediates Psychological Outcomes Following Mantram Repetition Practice in Veterans with Posttraumatic Stress Disorder," *Medical Care*, Vol. 52, No. 12, Suppl. 5, December 2014, pp. S13–S18. Reason for exclusion: interventions not recommended by DoD guidelines.

Bormann, J. E., S. Thorp, J. L. Wetherell, and S. Golshan, "A Spiritually Based Group Intervention for Combat Veterans with Posttraumatic Stress Disorder: Feasibility Study," *Journal of Holistic Nursing*, Vol. 26, No. 2, June 2008, pp. 109–116. Reason for exclusion: interventions not recommended by DoD guidelines.

Bormann, J. E., S. R. Thorp, J. L. Wetherell, S. Golshan, and A. J. Lang, "Meditation-Based Mantram Intervention for Veterans with Posttraumatic Stress Disorder: A Randomized Trial," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 5, No. 3, 2013, pp. 259–267. Reason for exclusion: interventions not recommended by DoD guidelines.

Bosch, J., T. L. Weaver, T. C. Neylan, E. Herbst, and S. E. McCaslin, "Impact of Engagement in Exercise on Sleep Quality Among Veterans with Posttraumatic Stress Disorder Symptoms," *Military Medicine*, Vol. 182, No. 9, 2017, pp. e1745–e1750. Reason for exclusion: study does not report treatment retention, response, or remission.

Boudewyns, P. A., L. Hyer, M. G. Woods, W. R. Harrison, and E. McCranie, "PTSD Among Vietnam Veterans: An Early Look at Treatment Outcome Using Direct Therapeutic Exposure," *Journal of Traumatic Stress*, Vol. 3, No. 3, 1990. Reason for exclusion: study does not report treatment retention, response, or remission.

Boudewyns, P. A., and L. A. Hyer, "Physiological Response to Combat Memories and Preliminary Treatment Outcome in Vietnam Veteran PTSD Patients Treated with Direct Therapeutic Exposure," *Behavior Therapy*, Vol. 21, No. 1, 1990, pp. 63–87. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

———, "Eye Movement Desensitization and Reprocessing (EMDR) as Treatment for Post-Traumatic Stress Disorder (PTSD)," *Clinical Psychology and Psychotherapy*, Vol. 3, No. 3, 1996, pp. 185–195. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Bountress, K. E., C. Badour, J. Flanagan, A. K. Gilmore, and S. E. Back, "Treatment of Co-Occurring Posttraumatic Stress Disorder and Substance Use: Does Order of Onset Influence Outcomes?" *Psychological Trauma: Theory, Research, Practice, and Policy*, 2017. Reason for exclusion: sample size not <50.

Bowen, A., M. Shelley, E. Helmes, and M. Landman, "Disclosure of Traumatic Experiences, Dissociation, and Anxiety in Group Therapy for Posttraumatic Stress," *Anxiety, Stress, and Coping*, Vol. 23, No. 4, 2010, pp. 449–461. Reason for exclusion: study does not report treatment retention, response, or remission.

Breen, A., K. Blankley, and J. Fine, "The Efficacy of Prazosin for the Treatment of Posttraumatic Stress Disorder Nightmares in U.S. Military Veterans," *Journal of American Association of Nurse Practitioners*, Vol. 29, No. 2, February 2017, pp. 65–69. Reason for exclusion: review.

Breland, J. Y., M. A. Greenbaum, D. M. Zulman, and C. S. Rosen, "The Effect of Medical Comorbidities on Male and Female Veterans' Use of Psychotherapy for PTSD," *Medical Care*, Vol. 53, No. 4, Suppl. 1, 2015, pp. S120–S127. Reason for exclusion: study does not report treatment retention, response, or remission.

Bremner, J. D., T. Mletzko, S. Welter, S. Siddiq, L. Reed, C. Williams, C. M. Heim, and C. B. Nemeroff, "Treatment of Posttraumatic Stress Disorder with Phenytoin: An Open-Label Pilot Study," *Journal of Clinical Psychiatry*, Vol. 65, No. 11, 2004, pp. 1559–1564. Reason for exclusion: not military populations.

Bremner, J. D., N Afzal, V. Vaccarino, J. Carmody, and S. Divitale, "Mindfulness Based Stress Reduction (MBSR) in the Treatment of Iraq Combat-Related PTSD," *Psychosomatic Medicine*, Vol. 73, No. 3, 2011, p. A-39. Reason for exclusion: interventions not recommended by DoD guidelines.

Bremner, J. D., S. Mishra, C. Campanella, M. Shah, N. Kasher, S. Evans, N. Fani, A. J. Shah, C. Reiff, L. L. Davis, V. Vaccarino, and J. Carmody, "A Pilot Study of the Effects of Mindfulness-Based Stress Reduction on Post-Traumatic Stress Disorder Symptoms and Brain Response to Traumatic Reminders of Combat in Operation Enduring Freedom/Operation Iraqi Freedom Combat Veterans with Post-Traumatic Stress Disorder," *Frontiers in Psychiatry*, Vol. 8, 2017, pp. 1–15. Reason for exclusion: interventions not recommended by DoD guidelines.

Bremner, J. D., M. Vythilingam, E. Vermetten, N. Afzal, A. Nazeer, J. W. Newcomer, and D. S. Charney, "Effects of Dexamethasone on Declarative Memory Function in Posttraumatic Stress Disorder," *Psychiatry Research*, Vol. 129, No. 1, 2004, pp. 1–10. Reason for exclusion: medications not recommended by DoD guidelines.

Brenner, L., N. Bahraini, L. Weaver, S. Churchill, R. Price, V. Skiba, J. Caviness, S. Mooney, B. Hetzell, J. Liu, S. Thieling, K. Deru, R. Ricciardi, S. Francisco, N. Close, and R. Miller, "Effects of Hyperbaric Oxygen on Symptoms and Quality-of-Life Among US Military Service Members with Persistent Post-Concussion Symptoms: A Randomized, Double-Blind, Sham-Controlled Trial," *Brain Injury*, Vol. 30, Nos. 5–6, 2016, p. 729. Reason for exclusion: interventions not recommended by DoD guidelines.

Brenner, L. A., K. A. Stearns-Yoder, A. S. Hoffberg, M. E. Penzenik, A. J. Starosta, T. D. Hernández, D. A. Hadidi, and C. A. Lowry, "Growing Literature but Limited Evidence: A Systematic Review Regarding Prebiotic and Probiotic Interventions for Those with Traumatic Brain Injury and/or Posttraumatic Stress Disorder," *Brain, Behavior, and Immunity*, Vol. 65, 2017, pp. 57–67. Reason for exclusion: review.

Brickell, M., M. C. Russell, and R. B. Smith, "The Effectiveness of Evidence-Based Treatments in Treatment of Active Military Personnel and Their Families," *Journal of EMDR Practice and Research*, Vol. 9, No. 4, 2015, pp. 198–208. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Brief, D. J., A. Rubin, T. M. Keane, J. L. Enggasser, M. Roy, E. Helmuth, J. Hermos, M. Lachowicz, D. Rybin, and D. Rosenbloom, "Web Intervention for OEF/OIF Veterans with Problem Drinking and PTSD Symptoms: A Randomized Clinical Trial," *Journal of Consulting and Clinical Psychology*, Vol. 81, No. 5, October 2013, pp. 890–900. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Britnell, S. R., A. D. Jackson, J. N. Brown, and B. P. Capehart, "Aripiprazole for Post-Traumatic Stress Disorder: A Systematic Review," *Clinical Neuropharmacology*, Vol. 40, No. 6, 2017, pp. 273–278. Reason for exclusion: review.

Britvić, D., D. Glučina, V. Antičevič, V. Kekez Branka Lapenda, V. Đogaš, G. Dodig, I. Urlić, I. Moro, and T. Frančišković, "Long-Term Improvement in Coping Skills Following Multimodal Treatment in War Veterans with Chronic PTSD," *International Journal of Group Psychotherapy*, Vol. 62, No. 3, 2012, pp. 418–435. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Britvić, D., N. Radelić, and I. Urlić, "Long-Term Dynamic-Oriented Group Psychotherapy of Posttraumatic Stress Disorder in War Veterans: Prospective Study of Five-Year Treatment," *Croatian Medical Journal*, Vol. 47, No. 1, 2006, pp. 76–84. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Brooks, E., C. Kaufman, H. T. Nagamoto, N. K. Dailey, B. D. Bair, and J. Shore, "The Impact of Demographic Differences on Native Veterans' Outpatient Service Utilization," *Psychological Services*, Vol. 12, No. 2, 2015, pp. 134–140. Reason for exclusion: study does not report treatment retention, response, or remission.

Brown, A. J., A. M. Bollini, L. W. Craighead, M. C. Astin, S. D. Norrholm, and B. Bradley, "Self-Monitoring of Reexperiencing Symptoms: A Randomized Trial," *Journal of Traumatic Stress*, Vol. 27, No. 5, October 2014, pp. 519–525. Reason for exclusion: interventions not recommended by DoD guidelines.

Bryan, C. J., T. A. Clemans, A. M. Hernandez, J. Mintz, A. L. Peterson, J. S. Yarvis, and P. A. Resick, "Evaluating Potential Iatrogenic Suicide Risk in Trauma-Focused Group Cognitive Behavioral Therapy for the Treatment of PTSD in Active Duty Military Personnel," *Depression and Anxiety*, Vol. 33, No. 6, June 2016, pp. 549–557. Reason for exclusion: study does not report treatment retention, response, or remission.

Buckley, T. C., D. R. Holohan, S. L. Mozley, K. Walsh, and J. Kassel, "The Effect of Nicotine and Attention Allocation on Physiological and Self-Report Measures of Induced Anxiety in PTSD: A Double-Blind Placebo-Controlled Trial," *Experimental and Clinical Psychopharmacology*, Vol. 15, No. 2, April 2007, pp. 154–164. Reason for exclusion: not PTSD.

Butollo, W., R. Karl, J. Konig, and R. Rosner, "A Randomized Controlled Clinical Trial of Dialogical Exposure Therapy Versus Cognitive Processing Therapy for Adult Outpatients Suffering from PTSD After Type I Trauma in Adulthood," *Psychotherapy and Psychosomatics*, Vol. 85, No. 1, 2016, pp. 16–26. Reason for exclusion: not military populations.

Butterfield, M. I., M. E. Becker, K. M. Connor, S. Sutherland, L. E. Churchill, and J. R. T. Davidson, "Olanzapine in the Treatment of Post-Traumatic Stress Disorder: A Pilot Study," *International Clinical Psychopharmacology*, Vol. 16, No. 4, 2001, pp. 197–203. Reason for exclusion: medications not recommended by DoD guidelines.

Byers, M. G., K. M. Allison, C. S. Wendel, and J. K. Lee, "Prazosin Versus Quetiapine for Nighttime Posttraumatic Stress Disorder Symptoms in Veterans: An Assessment of Long-Term Comparative Effectiveness and Safety," *Journal of Clinical Psychopharmacology*, Vol. 30, No. 3, June 2010, pp. 225–229. Reason for exclusion: medications not recommended by DoD guidelines.

Byrne, S. P., J. H. Krystal, R. A. Rosenheck, J. Vessicchio, and R. H. Pietrzak, "Correlates of Nonimprovement to Pharmacotherapy for Chronic, Antidepressant-Resistant, Military Service–Related Posttraumatic Stress Disorder: Insights from the Veterans Affairs Cooperative Study No. 504," *Journal of Clinical Psychopharmacology*, Vol. 37, No. 6, 2017, pp. 717–721. Reason for exclusion: medications not recommended by DoD guidelines.

Campbell, J. S., G. H. Loeffler, S. Pulos, and A. W. Campbell, "Meta-Analysis of Average Symptom Change in Inpatient Treatment for Posttraumatic Stress Disorder in Veteran and Active Duty U.S. Military Samples," *Psychological Services*, Vol. 13, No. 4, November 2016, pp. 389–400. Reason for exclusion: review.

Campbell, M., K. P. Decker, K. Kruk, and S. P. Deaver, "Art Therapy and Cognitive Processing Therapy for Combat-Related PTSD: A Randomized Controlled Trial," *Art Therapy*, Vol. 33, No. 4, 2016, pp. 169–177. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Cañive, J. M., R. D. Clark, L. A. Calais, C. Qualls, and V. B. Tuason, "Bupropion Treatment in Veterans with Posttraumatic Stress Disorder: An Open Study," *Journal of Clinical Psychopharmacology*, Vol. 18, No. 5, 1998, pp. 379–383. Reason for exclusion: medications not recommended by DoD guidelines.

Carey, P., S. Suliman, K. Ganesan, S. Seedat, and D. J. Stein, "Olanzapine Monotherapy in Posttraumatic Stress Disorder: Efficacy in a Randomized, Double-Blind, Placebo-Controlled Study," *Human Psychopharmacology: Clinical and Experimental*, Vol. 27, No. 4, July 2012, pp. 386–391. Reason for exclusion: not military populations.

Carlson, J. G., C. M. Chemtob, K. Rusnak, N. L. Hedlund, and M. Y. Muraoka, "Eye Movement Desensitization and Reprocessing (EMDR) Treatment for Combat-Related Posttraumatic Stress Disorder," *Journal of Traumatic Stress*, Vol. 11, No. 1, January 1998, pp. 3–24. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Carlson, K. F., S. M. Kehle, L. A. Meis, N. Greer, R. Macdonald, I. Rutks, N. A. Sayer, S. K. Dobscha, and T. J. Wilt, "Prevalence, Assessment, and Treatment of Mild Traumatic Brain Injury and Posttraumatic Stress Disorder: A Systematic Review of the Evidence," *Journal of Head Trauma Rehabilitation*, Vol. 26, No. 2, March–April 2011, pp. 103–115. Reason for exclusion: review.

Carter, J. J., "A Controlled Breathing Course for Social & Emotional Health for Vietnam Veterans with Chronic PTSD—RCT," ClinicalTrials.gov, 2006. As of April 4, 2020: https://clinicaltrials.gov/ct2/show/NCT00256477. Reason for exclusion: interventions not recommended by DoD guidelines.

———, "Evaluation of a MCYI as Adjunct to Psychiatric Treatment for Vietnam Veterans with PTSD—RCT," ClinicalTrials.gov, 2006. As of April 4, 2020: https://clinicaltrials.gov/ct2/show/NCT00256464. Reason for exclusion: interventions not recommended by DoD guidelines.

Carter, J. J., P. L. Gerbarg, R. P. Brown, R. S. Ware, C. D'Ambrosio, L. Anand, M. Dirlea, M. Vermani, and M. A. Katzman, "Multi-Component Yoga Breath Program for Vietnam Veteran Post Traumatic Stress Disorder: Randomized Controlled Trial," *Journal of Traumatic Stress Disorders and Treatment*, Vol. 2, No. 3, 2013, pp. 1–10. Reason for exclusion: interventions not recommended by DoD guidelines.

Castillo, D. T., C. L. Chee, E. Nason, J. Keller, J. C'De Baca, C. Qualls, S. K. Fallon, K. Y. Haaland, M. W. Miller, and T. M. Keane, "Group-Delivered Cognitive/Exposure Therapy for PTSD in Women Veterans: A Randomized Controlled Trial," *Psychological Trauma*, Vol. 8, No. 3, May 2016, pp. 404–412. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Cates, M. E., M. H. Bishop, L. L. Davis, J. S. Lowe, and T. W. Woolley, "Clonazepam for Treatment of Sleep Disturbances Associated with Combat-Related Posttraumatic Stress Disorder," *Annals of Pharmacotherapy*, Vol. 38, No. 9, September 2004, pp. 1395–1399. Reason for exclusion: study does not report treatment retention, response, or remission.

Cavaljuga, S., I. Licanin, N. Mulabegović, and D. Potkonjak, "Therapeutic Effects of Two Antidepressant Agents in the Treatment of Posttraumatic Stress Disorder (PTSD)," *Bosnian Journal of Basic Medical Sciences*, Vol. 3, No. 2, 2003, pp. 12–16. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Celik, C., B. Ozdemir, K. N. Ozmenler, Z. Yelboga, A. Balikci, T. Oznur, A. Doruk, and A. Bozkurt, "Efficacy of Paroxetine and Amitriptyline in Posttraumatic Stress Disorder: An Open-Label Comparative Study," *Klinik Psikofarmakoloji Bulteni*, Vol. 21, No. 3, 2011, pp. 179–185. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Chemtob, C. M., R. W. Novaco, R. S. Hamada, and D. M. Gross, "Cognitive-Behavioral Treatment for Severe Anger in Posttraumatic Stress Disorder," *Journal of Consulting and Clinical Psychology*, Vol. 65, No. 1, February 1997, pp. 184–189. Reason for exclusion: study does not report treatment retention, response, or remission.

Chermack, S. T., K. Zivin, M. Valenstein, M. Ilgen, K. L. Austin, J. Wryobeck, and F. C. Blow, "The Prevalence and Predictors of Mental Health Treatment Services in a National Sample of Depressed Veterans," *Medical Care*, Vol. 46, No. 8, 2008, pp. 813–820. Reason for exclusion: not PTSD.

Chopra, M. P., K. M. Trevino, and N. W. Kowall, "Memantine for Posttraumatic Stress Disorder in an Older Veteran," *Journal of Clinical Psychopharmacology*, Vol. 31, No. 6, 2011, pp. 787–788. Reason for exclusion: medications not recommended by DoD guidelines.

Chung, M. Y., K. Ho Min, Y. Ju Jun, S. Soo Kim, W. Chul Kim, and E. Mi Jun, "Efficacy and Tolerability of Mirtazapine and Sertraline in Korean Veterans with Posttraumatic Stress Disorder: A Randomized Open Label Trial," *Human Psychopharmacology: Clinical and Experimental*, Vol. 19, No. 7, October 2004, pp. 489–494. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

———, "Efficacy and Tolerability of Mirtazapine and Sertraline in Treatment of Patients with Posttraumatic Stress Disorder with Depression: A Randomized Open Label Trial," *Journal of the Korean Neuropsychiatric Association*, Vol. 44, No. 2, 2005, pp.165–175. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Church, D., "Reductions in Pain, Depression, and Anxiety Symptoms After PTSD Remediation in Veterans," *Explore: The Journal of Science and Healing*, Vol. 10, No. 3, May–June 2014, pp. 162–169. Reason for exclusion: interventions not recommended by DoD guidelines.

Church, D., and A. J. Brooks, "CAM and Energy Psychology Techniques Remediate PTSD Symptoms in Veterans and Spouses," *Explore: The Journal of Science and Healing*, Vol. 10, No. 1, 2014, pp. 24–33. Reason for exclusion: interventions not recommended by DoD guidelines.

Church, D., C. Hawk, A. J. Brooks, O. Toukolehto, M. Wren, I. Dinter, and P. Stein, "Psychological Trauma Symptom Improvement in Veterans Using Emotional Freedom Techniques: A Randomized Controlled Trial," *Journal of Nervous and Mental Disease*, Vol. 201, No. 2, February 2013, pp. 153–160. Reason for exclusion: interventions not recommended by DoD guidelines.

Church, D., and J. Palmer-Hoffman, "TBI Symptoms Improve After PTSD Remediation with Emotional Freedom Techniques," *Traumatology*, Vol. 20, No. 3, 2014, pp. 172–181. Reason for exclusion: interventions not recommended by DoD guidelines.

Church, D., T. Sparks, and M. Clond, "EFT (Emotional Freedom Techniques) and Resiliency in Veterans at Risk for PTSD: A Randomized Controlled Trial," *Explore: The Journal of Science and Healing*, Vol. 12, No. 5, September–October 2016, pp. 355–365. Reason for exclusion: interventions not recommended by DoD guidelines.

Church, D., G. Yount, K. Rachlin, L. Fox, and J. Nelms, "Epigenetic Effects of PTSD Remediation in Veterans Using Clinical Emotional Freedom Techniques: A Randomized Controlled Pilot Study," *American Journal of Health Promotion*, Vol. 32, No. 1, 2016, pp. 112–122. Reason for exclusion: interventions not recommended by DoD guidelines.

Cigrang, J. A., S. A. M. Rauch, L. L. Avila, C. J. Bryan, J. L. Goodie, A. Hryshko-Mullen, A. L. Peterson, and S. Star Consortium, "Treatment of Active-Duty Military with PTSD in Primary Care: Early Findings," *Psychological Services*, Vol. 8, No. 2, 2011, pp. 104–113. Reason for exclusion: sample size not <50.

Cigrang, J. A., S. A. Rauch, J. Mintz, A. R. Brundige, J. A. Mitchell, E. Najera, B. T. Litz, S. Young-McCaughan, J. D. Roache, E. A. Hembree, J. L. Goodie, S. M. Sonnek, and A. L. Peterson, "Moving Effective Treatment for Posttraumatic Stress Disorder to Primary Care: A Randomized Controlled Trial with Active Duty Military," *Families, Systems, and Health*, Vol. 35, No. 4, 2017, pp. 450–462. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Clancy, C. P., A. Graybeal, W. P. Tompson, K. S. Badgett, M. E. Feldman, P. S. Calhoun, A. Erkanli, M. A. Hertzberg, and J. 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, 2006, pp. 1346–1353. Reason for exclusion: study does not report treatment retention, response, or remission.

Clark, R. D., J. M. Cañive, L. A. Calais, C. Qualls, R. D. Brugger, and T. B. Vosburgh, "Cyproheptadine Treatment of Nightmares Associated with Posttraumatic Stress Disorder," *Journal of Clinical Psychopharmacology*, Vol. 19, No. 5, 1999, pp. 486–487. Reason for exclusion: medications not recommended by DoD guidelines.

Clark, R. D., J. M. Cañive, L. A. Calais, C. R. Qualls, and V. B. Tuason, "Divalproex in Posttraumatic Stress Disorder: An Open-Label Clinical Trial," *Journal of Traumatic Stress*, Vol. 12, No. 2, 1999, pp. 395–401. Reason for exclusion: medications not recommended by DoD guidelines.

Cohen, H., Z. Kaplan, M. Kotler, I. Kouperman, R. Moisa, and N. Grisaru, "Repetitive Transcranial Magnetic Stimulation of the Right Dorsolateral Prefrontal Cortex in Posttraumatic Stress Disorder: A Double-Blind, Placebo-Controlled Study," *American Journal of Psychiatry*, Vol. 161, No. 3, March 2004, pp. 515–524. Reason for exclusion: not military populations.

Cole, M. A., J. J. Muir, J. J. Gans, L. M. Shin, M. D'Esposito, B. T. Harel, and A. Schembri, "Simultaneous Treatment of Neurocognitive and Psychiatric Symptoms in Veterans with Post-Traumatic Stress Disorder and History of Mild Traumatic Brain Injury: A Pilot Study of Mindfulness-Based Stress Reduction," *Military Medicine*, Vol. 180, No. 9, 2015, pp. 956–963. Reason for exclusion: interventions not recommended by DoD guidelines.

Collinge, W., J. Kahn, and R. Soltysik, "Promoting Reintegration of National Guard Veterans and Their Partners Using a Self-Directed Program of Integrative Therapies: A Pilot Study," *Military Medicine*, Vol. 177, No. 12, 2012, pp. 1477–1485. Reason for exclusion: interventions not recommended by DoD guidelines.

Comer, A. M., and D. P. Figgitt, "Sertraline: A Review of Its Therapeutic Use in Post-Traumatic Stress Disorder," *CNS Drugs*, Vol. 14, No. 5, 2000, pp. 391–407. Reason for exclusion: review.

Cook, J. M., G. C. Harb, P. R. Gehrman, M. S. Cary, G. M. Gamble, D. Forbes, and R. J. Ross, "Imagery Rehearsal for Posttraumatic Nightmares: A Randomized Controlled Trial," *Journal of Traumatic Stress*, Vol. 23, No. 5, October 2010, pp. 553–563. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Cook, J. M., C. O'Donnell, S. Dinnen, N. Bernardy, R. Rosenheck, and R. Hoff, "A Formative Evaluation of Two Evidence-Based Psychotherapies for PTSD in VA Residential Treatment Programs," *Journal of Traumatic Stress*, Vol. 26, No. 1, February 2013, pp. 56–63. Reason for exclusion: not military populations.

Cook, J. M., C. O'Donnell, J. O. Moltzen, J. I. Ruzek, and J. I. Sheikh, "Clinical Observations in the Treatment of World War II and Korean War Veterans with Combat-Related PTSD," *Clinical Gerontologist*, Vol. 29, No. 2, 2005, pp. 81–93. Reason for exclusion: sample size not <50.

Cooper, N. Allen, and G. A. Clum, "Imaginal Flooding as a Supplementary Treatment for PTSD in Combat Veterans: A Controlled Study," *Behavior Therapy*, Vol. 20, No. 3, 1989, pp. 381–391. Reason for exclusion: interventions not recommended by DoD guidelines.

Coupland, N. J., A. Lillywhite, C. E. Bell, J. P. Potokar, and D. J. Nutt, "A Pilot Controlled Study of the Effects of Flumazenil in Posttraumatic Stress Disorder," *Biological Psychiatry*, Vol. 41, No. 9, May 1, 1997, pp. 988–990. Reason for exclusion: not military populations.

Cox, K. S., E. R. Mouilso, M. R. Venners, M. E. Defever, L. Duvivier, S. A. M. Rauch, T. Q. Strom, T. E. Joiner, and P. W. Tuerk, "Reducing Suicidal Ideation Through Evidence-Based Treatment for Posttraumatic Stress Disorder," *Journal of Psychiatric Research*, Vol. 80, September 2016, pp. 59–63. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Creamer, M. C., P. Elliott, D. Forbes, D. Biddle, and G. Hawthorne, "Treatment for Combat-Related Posttraumatic Stress Disorder: Two-Year Follow-Up," *Journal of Traumatic Stress*, Vol. 19, No. 5, 2006, pp. 675–685. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Creamer, M. C., P. L. P. Morris, D. Biddle, and P. Elliott, "Treatment Outcome in Australian Veterans with Combat-Related Posttraumatic Stress Disorder: A Cause For Cautious Optimism?" *Journal of Traumatic Stress*, Vol. 12, No. 4, 1999, pp. 545–558. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Cronin, C., and L. Conboy, "Using the NADA Protocol to Treat Combat Stress-Induced Insomnia: A Pilot Study," *Journal of Chinese Medicine*, No. 103, 2013. Reason for exclusion: interventions not recommended by DoD guidelines.

Cui, R., M. Haller, J. R. Skidmore, K. Goldsteinholm, S. Norman, and S. R. Tate, "Treatment Attendance Among Veterans with Depression, Substance Use Disorder, and Trauma," *Journal of Dual Diagnosis*, Vol. 12, No. 1, 2016, pp. 15–26. Reason for exclusion: not PTSD.

Cully, J. A., J. P. Jameson, L. L. Phillips, M. E. Kunik, and J. C. Fortney, "Use of Psychotherapy by Rural and Urban Veterans," *Journal of Rural Health*, Vol. 26, No. 3, Sum 2010, 2010, pp. 225–233. Reason for exclusion: study does not report treatment retention, response, or remission.

Cushing, R. E., and K. L. Braun, "Mind-Body Therapy for Military Veterans with Post-Traumatic Stress Disorder: A Systematic Review," *Journal of Alternative and Complementary Medicine*, 2017. Reason for exclusion: review.

Cyr, M., and M. K. Farrar, "Treatment for Posttraumatic Stress Disorder," *Annals of Pharmacotherapy*, Vol. 34, No. 3, March 2000, pp. 366–376. Reason for exclusion: review.

David, A. S., L. Farrin, L. Hull, C. Unwin, S. C. Wessely, and T. Wykes, "Cognitive Functioning and Disturbances of Mood in UK Veterans of the Persian Gulf War: A Comparative Study," *Psychological Medicine*, Vol. 32, No. 8, 2002, pp. 1357–1370. Reason for exclusion: study does not report treatment retention, response, or remission.

David, D., L. De Faria, O. Lapeyra, and T. A. Mellman, "Adjunctive Risperidone Treatment in Combat Veterans with Chronic PTSD," *Journal of Clinical Psychopharmacology*, Vol. 24, No. 5, 2004, pp. 556–558. Reason for exclusion: medications not recommended by DoD guidelines.

David, D., L. De Faria, and T. A. Mellman, "Adjunctive Risperidone Treatment and Sleep Symptoms in Combat Veterans with Chronic PTSD," *Depression and Anxiety*, Vol. 23, No. 8, 2006, pp. 489–491. Reason for exclusion: medications not recommended by DoD guidelines.

David, W. S., T. L. Simpson, and A. J. Cotton, "Taking Charge: A Pilot Curriculum of Self-Defense and Personal Safety Training for Female Veterans with PTSD Because of Military Sexual Trauma," *Journal of Interpersonal Violence*, Vol. 21, No. 4, 2006, pp. 555–565. Reason for exclusion: interventions not recommended by DoD guidelines.

Davidson, J., H. Kudler, R. Smith, S. L. Mahorney, S. Lipper, E. Hammett, W. B. Saunders, and J. O. Cavenar, Jr., "Treatment of Posttraumatic Stress Disorder with Amitriptyline and Placebo," *Archives of General Psychiatry*, Vol. 47, No. 3, March 1990, pp. 259–266. Reason for exclusion: medications not recommended by DoD guidelines.

Davidson, J., J. Ingram Walker, and C. Kilts, "A Pilot Study of Phenelzine in the Treatment of Post-Traumatic Stress Disorder," *British Journal of Psychiatry*, Vol. 150, 1987, pp. 252–255. Reason for exclusion: study does not report treatment retention, response, or remission.

Davidson, J. R. T., K. M. Connor, M. A. Hertzberg, R. H. Weisler, W. H. Wilson, and V. M. Payne, "Maintenance Therapy with Fluoxetine in Posttraumatic Stress Disorder: A Placebo-Controlled Discontinuation Study," *Journal of Clinical Psychopharmacology*, Vol. 25, No. 2, 2005, pp. 166–169. Reason for exclusion: not military populations.

Davidson, J. R. T., H. S. Kudler, W. B. Saunders, L. Erickson, R. D. Smith, and R. M. Stein, "Predicting Response to Amitriptyline in Posttraumatic Stress Disorder," *American Journal of Psychiatry*, Vol. 150, No. 7, 1993. Reason for exclusion: medications not recommended by DoD guidelines.

Davidson, J. R. T., B. O. Rothbaum, B. A. van der Kolk, C. R. Sikes, and G. M. Farfel, "Multicenter, Double-Blind Comparison of Sertraline and Placebo in the Treatment of Posttraumatic Stress Disorder," *Archives of General Psychiatry*, Vol. 58, No. 5, 2001, pp. 485–492. Reason for exclusion: not military populations.

Davis, L. L., M. E. Jewell, S. Ambrose, J. Farley, B. English, A. Bartolucci, and F. Petty, "A Placebo-Controlled Study of Nefazodone for the Treatment of Chronic Posttraumatic Stress Disorder: A Preliminary Study," *Journal of Clinical Psychopharmacology*, Vol. 24, No. 3, June 2004, pp. 291–297. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Davis, L. L., A. C. Leon, R. Toscano, C. E. Drebing, L. C. Ward, P. E. Parker, T. M. Kashner, and R. E. Drake, "A Randomized Controlled Trial of Supported Employment Among Veterans with Posttraumatic Stress Disorder," *Psychiatric Services*, Vol. 63, No. 5, 2012, pp. 464–470. Reason for exclusion: study does not report treatment retention, response, or remission.

Davis, L. L., C. Ward, A. Rasmusson, J. M. Newell, E. Frazier, and S. M. Southwick, "A Placebo-Controlled Trial of Guanfacine for the Treatment of Posttraumatic Stress Disorder in Veterans," *Psychopharmacology Bulletin*, Vol. 41, No. 1, 2008, pp. 8–18. Reason for exclusion: medications not recommended by DoD guidelines.

Davis, L. L., J. R. Davidson, L. C. Ward, A. Bartolucci, C. L. Bowden, and F. Petty, "Divalproex in the Treatment of Posttraumatic Stress Disorder: A Randomized, Double-Blind, Placebo-Controlled Trial in a Veteran Population," *Journal of Clinical Psychopharmacology*, Vol. 28, No. 1, February 2008, pp. 84–88. Reason for exclusion: medications not recommended by DoD guidelines.

Deane, F. P., C. MacDonald, K. Chamberlain, N. R. Long, and L. Davin, "New Zealand Vietnam Veterans' Families Programme, Nga Whanau a Tu (Families of War): Development and Outcome," *Australian and New Zealand Journal of Family Therapy*, Vol. 19, No. 1, 1998, pp. 1–10. Reason for exclusion: not military populations.

Dedert, E. A., P. A. Resick, M. E. McFall, P. A. Dennis, M. K. Olsen, and J. Crowell Beckham, "Pilot Cases of Combined Cognitive Processing Therapy and Smoking Cessation for Smokers with Posttraumatic Stress Disorder," *Behavior Therapy*, Vol. 47, No. 1, 2016, pp. 54–65. Reason for exclusion: sample size not <50.

Dekel, S., Z. Solomon, and E. Rozenstreich, "Secondary Salutogenic Effects in Veterans Whose Parents Were Holocaust Survivors?" *Journal of Psychiatric Research*, Vol. 47, No. 2, 2013, pp. 266–271. Reason for exclusion: study does not report treatment retention, response, or remission.

Desai, R. A., I. Harpaz-Rotem, L. M. Najavits, and R. A. Rosenheck, "Impact of the Seeking Safety Program on Clinical Outcomes Among Homeless Female Veterans with Psychiatric Disorders," *Psychiatric Services*, Vol. 59, No. 9, 2008, pp. 996–1003. Reason for exclusion: study does not report treatment retention, response, or remission.

Detweiler, M. B., J. A. Self, S. Lane, L. Spencer, B. Lutgens, D. Y. Kim, M. H. Halling, T. C. Rudder, and L. P. Lehmann, "Horticultural Therapy: A Pilot Study on Modulating Cortisol Levels and Indices of Substance Craving, Posttraumatic Stress Disorder, Depression, and Quality of Life in Veterans," *Alternative Therapies in Health and Medicine*, Vol. 21, No. 4, July–August 2015, pp. 36–41. Reason for exclusion: interventions not recommended by DoD guidelines.

Devilly, G. J., "The Psychological Effects of a Lifestyle Management Course on War Veterans and Their Spouses," *Journal of Clinical Psychology*, Vol. 58, No. 9, 2002, pp. 1119–1134. Reason for exclusion: interventions not recommended by DoD guidelines.

Devilly, G. J., and S. H. Spence, "The Relative Efficacy and Treatment Distress of EMDR and a Cognitive-Behavior Trauma Treatment Protocol in the Amelioration of Posttraumatic Stress Disorder," *Journal of Anxiety Disorders*, Vol. 13, Nos. 1–2, 1999, pp. 131–157. Reason for exclusion: not military populations.

Devilly, G. J., S. H. Spence, and R. M. Rapee, "Statistical and Reliable Change with Eye Movement Desensitization and Reprocessing: Treating Trauma Within a Veteran Population," *Behavior Therapy*, Vol. 29, No. 3, 1998, pp. 435–455. Reason for exclusion: sample size not <50.

Dick, A. M., B. L. Niles, A. E. Street, D. M. DiMartino, and K. S. Mitchell, "Examining Mechanisms of Change in a Yoga Intervention for Women: The Influence of Mindfulness, Psychological Flexibility, and Emotion Regulation on PTSD Symptoms," *Journal of Clinical Psychology*, Vol. 70, No. 12, December 2014, pp. 1170–1182. Reason for exclusion: not military populations.

Dondanville, K. A., A. E. Blankenship, A. Molino, P. A. Resick, J. S. Wachen, J. Mintz, J. S. Yarvis, B. T. Litz, E. V. Borah, J. D. Roache, S. Young-McCaughan, E. A. Hembree, and A. L. Peterson, "Qualitative Examination of Cognitive Change During PTSD Treatment for Active Duty Service Members," *Behavior Research and Therapy*, Vol. 79, April 2016, pp. 1–6. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Dossa, N. I., and M. Hatem, "Cognitive-Behavioral Therapy Versus Other PTSD Psychotherapies as Treatment for Women Victims of War-Related Violence: A Systematic Review," *Scientific World Journal*, Vol. 2012, 2012, 181847, pp. 1–20. Reason for exclusion: review.

Drake, R. D., L. L. Davis, M. E. Cates, M. E. Jewell, S. M. Ambrose, and Joette S. Lowe, "Baclofen Treatment for Chronic Posttraumatic Stress Disorder," *Annals of Pharmacotherapy*, Vol. 37, No. 9, 2003, pp. 1177–1181. Reason for exclusion: medications not recommended by DoD guidelines.

Duffy, J. D., and P. F. Malloy, "Efficacy of Buspirone in the Treatment of Posttraumatic Stress Disorder: An Open Trial," *Annals of Clinical Psychiatry*, Vol. 6, No. 1, 1994. Reason for exclusion: medications not recommended by DoD guidelines.

Dunlop, B. W., E. B. Binder, D. Iosifescu, S. J. Mathew, T. C. Neylan, Julius C. Pape, Tania Carrillo-Roa, Charles Green, Becky Kinkead, Dimitri Grigoriadis, Barbara O. Rothbaum, Charles B. Nemeroff, and Helen S. Mayberg, "Corticotropin-Releasing Factor Receptor 1 Antagonism Is Ineffective for Women with Posttraumatic Stress Disorder," *Biological Psychiatry*, Vol. 82, No. 12, 2017, pp. 866–874. Reason for exclusion: not military populations.

Dunn, N. J., L. P. Rehm, J. Schillaci, J. Souchek, P. Mehta, C. M. Ashton, E. Yanasak, and J. D. Hamilton, "A Randomized Trial of Self-Management and Psychoeducational Group Therapies for Comorbid Chronic Posttraumatic Stress Disorder and Depressive Disorder," *Journal of Traumatic Stress*, Vol. 20, No. 3, June 2007, pp. 221–237. Reason for exclusion: study does not report treatment retention, response, or remission.

Eid, J., "The Course of PTSD Symptoms Following Military Training Accidents and Brief Psychosocial Interventions," *Personality and Individual Differences*, Vol. 35, No. 4, 2003, pp. 771–783. Reason for exclusion: study does not report treatment retention, response, or remission.

Ellison, M. L., "Supporting Education Goals of OIF/OEF Veterans with PTSD: Pilot Process & Outcome," ClinicalTrials.gov, 2011. As of May 20, 2020: https://clinicaltrials.gov/ct2/show/NCT01073657. Reason for exclusion: study does not report treatment retention, response, or remission.

El-Solh, A. A., L. Vermont, G. G. Homish, and T. Kufel, "The Effect of Continuous Positive Airway Pressure on Post-Traumatic Stress Disorder Symptoms in Veterans with Post-Traumatic Stress Disorder and Obstructive Sleep Apnea: A Prospective Study," *Sleep Medicine*, Vol. 33, 2017, pp. 145–150. Reason for exclusion: interventions not recommended by DoD guidelines.

Engel, C. C., E. H. Cordova, D. M. Benedek, X. Liu, K. L. Gore, C. Goertz, M. C. Freed, C. Crawford, W. B. Jonas, and R. J. Ursano, "Randomized Effectiveness Trial of a Brief Course of Acupuncture for Posttraumatic Stress Disorder," *Medical Care*, Vol. 52, No. 12, Suppl. 5, December 2014, pp. S57–64. Reason for exclusion: interventions not recommended by DoD guidelines.

Engel, C. C., L. H. Jaycox, M. C. Freed, R. M. Bray, D. Brambilla, D. Zatzick, B. Litz, T. Tanielian, L. A. Novak, M. E. Lane, B. E. Belsher, K. L. Olmsted, D. P. Evatt, R. Vandermaas-Peeler, J. Unutzer, and W. J. Katon, "Centrally Assisted Collaborative Telecare for Posttraumatic Stress Disorder and Depression Among Military Personnel Attending Primary Care: A Randomized Clinical Trial," *JAMA Internal Medicine*, Vol. 176, No. 7, July 1, 2016, pp. 948–956. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Felleman, Benjamin I., D. G. Stewart, T. L. Simpson, P. S. Heppner, and D. J. Kearney, "Predictors of Depression and PTSD Treatment Response Among Veterans Participating in Mindfulness-Based Stress Reduction," *Mindfulness*, Vol. 7, No. 4, 2016, pp. 886–895. Reason for exclusion: interventions not recommended by DoD guidelines.

Fesler, F. A., "Valproate in Combat-Related Posttraumatic Stress Disorder," *Journal of Clinical Psychiatry*, Vol. 52, No. 9, 1991, pp. 361–364. Reason for exclusion: medications not recommended by DoD guidelines.

Finley, E. P., H. A. Garcia, N. S. Ketchum, D. D. McGeary, C. A. McGeary, S. W. Stirman, and A. L. Peterson, "Utilization of Evidence-Based Psychotherapies in Veterans Affairs Posttraumatic Stress Disorder Outpatient Clinics," *Psychological Services*, Vol. 12, No. 1, February 2015, pp. 73–82. Reason for exclusion: study does not report treatment retention, response, or remission.

Fischer, E. P., M. D. Sherman, X. Han, and R. R. Owen, "Outcomes of Participation in the REACH Multifamily Group Program for Veterans with PTSD and Their Families," *Professional Psychology: Research and Practice*, Vol. 44, No. 3, 2013, pp. 127–134. Reason for exclusion: study does not report treatment retention, response, or remission.

Flanagan, J. C., C. D. Calhoun, C. L. Badour, N. P. Allen, M. M. Moran-SantaMaria, K. T. Brady, J. F. McGinty, and S. E. Back, "Effects of Oxytocin on Stress-Induced Alcohol Craving Neurobiological Reactivity Among Veterans with Co-Occurring Alcohol Use Disorder and PTSD," *Alcoholism: Clinical and Experimental Research*, Vol. 41, 2017, p. 145A. Reason for exclusion: study does not report treatment retention, response, or remission.

Flanagan, J. C., M. S. Fischer, C. L. Badour, G. Ornan, T. K. Killeen, and S. E. Back, "The Role of Relationship Adjustment in an Integrated Individual Treatment for PTSD and Substance Use Disorders Among Veterans: An Exploratory Study," *Journal of Dual Diagnosis*, Vol. 13, No. 3, 2017, pp. 213–218. Reason for exclusion: sample size not <50.

Flanagan, J. C., L. M. Sippel, A. Wahlquist, M. M. Moran–Santa Maria, and S. E. Back, "Augmenting Prolonged Exposure Therapy for PTSD with Intranasal Oxytocin: A Randomized, Placebo-Controlled Pilot Trial," *Journal of Psychiatric Research*, Vol. 98, 2018, pp. 64–69. Reason for exclusion: not military populations.

Foa, E. B., D. A. Yusko, C. P. McLean, M. K. Suvak, D. A. Bux, Jr., D. Oslin, C. P. O'Brien, P. Imms, D. S. Riggs, and J. Volpicelli, "Concurrent Naltrexone and Prolonged Exposure Therapy for Patients with Comorbid Alcohol Dependence and PTSD: A Randomized Clinical Trial," *JAMA*, Vol. 310, No. 5, August 7, 2013, pp. 488–495. Reason for exclusion: not military populations.

Fontana, A., and R. A. Rosenheck, "An Etiological Model of Attempted Suicide Among Vietnam Theater Veterans: Prospective Generalization to a Treatment-Seeking Sample," *Journal of Nervous and Mental Disease*, Vol. 183, No. 6, 1995, pp. 377–383. Reason for exclusion: not PTSD.

Forbes, D., M. Creamer, A. Phelps, R. Bryant, A. McFarlane, G. J. Devilly, L. Matthews, B. Raphael, C. Doran, T. Merlin, and S. Newton, "Australian Guidelines for the Treatment of Adults with Acute Stress Disorder and Post-Traumatic Stress Disorder," *Australian and New Zealand Journal of Psychiatry*, Vol. 41, No. 8, 2007, pp. 637–648. Reason for exclusion: review.

Forbes, D., D. Lloyd, R. D. Nixon, P. Elliott, T. Varker, D. Perry, R. A. Bryant, and M. Creamer, "A Multisite Randomized Controlled Effectiveness Trial of Cognitive Processing Therapy for Military-Related Posttraumatic Stress Disorder," *Journal of Anxiety Disorders*, Vol. 26, No. 3, April 2012, pp. 442–452. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Forbes, D., A. Phelps, and T. McHugh, "Treatment of Combat-Related Nightmares Using Imagery Rehearsal: A Pilot Study," *Journal of Traumatic Stress*, Vol. 14, No. 2, 2001, pp. 433–442. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Ford, J. D., D. Greaves, P. Chandler, B. G. Thacker, D. Shaw, S. Sennhauser, and L. Schwartz, "Time-Limited Psychotherapy with Operation Desert Storm Veterans," *Journal of Traumatic Stress*, Vol. 10, No. 4, 1997, pp. 655–664. Reason for exclusion: study does not report treatment retention, response, or remission.

Frank, J. B., T. R. Kosten, E. L. Giller, Jr., and E. Dan, "A Randomized Clinical Trial of Phenelzine and Imipramine for Posttraumatic Stress Disorder," *American Journal of Psychiatry*, Vol. 145, No. 10, October 1988, pp. 1289–1291. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Franklin, C. L., L. A. Cuccurullo, J. L. Walton, J. R. Arseneau, and N. J. Petersen, "Face to Face but Not in the Same Place: A Pilot Study of Prolonged Exposure Therapy," *Journal of* Trauma Dissociation, Vol. 18, No. 1, January–February 2017, pp. 116–130. Reason for exclusion: sample size not <50.

Fredman, S. J., N. D. Pukay-Martin, A. Macdonald, A. C. Wagner, V. Vorstenbosch, and C. M. Monson, "Partner Accommodation Moderates Treatment Outcomes for Couple Therapy for Posttraumatic Stress Disorder," *Journal of Consulting and Clinical Psychology*, Vol. 84, No. 1, 2016, pp. 79–87. Reason for exclusion: not military populations.

Frost, N. D., K. M. Laska, and B. E. Wampold, "The Evidence for Present-Centered Therapy as a Treatment for Posttraumatic Stress Disorder," *Journal of Traumatic Stress*, Vol. 27, No. 1, February 2014, pp. 1–8. Reason for exclusion: review.

Frueh, B. C., J. Monnier, A. L. Grubaugh, J. D. Elhai, E. Yim, and R. Knapp, "Therapist Adherence and Competence with Manualized Cognitive-Behavioral Therapy for PTSD Delivered via Videoconferencing Technology," *Behavior Modification*, Vol. 31, No. 6, November 2007, pp. 856–866. Reason for exclusion: study does not report treatment retention, response, or remission.

Frueh, B. C., J. Monnier, E. Yim, A. L. Grubaugh, M. B. Hamner, and R. G. Knapp, "A Randomized Trial of Telepsychiatry for Post-Traumatic Stress Disorder," *Journal of Telemedicine and Telecare*, Vol. 13, No. 3, 2007, pp. 142–147. Reason for exclusion: sample size not <50.

Galovski, T. E., J. M. Harik, L. M. Blain, L. Elwood, C. Gloth, and T. D. Fletcher, "Augmenting Cognitive Processing Therapy to Improve Sleep Impairment in PTSD: A Randomized Controlled Trial," *Journal of Consulting and Clinical Psychology*, Vol. 84, No. 2, February 2016, pp. 167–177. Reason for exclusion: not military populations.

Gamito, P., J. Oliveira, D. Morais, N. Duarte, S. Oliveira, and T. Saraiva, "PTSD Elderly War Veterans: A Clinical Controlled Pilot Study," *Cyberpsychology, Behavior, and Social Networking*, Vol. 13, No. 1, 2010, pp. 43–48. Reason for exclusion: sample size not <50.

Gamito, P., J. Oliveira, D. Morais, S. Oliveira, N. Duarte, T. Saraiva, M. Pombal, and P. Rosa, "Virtual Reality Therapy Controlled Study for War Veterans with PTSD: Preliminary Results," Annual Review of CyberTherapy and Telemedicine, Vol. 7, No. 1, 2009. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Gantt, M. A., S. Dadds, D. S. Burns, D. Glaser, and A. D. Moore, "The Effect of Binaural Beat Technology on the Cardiovascular Stress Response in Military Service Members with Postdeployment Stress," *Journal of Nursing Scholarship*, Vol. 49, No. 4, July 2017, pp. 411–420. Reason for exclusion: not PTSD.

Garfield, D. A. S., C. G. Fichtner, C. Leveroni, and A. Mahableshwarkar, "Open Trial of Nefazodone for Combat Veterans with Posttraumatic Stress Disorder," *Journal of Traumatic Stress*, Vol. 14, No. 3, 2001, pp. 453–460. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Gelkopf, M., I. Hasson-Ohayon, M. Bikman, and S. Kravetz, "Nature Adventure Rehabilitation for Combat-Related Posttraumatic Chronic Stress Disorder: A Randomized Control Trial," *Psychiatry Research*, Vol. 209, No. 3, October 30, 2013, pp. 485–493. Reason for exclusion: interventions not recommended by DoD guidelines.

Gelpin, E., O. B. Bonne, T. Peri, D. Brandes, and A. Y. Shalev, "Treatment of Recent Trauma Survivors with Benzodiazepines: A Prospective Study," *Journal of Clinical Psychiatry*, Vol. 57, No. 9, 1996, pp. 390–394. Reason for exclusion: not military populations.

Gerin, M. I., H. Fichtenholtz, A. Roy, C. J. Walsh, J. H. Krystal, S. Southwick, and M. Hampson, "Real-Time fMRI Neurofeedback with War Veterans with Chronic PTSD: A Feasibility Study," *Frontiers in Psychiatry*, Vol. 7, 2016, pp.1–11. Reason for exclusion: interventions not recommended by DoD guidelines.

Germain, A., R. Richardson, D. E. Moul, O. Mammen, G. Haas, S. D. Forman, N. Rode, A. Begley, and E. A. Nofzinger, "Placebo-Controlled Comparison of Prazosin and Cognitive-Behavioral Treatments for Sleep Disturbances in US Military Veterans," *Journal of Psychosomatic Research*, Vol. 72, No. 2, February 2012, pp. 89–96. Reason for exclusion: medications not recommended by DoD guidelines.

Gillin, J. C., A. Smith-Vaniz, B. Schnierow, M. H. Rapaport, J. Kelsoe, E. Raimo, M. R. Marler, L. M. Goyette, M. B. Stein, and S. Zisook, "An Open-Label, 12-Week Clinical and Sleep EEG Study of Nefazodone in Chronic Combat-Related Posttraumatic Stress Disorder," *Journal of Clinical Psychiatry*, Vol. 62, No. 10, 2001, pp. 789–796. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Gilmore, A. K., M. T. Davis, A. Grubaugh, H. Resnick, A. Birks, C. Denier, W. Muzzy, P. Tuerk, and R. 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. Reason for exclusion: study does not report treatment retention, response, or remission.

Gilmore, A. K., S. M. Wilson, N. A. Skopp, J. E. Osenbach, and G. Reger, "A Systematic Review of Technology-Based Interventions for Co-Occurring Substance Use and Trauma Symptoms," *Journal of Telemedicine and Telecare*, Vol. 23, No. 8, 2017, pp. 701–709. Reason for exclusion: review.

Ginsberg, D. L., "Prazosin Reduces Nightmares in Posttraumatic Stress Disorder," *Primary Psychiatry*, Vol. 10, No. 4, 2003, pp. 24–24. Reason for exclusion: medications not recommended by DoD guidelines.

Glavin, C. E. Y., and P. Montgomery, "Creative Bibliotherapy for Post-Traumatic Stress Disorder (PTSD): A Systematic Review," *Journal of Poetry Therapy*, Vol. 30, No. 2, 2017, pp. 95–107. Reason for exclusion: review.

Glynn, S. M., S. Eth, E. T. Randolph, D. W. Foy, M. Urbaitis, L. Boxer, G. G. Paz, G. B. Leong, G. Firman, J. D. Salk, J. W. Katzman, and J. Crothers, "A Test of Behavioral Family Therapy to Augment Exposure for Combat-Related Posttraumatic Stress Disorder," *Journal of Consulting and Clinical Psychology*, Vol. 67, No. 2, April 1999, pp. 243–251. Reason for exclusion: sample size not <50.

Gobin, R. L., M.-A. Mackintosh, E. Willis, C. B. Allard, K. Kloezeman, and L. A. Morland, "Predictors of Differential PTSD Treatment Outcomes Between Veteran and Civilian Women After Cognitive Processing Therapy," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 10, No. 2, 2017, pp. 173–182. Reason for exclusion: sample size not <50.

Goetter, E. M., E. Bui, R. A. Ojserkis, R. J. Zakarian, R. W. Brendel, and N. M. Simon, "A Systematic Review of Dropout from Psychotherapy for Posttraumatic Stress Disorder Among Iraq and Afghanistan Combat Veterans," *Journal of Traumatic Stress*, Vol. 28, No. 5, October 2015, pp. 401–409. Reason for exclusion: review.

Goldstein, L. A., W. E. Mehling, T. J. Metzler, B. E. Cohen, D. E. Barnes, G. J. Choucroun, A. Silver, L. S. Talbot, S. Maguen, J. A. Hlavin, M. A. Chesney, and T. C. Neylan, "Veterans Group Exercise: A Randomized Pilot Trial of an Integrative Exercise Program for Veterans with Posttraumatic Stress," *Journal of Affective Disorders*, Vol. 227, 2017, pp. 345–352. Reason for exclusion: interventions not recommended by DoD guidelines.

Golier, J., "Novel Therapeutics in PTSD: A Randomized Clinical Trial of Mifepristone," *Neuropsychopharmacology*, Vol. 43, 2017, pp. S90–S91. Reason for exclusion: medications not recommended by DoD guidelines.

Golier, J., R. Hurley, R. Yehuda, D. Baker, X. Li, B. W. Bechard, L. Robin, J. Flory, T. Kimbrell, M. Bizien, and D. Reda, "Novel Therapeutics in PTSD: A Randomized Clinical Trial of Mifepristone," *Biological Psychiatry*, Vol. 81, No. 10, 2017, pp. S279–S280. Reason for exclusion: medications not recommended by DoD guidelines.

Golier, J. A., K. Caramanica, R. DeMaria, and R. Yehuda, "A Pilot Study of Mifepristone in Combat-Related PTSD," *Depression Research and Treatment*, Vol. 2012, 2012. Reason for exclusion: medications not recommended by DoD guidelines.

Golier, J. A., R. Yehuda, and D. Baker, "A Randomized Clinical Trial of a Glucocorticoid Receptor Antagonist in PTSD," *Psychoneuroendocrinology*, Vol. 83, 2017, p. 87. Reason for exclusion: medications not recommended by DoD guidelines.

Goodson, J., A. Helstrom, J. M. Halpern, M. P. Ferenschak, S. J. Gillihan, and M. B. Powers, "Treatment of Posttraumatic Stress Disorder in U.S. Combat Veterans: A Meta-Analytic Review," *Psychological Reports*, Vol. 109, No. 2, October 2011, pp. 573–599. Reason for exclusion: review.

Gray, M. J., Y. Schorr, W. Nash, L. Lebowitz, A. Amidon, A. Lansing, M. Maglione, A. J. Lang, and B. T. Litz, "Adaptive Disclosure: An Open Trial of a Novel Exposure-Based Intervention for Service Members with Combat-Related Psychological Stress Injuries," *Behavior Therapy*, Vol. 43, No. 2, 2012, pp. 407–415. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Gray, R., D. Budden-Potts, and F. Bourke, "Reconsolidation of Traumatic Memories for PTSD: A Randomized Controlled Trial of 74 Male Veterans," *Psychotherapy Research*, Vol. 29, No. 5, 2017, pp. 621–639. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Gray, R. M., and R. F. Liotta, "PTSD: Extinction, Reconsolidation, and the Visual-Kinesthetic Dissociation Protocol," *Traumatology*, Vol. 18, No. 2, 2012, pp. 3–16. Reason for exclusion: not military populations.

Green, B., "Prazosin in the Treatment of PTSD," *Journal of Psychiatric Practice*, Vol. 20, No. 4, 2014, pp. 253–259. Reason for exclusion: review.

Greenberg, N., P. Cawkill, C. March, and J. G. Sharpley, "How to TRiM Away at Post Traumatic Stress Reactions: Traumatic Risk Management—Now and the Future," *Journal of the Royal Naval Medical Services*, Vol. 91, No. 1, 2005, pp. 26–31. Reason for exclusion: not PTSD.

Greene, C. J., L. A. Morland, A. Macdonald, B. C. Frueh, K. M. Grubbs, and C. S. Rosen, "How Does Tele-Mental Health Affect Group Therapy Process? Secondary Analysis of a Noninferiority Trial," *Journal of Consulting and Clinical Psychology*, Vol. 78, No. 5, October 2010, pp. 746–750. Reason for exclusion: study does not report treatment retention, response, or remission.

Grubaugh, A. L., D. M. Slagle, M. E. Long, B. C. Frueh, and K. M. Magruder, "Racial Disparities in Trauma Exposure, Psychiatric Symptoms, and Service Use Among Female Patients in Veterans Affairs Primary Care Clinics," *Women's Health Issues*, Vol. 18, No. 6, 2008, pp. 433–441. Reason for exclusion: study does not report treatment retention, response, or remission.

Guina, J., S. R. Rossetter, Rhodes Bj De, R. W. Nahhas, and R. S. Welton, "Benzodiazepines for PTSD: A Systematic Review and Meta-Analysis," *Journal of Psychiatric Practice*, Vol. 21, No. 4, July 2015, pp. 281–303. Reason for exclusion: review.

Haagen, J. F., G. E. Smid, J. W. Knipscheer, and R. J. Kleber, "The Efficacy of Recommended Treatments for Veterans with PTSD: A Metaregression Analysis," *Clinical Psychology Review*, Vol. 40, August 2015, pp. 184–194. Reason for exclusion: review.

Haagen, J. F. G., F. J. June ter Heide, T. M. Mooren, J. W. Knipscheer, and R. J. Kleber, "Predicting Post-Traumatic Stress Disorder Treatment Response in Refugees: Multilevel Analysis," *British Journal of Clinical Psychology*, Vol. 56, No. 1, 2017, pp. 69–83. Reason for exclusion: not military populations.

Hall, K. S., J. Gregg, H. B. Bosworth, J. C. Beckham, K. D. Hoerster, R. Sloane, and M. C. Morey, "Physical Activity Counseling Promotes Physical and Psychological Resilience in Older Veterans with Posttraumatic Stress Disorder," Mental Health and Physical Activity, Vol. 11, 2016, pp. 53–59. Reason for exclusion: interventions not recommended by DoD guidelines.

Hamner, M. B., P. S. Brodrick, and L. A. Labbate, "Gabapentin in PTSD: A Retrospective, Clinical Series of Adjunctive Therapy," *Annals of Clinical Psychiatry*, Vol. 13, No. 3, 2001, pp. 141–146. Reason for exclusion: study does not report treatment retention, response, or remission.

Hamner, M. B., S. E. Deitsch, P. S. Brodrick, H. G. Ulmer, and J. P. Lorberbaum, "Quetiapine Treatment in Patients with Posttraumatic Stress Disorder: An Open Trial of Adjunctive Therapy," *Journal of Clinical Psychopharmacology*, Vol. 23, No. 1, 2003, pp. 15–20. Reason for exclusion: medications not recommended by DoD guidelines.

Hamner, M. B., R. A. Faldowski, S. Robert, H. G. Ulmer, M. D. Horner, and J. P. Lorberbaum, "A Preliminary Controlled Trial of Divalproex in Posttraumatic Stress Disorder," *Annals of Clinical Psychiatry*, Vol. 21, No. 2, 2009, pp. 89–94. Reason for exclusion: medications not recommended by DoD guidelines.

Hamner, M. B., R. A. Faldowski, H. G. Ulmer, B. C. Frueh, M. G. Huber, and G. W. Arana, "Adjunctive Risperidone Treatment in Post-Traumatic Stress Disorder: A Preliminary Controlled Trial of Effects on Comorbid Psychotic Symptoms," *International Clinical Psychopharmacology*, Vol. 18, No. 1, January 2003, pp. 1–8. Reason for exclusion: medications not recommended by DoD guidelines.

Hamner, M. B., H. G. Ulmer, D. F. Horne, M. S. George, and G. W. Arana, "Procaine Administration and Behavioral Responsivity in Post-Traumatic Stress Disorder: A Pilot Study of Tolerability," *Human Psychopharmacology: Clinical and Experimental*, Vol. 14, No. 2, 1999, pp. 105–111. Reason for exclusion: medications not recommended by DoD guidelines.

Han, C., C.-U. Pae, S.-M. Wang, S. J. Lee, A. A. Patkar, P. S. Masand, and A. Serretti, "The Potential Role of Atypical Antipsychotics for the Treatment of Posttraumatic Stress Disorder," *Journal of Psychiatric Research*, Vol. 56, 2014, pp. 72–81. Reason for exclusion: review.

Hanling, S. R., A. Hickey, I. Lesnik, R. J. Hackworth, E. Stedje-Larsen, C. A. Drastal, and R. N. McLay, "Stellate Ganglion Block for the Treatment of Posttraumatic Stress Disorder: A Randomized, Double-Blind, Controlled Trial," *Regional Anesthesia and Pain Medicine*, Vol. 41, No. 4, July–August 2016, pp. 494–500. Reason for exclusion: interventions not recommended by DoD guidelines.

Harb, G. C., R. Thompson, R. J. Ross, and J. M. Cook, "Combat-Related PTSD Nightmares and Imagery Rehearsal: Nightmare Characteristics and Relation to Treatment Outcome," *Journal of Traumatic Stress*, Vol. 25, No. 5, 2012, pp. 511–518. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Harpaz-Rotem, I., and R. A. Rosenheck, "Tracing the Flow of Knowledge: Geographic Variability in the Diffusion of Prazosin Use for the Treatment of Posttraumatic Stress Disorder Nationally in the Department of Veterans Affairs," *Archives of General Psychiatry*, Vol. 66, No. 4, 2009, pp. 417–421. Reason for exclusion: study does not report treatment retention, response, or remission.

Harpaz-Rotem, I., R. A. Rosenheck, S. Mohamed, R. H. Pietrzak, and R. A. Hoff, "Initiation of Pharmacotherapy for Post-Traumatic Stress Disorder Among Veterans from Iraq and Afghanistan: A Dimensional, Symptom Cluster Approach," *BJPsych Open*, Vol. 2, No. 5, 2016, pp. 286–293. Reason for exclusion: study does not report treatment retention, response, or remission.

Harris, J. I., C. R. Erbes, B. E. Engdahl, P. Thuras, N. Murray-Swank, D. Grace, H. Ogden, R. H. Olson, A. M. Winskowski, R. Bacon, C. Malec, K. Campion, and T. Le, "The Effectiveness of a Trauma Focused Spiritually Integrated Intervention for Veterans Exposed to Trauma," *Journal of Clinical Psychology*, Vol. 67, No. 4, April 2011, pp. 425–438. Reason for exclusion: interventions not recommended by DoD guidelines.

Haug, R., C. C. Engel, V. Sheliga, P. M. Hayman, S. M. Aguayo, U. Madeline, J. Gearon, S. M. Orsillo, D. T. Castillo, D. G. Baker, D. S. Liebling, I. Powch, Edna B. Foa, T. Shea, A. Suris, and P. P. Schnurr, "CSP #494, A Randomized Clinical Trial of Cognitive Behavioral Treatment for PTSD in Women Veterans," ClinicalTrials.gov, 2004. As of May 20, 2020: https://clinicaltrials.gov/ct2/show/NCT00032617. Reason for exclusion: study does not report treatment retention, response, or remission.

Hawkins, E. J., C. A. Malte, J. Grossbard, A. J. Saxon, Z. E. Imel, and D. R. Kivlahan, "Comparative Safety of Benzodiazepines and Opioids Among Veterans Affairs Patients with Posttraumatic Stress Disorder," *Journal of* Addiction Medicine, Vol. 7, No. 5, 2013, pp. 354–362. Reason for exclusion: study does not report treatment retention, response, or remission.

Haynes, P. L., M. Kelly, L. Warner, S. F. Quan, B. Krakow, and R. R. Bootzin, "Cognitive Behavioral Social Rhythm Group Therapy for Veterans with Posttraumatic Stress Disorder, Depression, and Sleep Disturbance: Results from an Open Trial," *Journal of Affective Disorders*, Vol. 192, 2016, pp. 234–243. Reason for exclusion: interventions not recommended by DoD guidelines.

Hedges, D. W., and F. L. M. Woon, "Structural Magnetic Resonance Imaging Findings in Posttraumatic Stress Disorder and Their Response to Treatment: A Systematic Review," *Current Psychiatry Reviews*, Vol. 3, No. 2, 2007, pp. 85–93. Reason for exclusion: review.

Heffner, K. L., H. F. Crean, and J. E. Kemp, "Meditation Programs for Veterans with Posttraumatic Stress Disorder: Aggregate Findings from a Multi-Site Evaluation," *Psychological Trauma*, Vol. 8, No. 3, May 2016, pp. 365–374. Reason for exclusion: interventions not recommended by DoD guidelines.

Held, P., and G. P. Owens, "Effects of Self-Compassion Workbook Training on Trauma-Related Guilt in a Sample of Homeless Veterans: A Pilot Study," *Journal of Clinical Psychology*, Vol. 71, No. 6, June 2015, pp. 513–526. Reason for exclusion: interventions not recommended by DoD guidelines.

Helpman, L., S. Papini, B. T. Chhetry, E. Shvil, M. Rubin, G. M. Sullivan, J. C. Markowitz, J. J. Mann, and Y. Neria, "PTSD Remission After Prolonged Exposure Treatment Is Associated with Anterior Cingulate Cortex Thinning and Volume Reduction," *Depression and Anxiety*, Vol. 33, No. 5, 2016, pp. 384–391. Reason for exclusion: not military populations.

Heresco-Levy, U., A. Vass, B. Bloch, H. Wolosker, E. Dumin, L. Balan, L. Deutsch, and I. Kremer, "Pilot Controlled Trial of D-Serine for the Treatment of Post-Traumatic Stress Disorder," *International Journal of Neuropsychopharmacology*, Vol. 12, No. 9, October 2009, pp. 1275–1282. Reason for exclusion: not military populations.

Hermes, E., A. Fontana, and R. Rosenheck, "Vietnam Veteran Perceptions of Delayed Onset and Awareness of Posttraumatic Stress Disorder," *Psychiatric Quarterly*, Vol. 86, No. 2, 2015, pp. 169–179. Reason for exclusion: study does not report treatment retention, response, or remission.

Hertzberg, M. A., M. I. Butterfield, M. E. Feldman, J. C. Beckham, S. M. Sutherland, K. M. Connor, and J. R. T. Davidson, "A Preliminary Study of Lamotrigine for the Treatment of Posttraumatic Stress Disorder," *Biological Psychiatry*, Vol. 45, No. 9, May 1, 1999, pp. 1226–1229. Reason for exclusion: medications not recommended by DoD guidelines.

Hertzberg, M. A., M. E. Feldman, J. C. Beckham, H. S. Kudler, and J. R. T. Davidson, "Lack of Efficacy for Fluoxetine in PTSD: A Placebo Controlled Trial in Combat Veterans," *Annals of Clinical Psychiatry*, Vol. 12, No. 2, June 2000, pp. 101–105. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Hilton, L., A. Ruelaz Maher, B. Colaiaco, E. Apaydin, M. E. Sorbero, M. Booth, R. M. Shanman, and S. Hempel, "Meditation for Posttraumatic Stress: Systematic Review and Meta-Analysis," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 9, No. 4, 2017, pp. 453–460. Reason for exclusion: review.

Himmerich, H., G. D. Willmund, P. Zimmermann, J. E. Wolf, A. H. Buhler, K. C. Kirkby, B. Dalton, L. M. Holdt, D. Teupser, and U. Wesemann, "Serum Concentrations of TNF-Alpha and Its Soluble Receptors During Psychotherapy in German Soldiers Suffering from Combat-Related PTSD," *Psychiatria Danubina*, Vol. 28, No. 3, September 2016, pp. 293–298. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Ho, M. S. K., and C. W. Lee, "Cognitive Behaviour Therapy Versus Eye Movement Desensitization and Reprocessing for Post-Traumatic Disorder—Is It All in the Homework Then?" *Revue Européenne de Psychologie Appliquée/European Review of Applied Psychology*, Vol. 62, No. 4, 2012, pp. 253–260. Reason for exclusion: review.

Hoge, C. W., "Interventions for War-Related Posttraumatic Stress Disorder: Meeting Veterans Where They Are," *JAMA*, Vol. 306, No. 5, August 3, 2011, pp. 549–551. Reason for exclusion: not military populations.

Holder, N., R. Holliday, A. Pai, and A. Surís, "Role of Borderline Personality Disorder in the Treatment of Military Sexual Trauma–Related Posttraumatic Stress Disorder with Cognitive Processing Therapy," *Behavioral Medicine*, Vol. 43, No. 3, 2017, pp. 184–190. Reason for exclusion: sample size not <50.

Holliday, R., J. Link-Malcolm, E. E. Morris, and A. Suris, "Effects of Cognitive Processing Therapy on PTSD-Related Negative Cognitions in Veterans with Military Sexual Trauma," *Military Medicine*, Vol. 179, No. 10, October 2014, pp. 1077–1082. Reason for exclusion: study does not report treatment retention, response, or remission.

Holliday, R., R. Williams, J. Bird, K. Mullen, and A. Suris, "The Role of Cognitive Processing Therapy in Improving Psychosocial Functioning, Health, and Quality of Life in Veterans with Military Sexual Trauma–Related Posttraumatic Stress Disorder," *Psychological Services*, Vol. 12, No. 4, November 2015, pp. 428–434. Reason for exclusion: study does not report treatment retention, response, or remission.

Holliday, R. P., N. D. Holder, M. L. C. Williamson, and A. Surís, "Therapeutic Response to Cognitive Processing Therapy in White and Black Female Veterans with Military Sexual Trauma–Related PTSD," *Cognitive Behaviour Therapy*, Vol. 46, No. 5, 2017, pp. 432–446. Reason for exclusion: sample size not <50.

Hollifield, M., N. Sinclair-Lian, T. D. Warner, and R. Hammerschlag, "Acupuncture for Posttraumatic Stress Disorder: A Randomized Controlled Pilot Trial," *Journal of Nervous and Mental Disease*, Vol. 195, No. 6, 2007, pp. 504–513. Reason for exclusion: not military populations.

Hopwood, M., J. Wardell, P. Chen, K. Wallace, and I. Krivonos, "An Open Label Study of the Use of Aripiprazole in the Treatment of Chronic PTSD: Preliminary Findings," *European Neuropsychopharmacology*, Vol. 19, 2009, p. S512. Reason for exclusion: medications not recommended by DoD guidelines.

Hopwood, T. L., and N. S. Schutte, "A Meta-Analytic Investigation of the Impact of Mindfulness-Based Interventions on Post Traumatic Stress," *Clinical Psychology Review*, Vol. 57, 2017, pp. 12–20. Reason for exclusion: review.

Hsu, J. R., J. G. Owens, J. DeSanto, J. R. Fergason, K. M. Kuhn, B. K. Potter, D. J. Stinner, R. G. Sheu, S. L. Waggoner, J. M. Wilken, Y. Huang, D. O. Scharfstein, and E. J. MacKenzie, "Patient Response to an Integrated Orthotic and Rehabilitation Initiative for Traumatic Injuries: The PRIORITI-MTF Study," *Journal of Orthopaedic Trauma*, Vol. 31, Suppl. 1, April 2017, pp. S56–S62. Reason for exclusion: not PTSD.

Humphreys, L., J. Westerink, L. Giarrantano, and R. T. Brooks, "An Intensive Treatment Program for Chronic Posttraumatic Stress Disorder: 2-Year Outcome Data," *Australian and New Zealand Journal of Psychiatry*, Vol. 33, No. 6, 1999, pp. 848–854. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Hundt, N. E., T. L. Barrera, J. M. Mott, J. Mignogna, H.-J. Yu, S. Sansgiry, M. A. Stanley, and J. A. Cully, "Predisposing, Enabling, and Need Factors as Predictors of Low and High Psychotherapy Utilization in Veterans," *Psychological Services*, Vol. 11, No. 3, 2014, pp. 281–289. Reason for exclusion: study does not report treatment retention, response, or remission.

Inslicht, S., M. Milad, S. P. Orr, C. Marmar, and T. Neylan, "Randomized Controlled Trial of Hydrocortisone and D-Cycloserine on Fear Extinction in PTSD," *Neuropsychopharmacology*, Vol. 43, 2017, pp. S481–S482. Reason for exclusion: medications not recommended by DoD guidelines.

Interian, A., A. Kline, D. Perlick, L. Dixon, A. Feder, M. D. Weiner, M. F. Goldstein, K. Hennessy, L. St Hill, and M. Losonczy, "Randomized Controlled Trial of a Brief Internet-Based Intervention for Families of Veterans with Posttraumatic Stress Disorder," *Journal of Rehabilitation Research and Development*, Vol. 53, No. 5, 2016, pp. 629–640. Reason for exclusion: study does not report treatment retention, response, or remission.

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

Jain, S., M. A. Greenbaum, and C. S. Rosen, "Do Veterans with Posttraumatic Stress Disorder Receive First-Line Pharmacotherapy? Results from the Longitudinal Veterans Health Survey," *Primary Care Companion to the Journal of Clinical Psychiatry*, Vol. 14, No. 2, 2012 Reason for exclusion: study does not report treatment retention, response, or remission.

Jain, S., C. McLean, E. P. Adler, and C. S. Rosen, "Peer Support and Outcome for Veterans with Posttraumatic Stress Disorder (PTSD) in a Residential Rehabilitation Program," *Community Mental Health Journal*, Vol. 52, No. 8, November 2016, pp. 1089–1092. Reason for exclusion: sample size not <50.

Jain, S., G. F. McMahon, P. Hasen, M. P. Kozub, V. Porter, R. King, and E. M. Guarneri, "Healing Touch with Guided Imagery for PTSD in Returning Active Duty Military: A Randomized Controlled Trial," *Military Medicine*, Vol. 177, No. 9, September 2012, pp. 1015–1021. Reason for exclusion: interventions not recommended by DoD guidelines.

Jakupcak, M., A. W. Wagner, A. Paulson, A. A. Varra, and M. E. McFall, "Behavioral Activation as a Primary Care–Based Treatment for PTSD and Depression Among Returning Veterans," *Journal of Traumatic Stress*, Vol. 23, No. 4, 2010, pp. 491–495. Reason for exclusion: sample size not <50.

Janak, J. C., D. B. Cooper, A. O. Bowles, A. H. Alamgir, S. P. Cooper, K. P. Gabriel, A. Pérez, and J. A. Orman, "Completion of Multidisciplinary Treatment for Persistent Postconcussive Symptoms Is Associated with Reduced Symptom Burden," *Journal of Head Trauma Rehabilitation*, Vol. 32, No. 1, 2017, pp. 1–15. Reason for exclusion: study does not report treatment retention, response, or remission.

Jensen, J. A., "An Investigation of Eye Movement Densensitization and Reprocessing (EMD/R) as a Treatment for Posttraumatic Stress Disorder (PTSD) Symptoms of Vietnam Combat Veterans," *Behavior Therapy*, Vol. 25, No. 2, 1994, pp. 311–325. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Jetly, R., A. Heber, G. Fraser, and D. Boisvert, "The Efficacy of Nabilone, a Synthetic Cannabinoid, in the Treatment of PTSD-Associated Nightmares: A Preliminary Randomized, Double-Blind, Placebo-Controlled Cross-Over Design Study," *Psychoneuroendocrinology*, Vol. 51, January 2015, pp. 585–588. Reason for exclusion: medications not recommended by DoD guidelines.

Johnson, D. R., A. Fontana, H. Lubin, B. Corn, and R. Rosenheck, "Long-Term Course of Treatment-Seeking Vietnam Veterans with Posttraumatic Stress Disorder: Mortality, Clinical Condition, and Life Satisfaction," *Journal of Nervous and Mental Disease*, Vol. 192, No. 1, 2004, pp. 35–41. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Johnson, D. R., and H. Lubin, "Treatment Preferences of Vietnam Veterans with Posttraumatic Stress Disorder," *Journal of Traumatic Stress*, Vol. 10, No. 3, 1997, pp. 391–405. Reason for exclusion: study does not report treatment retention, response, or remission.

Johnson, D. R., R. A. Rosenheck, A. Fontana, H. Lubin, D. S. Charney, and S. M. Southwick, "Outcome of Intensive Inpatient Treatment for Combat-Related Posttraumatic Stress Disorder," *American Journal of Psychiatry*, Vol. 153, No. 6, 1996, pp. 771–777. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Johnson, R. A., D. L. Albright, J. R. Marzolf, J. L. Bibbo, H. D. Yaglom, S. M. Crowder, G. K. Carlisle, A. Willard, C. L. Russell, K. Grindler, S. Osterlind, M. Wassman, and N. Harms, "Effects of Therapeutic Horseback Riding on Post-Traumatic Stress Disorder in Military Veterans," *Military Medical Research*, Vol. 5, No. 1, 2018. Reason for exclusion: interventions not recommended by DoD guidelines.

Jordan, C. A., "A Cognitive Enhancer May Facilitate Behavioral Exposure Therapy for Veterans with PTSD," ClinicalTrials.gov, 2006. As of May 20, 2020: https://clinicaltrials.gov/ct2/show/NCT00356278. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Joseph, S., and R. Williams, "Understanding Posttraumatic Stress: Theory, Reflections, Context and Future," *Behavioural and Cognitive Psychotherapy*, Vol. 33, No. 4, 2005, pp. 423–441. Reason for exclusion: not military populations.

Kahn, J. R., W. Collinge, and R. Soltysik, "Post-9/11 Veterans and Their Partners Improve Mental Health Outcomes with a Self-Directed Mobile and Web-Based Wellness Training Program: A Randomized Controlled Trial," *Journal of Medical Internet Research*, Vol. 18, No. 9, 2016, pp. 18–40. Reason for exclusion: interventions not recommended by DoD guidelines.

Kaplan, Z., M. Amir, M. Swartz, and J. Levine, "Inositol Treatment of Post-Traumatic Stress Disorder," *Anxiety*, Vol. 2, No. 1, 1996, pp. 51–52. Reason for exclusion: not military populations.

Karsen, E. F., B. V. Watts, and P. E. Holtzheimer, "Review of the Effectiveness of Transcranial Magnetic Stimulation for Post-Traumatic Stress Disorder," *Brain Stimulation*, Vol. 7, No. 2, March–April 2014, pp. 151–157. Reason for exclusion: review.

Katz, L. S., G. Cojucar, R. A. Hoff, C. Lindl, C. Huffman, and T. Drew, "Longitudinal Outcomes of Women Veterans Enrolled in the Renew Sexual Trauma Treatment Program," *Journal of Contemporary Psychotherapy*, Vol. 45, No. 3, 2015, pp. 143–150. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Katz, L. S., S. Douglas, K. Zaleski, J. Williams, C. Huffman, and G. 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. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Keane, T. M., J. A. Fairbank, J. M. Caddell, and R. T. Zimering, "Implosive (Flooding) Therapy Reduces Symptoms of PTSD in Vietnam Combat Veterans," *Behavior Therapy*, Vol. 20, No. 2, Spr 1989, 1989, pp. 245–260. Reason for exclusion: interventions not recommended by DoD guidelines.

Kearney, D. J., C. A. Malte, C. McManus, M. E. Martinez, B. Felleman, and T. L. Simpson, "Loving-Kindness Meditation for Posttraumatic Stress Disorder: A Pilot Study," *Journal of Traumatic Stress*, Vol. 26, No. 4, 2013, pp. 426–434. Reason for exclusion: interventions not recommended by DoD guidelines.

Kearney, D. J., K. McDermott, C. Malte, M. Martinez, and T. L. Simpson, "Association of Participation in a Mindfulness Program with Measures of PTSD, Depression and Quality of Life in a Veteran Sample," *Journal of Clinical Psychology*, Vol. 68, No. 1, 2012, pp. 101–116. Reason for exclusion: interventions not recommended by DoD guidelines.

———, "Effects of Participation in a Mindfulness Program for Veterans with Posttraumatic Stress Disorder: A Randomized Controlled Pilot Study," *Journal of Clinical Psychology*, Vol. 69, No. 1, January 2013, pp. 14–27. Reason for exclusion: interventions not recommended by DoD guidelines.

Kehle-Forbes, S. M., M. L. Drapkin, E. B. Foa, E. Koffel, K. G. Lynch, M. A. Polusny, D. H. Van Horn, D. A. Yusko, M. Charlesworth, M. Blasco, and D. W. Oslin, "Study Design, Interventions, and Baseline Characteristics for the Substance use and TRauma Intervention for VEterans (STRIVE) Trial," *Contemporary Clinical Trials*, Vol. 50, September 2016, pp. 45–53. Reason for exclusion: study does not report treatment retention, response, or remission.

Kehle-Forbes, S. M., M. A. Polusny, R. MacDonald, M. Murdoch, L. A. Meis, and T. J. Wilt, "A Systematic Review of the Efficacy of Adding Nonexposure Features to Exposure Therapy for Posttraumatic Stress Disorder," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 5, No. 4, 2013, pp. 317–322. Reason for exclusion: review.

Kennis, M., S. J. H. van Rooij, A. Reijnen, and E. Geuze, "The Predictive Value of Dorsal Cingulate Activity and Fractional Anisotropy on Long-Term PTSD Symptom Severity," *Depression and Anxiety*, Vol. 34, No. 5, 2017, pp. 410–418. Reason for exclusion: sample size not <50.

Kennis, M., S. J. H. van Rooij, D. P. M. Tromp, A. S. Fox, A. R. Rademaker, R. S. Kahn, N. H. Kalin, and E. Geuze, "Treatment Outcome-Related White Matter Differences in Veterans with Posttraumatic Stress Disorder," *Neuropsychopharmacology*, Vol. 40, No. 10, 2015, pp. 2434–2442. Reason for exclusion: sample size not <50.

Kent, M., M. C. Davis, S. L. Stark, and L. A. Stewart, "A Resilience-Oriented Treatment for Posttraumatic Stress Disorder: Results of a Preliminary Randomized Clinical Trial," *Journal of Traumatic Stress*, Vol. 24, No. 5, October 2011, pp. 591–595. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Khachiyants, N., R. Ali, C. P. Kovesdy, J. G. Detweiler, K. Y. Kim, and M. B. Detweiler, "Effectiveness of Risperidone for the Treatment of Nightmares in Veterans with Posttraumatic Stress Disorder," *Journal of Clinical Psychopharmacology*, Vol. 30, No. 6, 2010, pp. 735–737. Reason for exclusion: medications not recommended by DoD guidelines.

Khazaie, H., M. Nasouri, and M. Rasoul Ghadami, "Prazosin for Trauma Nightmares and Sleep Disturbances in Combat Veterans with Post-Traumatic Stress Disorder," *Iranian Journal of Psychiatry and Behavioral Sciences*, Vol. 10, No. 3, 2016, p. e2603. Reason for exclusion: medications not recommended by DoD guidelines.

Khusid, M. A., and M. Vythilingam, "The Emerging Role of Mindfulness Meditation as Effective Self-Management Strategy, Part 1: Clinical Implications for Depression, Post-Traumatic Stress Disorder, and Anxiety," *Military Medicine*, Vol. 181, No. 9, September 2016, pp. 961–968. Reason for exclusion: review.

King, A. P., S. R. Block, R. K. Sripada, S. A. M. Rauch, K. E. Porter, T. K. Favorite, N. Giardino, and I. Liberzon, "A Pilot Study of Mindfulness-Based Exposure Therapy in OEF/OIF Combat Veterans with PTSD: Altered Medial Frontal Cortex and Amygdala Responses in Social-Emotional Processing," *Frontiers in Psychiatry*, Vol. 7, 2016. Reason for exclusion: interventions not recommended by DoD guidelines.

King, A. P., T. M. Erickson, N. D. Giardino, T. Favorite, S. A. M. Rauch, E. Robinson, M. Kulkarni, and I. Liberzon, "A Pilot Study of Group Mindfulness-Based Cognitive Therapy (MBCT) for Combat Veterans with Posttraumatic Stress Disorder (PTSD)," *Depression and Anxiety*, Vol. 30, No. 7, 2013, pp. 638–645. Reason for exclusion: interventions not recommended by DoD guidelines.

King, H. C., D. L. Spence, A. H. Hickey, P. Sargent, R. Elesh, and C. D. Connelly, "Auricular Acupuncture for Sleep Disturbance in Veterans with Post-Traumatic Stress Disorder: A Feasibility Study," *Military Medicine*, Vol. 180, No. 5, May 2015, pp. 582–590. Reason for exclusion: interventions not recommended by DoD guidelines.

Kinrys, G., L. E. Wygant, T. B. Pardo, and M. Melo, "Levetiracetam for Treatment-Refractory Posttraumatic Stress Disorder," *Journal of Clinical Psychiatry*, Vol. 67, No. 2, 2006, pp. 211–214. Reason for exclusion: not military populations.

Kip, K. E., L. Rosenzweig, D. F. Hernandez, A. Shuman, D. M. Diamond, S. A. Girling, K. L. Sullivan, T. Wittenberg, A. M. Witt, C. A. Lengacher, B. Anderson, and S. C. McMillan, "Accelerated Resolution Therapy for Treatment of Pain Secondary to Symptoms of Combat-Related Posttraumatic Stress Disorder," *European Journal of Psychotraumatology*, Vol. 5, 2014 Reason for exclusion: study does not report treatment retention, response, or remission.

Kip, K. E., L. Rosenzweig, D. F. Hernandez, A. Shuman, K. L. Sullivan, C. J. Long, J. Taylor, S. McGhee, S. A. Girling, T. Wittenberg, F. M. Sahebzamani, C. A. Lengacher, R. Kadel, and D. M. Diamond, "Randomized Controlled Trial of Accelerated Resolution Therapy (ART) for Symptoms of Combat-Related Post-Traumatic Stress Disorder (PTSD)," *Military Medicine*, Vol. 178, No. 12, December 2013, pp. 1298–1309. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Kitchiner, N. J., N. P. Roberts, D. Wilcox, and J. I. Bisson, "Systematic Review and Meta-Analyses of Psychosocial Interventions for Veterans of the Military," *European Journal of Psychotraumatology*, Vol. 3, 2012 Reason for exclusion: review.

Kline, A. C., A. A. Cooper, N. K. Rytwinksi, and N. C. Feeny, "Long-Term Efficacy of Psychotherapy for Posttraumatic Stress Disorder: A Meta-Analysis of Randomized Controlled Trials," *Clinical Psychology Review*, Vol. 59, 2018, pp. 30–40. Reason for exclusion: review.

Kline, A., D. S. Ciccone, M. Weiner, A. Interian, L. St. Hill, M. Falca-Dodson, C. M. Black, and M. Losonczy, "Gender Differences in the Risk and Protective Factors Associated with PTSD: A Prospective Study of National Guard Troops Deployed to Iraq," *Psychiatry: Interpersonal and Biological Processes*, Vol. 76, No. 3, 2013, pp. 256–272. Reason for exclusion: study does not report treatment retention, response, or remission.

Knaevelsrud, C., and A. Maercker, "Long-Term Effects of an Internet-Based Treatment for Posttraumatic Stress," *Cognitive Behaviour Therapy*, Vol. 39, No. 1, 2010, pp. 72–77. Reason for exclusion: not military populations.

Köhler, K., P. Eggert, S. Lorenz, K. Herr, G. Willmund, P. Zimmermann, and C. Alliger-Horn, "Effectiveness of Eye Movement Desensitization and Reprocessing in German Armed Forces Soldiers with Post-Traumatic Stress Disorder Under Routine Inpatient Care Conditions," *Military Medicine*, Vol. 182, No. 5, 2017, pp. e1672–e1680. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Korte, K. J., N. P. Allan, D. F. Gros, and R. Acierno, "Differential Treatment Response Trajectories in Individuals with Subclinical and Clinical PTSD," *Journal of Anxiety Disorders*, Vol. 38, March 2016, pp. 95–101. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Kosten, T. R., A. Fontana, M. J. Sernyak, and R. Rosenheck, "Benzodiazepine Use in Posttraumatic Stress Disorder Among Veterans with Substance Abuse," *Journal of Nervous and Mental Disease*, Vol. 188, No. 7, 2000. Reason for exclusion: study does not report treatment retention, response, or remission.

Kosten, T. R., J. B. Frank, E. Dan, C. J. McDougle, and E. L. Giller, Jr., "Pharmacotherapy for Posttraumatic Stress Disorder Using Phenelzine or Imipramine," *Journal of Nervous and Mental Disease*, Vol. 179, No. 6, June 1991, pp. 366–370. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Krippner, S., and B. Colodzin, "Multi-Cultural Methods of Treating Vietnam Veterans with Post-Traumatic Stress Disorder," *International Journal of Psychosomatics*, Vol. 36, Nos. 1–4, 1989, pp. 79–85. Reason for exclusion: interventions not recommended by DoD guidelines.

Krupnick, J. L., B. L. Green, R. Amdur, A. Alaoui, A. Belouali, E. Roberge, D. Cueva, M. Roberts, E. Melnikoff, and M. A. Dutton, "An Internet-Based Writing Intervention for PTSD in Veterans: A Feasibility and Pilot Effectiveness Trial," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 9, No. 4, 2017, pp. 461–470. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Krystal, J. H., "Risperidone Treatment for Military Service Related Chronic Post-Traumatic Stress Disorder (CSP #504)," ClinicalTrials.gov, 2004. As of April 5, 2020: https://clinicaltrials.gov/ct2/show/NCT00099983. Reason for exclusion: medications not recommended by DoD guidelines.

Krystal, J. H., R. H. Pietrzak, R. A. Rosenheck, J. A. Cramer, J. Vessicchio, K. M. Jones, G. D. Huang, J. E. Vertrees, J. Collins, and A. D. Krystal, "Sleep Disturbance in Chronic Military-Related PTSD: Clinical Impact and Response to Adjunctive Risperidone in the Veterans Affairs Cooperative Study #504," *Journal of Clinical Psychiatry*, Vol. 77, No. 4, April 2016, pp. 483–491. Reason for exclusion: medications not recommended by DoD guidelines.

Krystal, J. H., R. A. Rosenheck, J. A. Cramer, J. C. Vessicchio, K. M. Jones, J. E. Vertrees, R. A. Horney, G. D. Huang, and C. Stock, "Adjunctive Risperidone Treatment for Antidepressant-Resistant Symptoms of Chronic Military Service–Related PTSD: A Randomized Trial," *JAMA*, Vol. 306, No. 5, August 3, 2011, pp. 493–502. Reason for exclusion: medications not recommended by DoD guidelines.

Kuckertz, J. M., N. Amir, J. W. Boffa, C. K. Warren, S. E. Rindt, S. Norman, V. Ram, L. Ziajko, J. Webb-Murphy, and R. McLay, "The Effectiveness of an Attention Bias Modification Program as an Adjunctive Treatment for Post-Traumatic Stress Disorder," *Behavior Research and Therapy*, Vol. 63, December 2014, pp. 25–35. Reason for exclusion: sample size not <50.

Kuhn, E., C. Greene, J. Hoffman, T. Nguyen, L. Wald, J. Schmidt, K. M. Ramsey, and J. Ruzek, "Preliminary Evaluation of PTSD Coach, a Smartphone App for Post-Traumatic Stress Symptoms," *Military Medicine*, Vol. 179, No. 1, 2014, pp. 12–18. Reason for exclusion: study does not report treatment retention, response, or remission.

Laddis, A., "Outcome of Crisis Intervention for Borderline Personality Disorder and Post Traumatic Stress Disorder: A Model for Modification of the Mechanism of Disorder in Complex Post Traumatic Syndromes," *Annals of General Psychiatry*, Vol. 9, 2010. Reason for exclusion: not military populations.

Laffaye, C., C. S. Rosen, P. P. Schnurr, and M. J. Friedman, "Does Compensation Status Influence Treatment Participation and Course of Recovery from Post-Traumatic Stress Disorder?" *Military Medicine*, Vol. 172, No. 10, 2007, pp. 1039–1045. Reason for exclusion: review.

Lamp, K., K. P. Maieritch, E. S. Winer, J. D. Hessinger, and M. Klenk, "Predictors of Treatment Interest and Treatment Initiation in a VA Outpatient Trauma Services Program Providing Evidence-Based Care," *Journal of Traumatic Stress*, Vol. 27, No. 6, December 2014, pp. 695–702. Reason for exclusion: study does not report treatment retention, response, or remission.

Lande, R. G., L. B. Williams, J. L. Francis, C. Gragnani, and M. L. Morin, "Efficacy of Biofeedback for Post-Traumatic Stress Disorder," *Complementary Therapies in Medicine*, Vol. 18, No. 6, December 2010, pp. 256–259. Reason for exclusion: interventions not recommended by DoD guidelines.

Lang, A. J., P. P. Schnurr, S. Jain, R. Raman, R. Walser, E. Bolton, A. Chabot, and D. Benedek, "Evaluating Transdiagnostic Treatment for Distress and Impairment in Veterans: A Multi-Site Randomized Controlled Trial of Acceptance and Commitment Therapy," *Contemporary Clinical Trials*, Vol. 33, No. 1, January 2012, pp. 116–123. Reason for exclusion: interventions not recommended by DoD guidelines.

Lawford, B. R., R. McD. Young, E. P. Noble, B. Kann, L. Arnold, J. T. Rowell, and T. L. Ritchie, "D2 Dopamine Receptor Gene Polymorphism: Paroxetine and social functioning in Posttraumatic Stress Disorder," *European Neuropsychopharmacology*, Vol. 13, No. 5, 2003, pp. 313–320. Reason for exclusion: study does not report treatment retention, response, or remission.

Le, Q. A., J. N. Doctor, L. A. Zoellner, and N. C. Feeny, "Cost-Effectiveness of Prolonged Exposure Therapy Versus Pharmacotherapy and Treatment Choice in Posttraumatic Stress Disorder (the Optimizing PTSD Treatment Trial): A Doubly Randomized Preference Trial," *Journal of Clinical Psychiatry*, Vol. 75, No. 3, 2014, pp. 222–230. Reason for exclusion: not military populations.

Lee, C. W., and P. Cuijpers, "A Meta-Analysis of the Contribution of Eye Movements in Processing Emotional Memories," *Journal of Behavior Therapy and Experimental Psychiatry*, Vol. 44, No. 2, 2013, pp. 231–239. Reason for exclusion: review.

Lee, D. J., C. W. Schnitzlein, J. P. Wolf, M. Vythilingam, A. M. Rasmusson, and C. W. Hoge, "Psychotherapy Versus Pharmacotherapy for Posttraumatic Stress Disorder: Systemic Review and Meta-Analyses to Determine First-Line Treatments," *Depression and Anxiety*, Vol. 33, No. 9, September 2016, pp. 792–806. Reason for exclusion: review.

Lehavot, K., B. Litz, S. P. Millard, A. B. Hamilton, A. Sadler, and T. Simpson, "Study Adaptation, Design, and Methods of a Web-Based PTSD Intervention for Women Veterans," *Contemporary Clinical Trials*, Vol. 53, February 2017, pp. 68–79. Reason for exclusion: interventions not recommended by DoD guidelines.

Lettieri, C. J., S. G. Williams, and J. F. Collen, "OSA Syndrome and Posttraumatic Stress Disorder: Clinical Outcomes and Impact of Positive Airway Pressure Therapy," *Chest*, Vol. 149, No. 2, February 2016, pp. 483–490. Reason for exclusion: interventions not recommended by DoD guidelines.

Levi, O., Y. Bar-Haim, Y. Kreiss, and E. Fruchter, "Cognitive-Behavioural Therapy and Psychodynamic Psychotherapy in the Treatment of Combat-Related Post-Traumatic Stress Disorder: A Comparative Effectiveness Study," *Clinical Psychology and Psychotherapy*, Vol. 23, No. 4, 2016, pp. 298–307. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Levi, O., I. Wald, V. Svetlitsky, S. Zusmanovitz, E. Parasha, Y. Shoval-Zuckerman, G. Afik, G. Haikin, and E. Fruchter, "Combat-Related Multifaceted Trauma-Focused Group Therapy: A Pilot Study," *Journal of Nervous and Mental Disease*, Vol. 205, No. 2, 2017, pp. 133–139. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Lightstone, A. J., S. K. Bailey, and P. Voros, "Collaborative Music Therapy via Remote Video Technology to Reduce a Veteran's Symptoms of Severe, Chronic PTSD," *Arts and Health: An International Journal of Research, Policy and Practice*, Vol. 7, No. 2, 2015, pp. 123–136. Reason for exclusion: interventions not recommended by DoD guidelines.

Lindley, S. E., E. B. Carlson, and K. Hill, "A Randomized, Double-Blind, Placebo-Controlled Trial of Augmentation Topiramate for Chronic Combat-Related Posttraumatic Stress Disorder," *Journal of Clinical Psychopharmacology*, Vol. 27, No. 6, December 2007, pp. 677–681. Reason for exclusion: medications not recommended by DoD guidelines.

Lipov, E. G., M. Navaie, P. R. Brown, A. H. Hickey, E. T. Stedje-Larsen, and R. N. McLay, "Stellate Ganglion Block Improves Refractory Post-Traumatic Stress Disorder and Associated Memory Dysfunction: A Case Report and Systematic Literature Review," *Military Medicine*, Vol. 178, No. 2, 2013, pp. e260–e264. Reason for exclusion: review.

Litz, B. T., C. C. Engel, R. A. Bryant, and A. Papa, "A Randomized, Controlled Proof-of-Concept Trial of an Internet-Based, Therapist-Assisted Self-Management Treatment for Posttraumatic Stress Disorder," *American Journal of Psychiatry*, Vol. 164, No. 11, November 2007, pp. 1676–1683. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Litz, B. T., K. Salters-Pedneault, M. M. Steenkamp, J. A. Hermos, R. A. Bryant, M. W. Otto, and S. G. Hofmann, "A Randomized Placebo-Controlled Trial of D-Cycloserine and Exposure Therapy for Posttraumatic Stress Disorder," *Journal of* Psychiatric Research, Vol. 46, No. 9, September 2012, pp. 1184–1190. Reason for exclusion: medications not recommended by DoD guidelines.

Ljubotina, D., Z. Pantic, T. Frančišković, Martina Mladic, and Stefan Priebe, "Treatment Outcomes and Perception of Social Acknowledgment in War Veterans: Follow-Up Study," *Croatian Medical Journal*, Vol. 48, No. 2, 2007, pp. 157–166. Reason for exclusion: study does not report treatment retention, response, or remission.

Lloyd, D., A.-L. Couineau, K. Hawkins, D. Kartal, R. D. V. Nixon, D. Perry, and D. Forbes, "Preliminary Outcomes of Implementing Cognitive Processing Therapy for Posttraumatic Stress Disorder Across a National Veterans' Treatment Service," *Journal of Clinical Psychiatry*, Vol. 76, No. 11, 2015, pp. e1405–e1409. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Lloyd, D., R. D. Nixon, T. Varker, P. Elliott, D. Perry, R. A. Bryant, M. Creamer, and D. Forbes, "Comorbidity in the Prediction of Cognitive Processing Therapy Treatment Outcomes for Combat-Related Posttraumatic Stress Disorder," *Journal of Anxiety Disorders*, Vol. 28, No. 2, March 2014, pp. 237–240. Reason for exclusion: sample size not <50.

Long, M. E., M. E. Hammons, J. L. Davis, B. C. Frueh, M. M. Khan, J. D. Elhai, and E. J. Teng, "Imagery Rescripting and Exposure Group Treatment of Posttraumatic Nightmares in Veterans with PTSD," *Journal of Anxiety Disorders*, Vol. 25, No. 4, 2011, pp. 531–535. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Lu, M. W., K. F. Carlson, J. P. Duckart, and S. K. Dobscha, "The Effects of Age on Initiation of Mental Health Treatment After Positive PTSD Screens Among Veterans Affairs Primary Care Patients," *General Hospital Psychiatry*, Vol. 34, No. 6, 2012, pp. 654–659. Reason for exclusion: study does not report treatment retention, response, or remission.

Lu, M. W., A. W. Wagner, L. M. Van Male, A. Whitehead, and J. K. Boehnlein, "Imagery Rehearsal Therapy for Posttraumatic Nightmares in U.S. Veterans," *Journal of Traumatic Stress*, Vol. 22, No. 3, 2009, pp. 236–239. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Lurie, I., and S. Z. Levine, "Meta-Analysis of Dropout Rates in SSRIs Versus Placebo in Randomized Clinical Trials of PTSD," *Journal of Nervous and Mental Disease*, Vol. 198, No. 2, 2010, pp. 116–124. Reason for exclusion: review.

Luxton, D. D., L. D. Pruitt, K. O'Brien, and G. Kramer, "An Evaluation of the Feasibility and Safety of a Home-Based Telemental Health Treatment for Posttraumatic Stress in the U.S. Military," *Telemedicine and e-Health*, Vol. 21, No. 11, 2015, pp. 880–886. Reason for exclusion: sample size not <50.

Macdonald, A., C. M. Monson, S. Doron-Lamarca, P. A. Resick, and T. P. Palfai, "Identifying Patterns of Symptom Change During a Randomized Controlled Trial of Cognitive Processing Therapy for Military-Related Posttraumatic Stress Disorder," *Journal of Traumatic Stress*, Vol. 24, No. 3, June 2011, pp. 268–276. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Macdonald, A., N. D. Pukay-Martin, A. C. Wagner, S. J. Fredman, and C. M. Monson, "Cognitive-Behavioral Conjoint Therapy for PTSD Improves Various PTSD Symptoms and Trauma-Related Cognitions: Results from a Randomized Controlled Trial," *Journal of Family Psychology*, Vol. 30, No. 1, February 2016, pp. 157–162. Reason for exclusion: not military populations.

Mackintosh, M.-A., J. Niehaus, C. T. Taft, B. P. Marx, K. Grubbs, and L. A. Morland, "Using a Mobile Application in the Treatment of Dysregulated Anger Among Veterans," *Military Medicine*, Vol. 182, No. 11, 2017, pp. e1941–e1949. Reason for exclusion: interventions not recommended by DoD guidelines.

Macklin, M. L., L. J. Metzger, N. B. Lasko, N. J. Berry, S. P. Orr, and R. K. Pitman, "Five-Year Follow-Up Study of Eye Movement Desensitization and Reprocessing Therapy for Combat-Related Posttraumatic Stress Disorder," *Comprehensive Psychiatry*, Vol. 41, No. 1, 2000. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

MacNamara, A., C. A. Rabinak, A. E. Kennedy, D. A. Fitzgerald, I. Liberzon, M. B. Stein, and K. L. Phan, "Emotion Regulatory Brain Function and SSRI Treatment in PTSD: Neural Correlates and Predictors of Change," *Neuropsychopharmacology*, Vol. 41, No. 2, 2016. Reason for exclusion: sample size not <50.

Maguen, S., K. Burkman, E. Madden, J. Dinh, J. Bosch, J. Keyser, M. Schmitz, and T. C. Neylan, "Impact of Killing in War: A Randomized, Controlled Pilot Trial," *Journal of Clinical Psychology*, Vol. 73, No. 9, 2017, pp. 997–1012. Reason for exclusion: sample size not <50.

Manteghi, A. A., P. Hebrani, M. Mortezania, M. B. Haghighi, and A. Javanbakht, "Baclofen Add-On to Citalopram in Treatment of Posttraumatic Stress Disorder," *Journal of Clinical Psychopharmacology*, Vol. 34, No. 2, April 2014, pp. 240–243. Reason for exclusion: medications not recommended by DoD guidelines.

Margalit, C., S. Shmuel Rabinowitz, T. Ezion, Z. Solomon, and J. Ribak, "Treatment of Post-Traumatic Stress Disorders: An Applied Rear-Echelon Approach," *Military Medicine*, Vol. 159, No. 5, 1994, pp. 415–418. Reason for exclusion: study does not report treatment retention, response, or remission.

Margolies, S. O., B. Rybarczyk, S. R. Vrana, D. J. Leszczyszyn, and J. Lynch, "Efficacy of a Cognitive-Behavioral Treatment for Insomnia and Nightmares in Afghanistan and Iraq Veterans with PTSD," *Journal of Clinical Psychology*, Vol. 69, No. 10, October 2013, pp. 1026–1042. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Markowitz, J. C., E. Petkova, T. Biyanova, K. Ding, E. Jung Suh, and Y. Neria, "Exploring Personality Diagnosis Stability Following Acute Psychotherapy for Chronic Posttraumatic Stress Disorder," *Depression and Anxiety*, Vol. 32, No. 12, 2015, pp. 919–926. Reason for exclusion: not military populations.

Martenyi, F., E. B. Brown, H. Zhang, A. Prakash, and S. C. Koke, "Fluoxetine Versus Placebo in Posttraumatic Stress Disorder," *Journal of Clinical Psychiatry*, Vol. 63, No. 3, March 2002, pp. 199–206. Reason for exclusion: not military populations.

Martenyi, F., and V. Soldatenkova, "Fluoxetine in the Acute Treatment and Relapse Prevention of Combat-Related Post-Traumatic Stress Disorder: Analysis of the Veteran Group of a Placebo-Controlled, Randomized Clinical Trial," *European Neuropsychopharmacology*, Vol. 16, No. 5, July 2006, pp. 340–349. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Mataix-Cols, D., L. Fernandez de la Cruz, B. Monzani, D. Rosenfield, E. Andersson, A. Perez-Vigil, P. Frumento, R. A. de Kleine, J. Difede, B. W. Dunlop, L. J. Farrell, D. Geller, M. Gerardi, A. J. Guastella, S. G. Hofmann, G. J. Hendriks, M. G. Kushner, F. S. Lee, E. J. Lenze, C. A. Levinson, H. McConnell, M. W. Otto, J. Plag, M. H. Pollack, K. J. Ressler, T. L. Rodebaugh, B. O. Rothbaum, M. S. Scheeringa, A. Siewert-Siegmund, J. A. J. Smits, E. A. Storch, A. Strohle, C. D. Tart, D. F. Tolin, A. van Minnen, A. M. Waters, C. F. Weems, S. Wilhelm, K. Wyka, M. Davis, C. Ruck, M. Altemus, P. Anderson, J. Cukor, C. Finck, G. R. Geffken, F. Golfels, W. K. Goodman, C. Gutner, I. Heyman, T. Jovanovic, A. B. Lewin, J. P. McNamara, T. K. Murphy, S. Norrholm, and P. Thuras, "D-Cycloserine Augmentation of Exposure-Based Cognitive Behavior Therapy for Anxiety, Obsessive-Compulsive, and Posttraumatic Stress Disorders: A Systematic Review and Meta-Analysis of Individual Participant Data," *JAMA Psychiatry*, Vol. 74, No. 5, May 1, 2017, pp. 501–510. Reason for exclusion: review.

Matarazzo, B. B., H. S. Wortzel, B. A. Dorsey Holliman, and L. A. Brenner, "Evidence-Based Intervention Strategies for Veterans and Military Personnel with Traumatic Brain Injury and Co-Morbid Mental Health Conditions: A Systematic Review," *Brain Impairment*, Vol. 14, No. 1, 2013, pp. 42–50. Reason for exclusion: review.

Mathew, S. J., M. Vythilingam, J. W. Murrough, C. A. Zarate, Jr., A. Feder, D. A. Luckenbaugh, B. Kinkead, M. K. Parides, D. G. Trist, M. S. Bani, P. U. Bettica, E. M. Ratti, and D. S. Charney, "A Selective Neurokinin-1 Receptor Antagonist in Chronic PTSD: A Randomized, Double-Blind, Placebo-Controlled, Proof-of-Concept Trial," *European Neuropsychopharmacology*, Vol. 21, No. 3, March 2011, pp. 221–229. Reason for exclusion: not military populations.

Matsuoka, Y. J., K. Hamazaki, D. Nishi, and T. Hamazaki, "Change in Blood Levels of Eicosapentaenoic Acid and Posttraumatic Stress Symptom: A Secondary Analysis of Data from a Placebo-Controlled Trial of Omega3 Supplements," *Journal of Affective Disorders*, Vol. 205, 2016, pp. 289–291. Reason for exclusion: not military populations.

Matthieu, M. M., K. A. Lawrence, and E. Robertson-Blackmore, "The Impact of a Civic Service Program on Biopsychosocial Outcomes of Post 9/11 U.S. Military Veterans," *Psychiatry Research*, Vol. 248, 2017, pp. 111–116. Reason for exclusion: not PTSD.

McFall, M., C. Malte, A. Fontana, and R. A. Rosenheck, "Effects of an Outreach Intervention on Use of Mental Health Services by Veterans with Posttraumatic Stress Disorder," *Psychiatric Services*, Vol. 51, No. 3, March 2000, pp. 369–374. Reason for exclusion: study does not report treatment retention, response, or remission.

McFall, M., A. J. Saxon, C. A. Malte, B. Chow, S. Bailey, D. G. Baker, J. C. Beckham, K. D. Boardman, T. P. Carmody, A. M. Joseph, M. W. Smith, M. C. Shih, Y. Lu, M. Holodniy, and P. W. Lavori, "Integrating Tobacco Cessation into Mental Health Care for Posttraumatic Stress Disorder: A Randomized Controlled Trial," *JAMA*, Vol. 304, No. 22, Dec 8, 2010, pp. 2485–2493. Reason for exclusion: study does not report treatment retention, response, or remission.

McHugo, G. J., Y. Caspi, N. Kammerer, R. Mazelis, E. W. Jackson, L. Russell, C. Clark, J. Liebschutz, and R. Kimerling, "The Assessment of Trauma History in Women with Co-occurring Substance Abuse and Mental Disorders and a History of Interpersonal Violence," *Journal of Behavioral Health Services and Research*, Vol. 32, No. 2, 2005, pp. 113–127. Reason for exclusion: not military populations.

McLay, R., V. Ram, J. Murphy, J. Spira, D. P. Wood, M. D. Wiederhold, B. K. Wiederhold, S. Johnston, and D. Reeves, "Effect of Virtual Reality PTSD Treatment on Mood and Neurocognitive Outcomes," *Cyberpsychology, Behavior, and Social Networking*, Vol. 17, No. 7, July 2014, pp. 439–446. Reason for exclusion: interventions not recommended by DoD guidelines.

McLay, R., D. P. Wood, J. A. Webb-Murphy, J. L. Spira, M. D. Wiederhold, J. M. Pyne, and B. K. Widerhold, "A Randomized, Controlled Trial of Virtual Reality Exposure with Arousal Control for Active Duty Service Members with Combat PTSD: Virtual Reality Exposure Enhances Treatment of PTSD," paper presented at American Psychiatric Association 2010 Annual Meeting, New Orleans, La., May 22–26, 2010. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

McLay, R. N., A. Baird, J. Webb-Murphy, W. Deal, L. Tran, H. Anson, W. Klam, and S. Claiborne Johnston, "A Randomized, Head-to-Head Study of Virtual Reality Exposure Therapy for Posttraumatic Stress Disorder," *Cyberpsychology, Behavior, and Social Networking*, Vol. 20, No. 4, 2017, pp. 218–224. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

McLay, R. N., C. McBrien, M. D. Wiederhold, and B. K. Wiederhold, "Exposure Therapy With and Without Virtual Reality to Treat PTSD While in the Combat Theater: A Parallel Case Series," *Cyberpsychology, Behavior, and Social Networking*, Vol. 13, No. 1, 2010, pp. 37–42. Reason for exclusion: sample size not <50.

McLay, R. N., D. P. Wood, J. A. Webb-Murphy, J. L. Spira, M. D. Wiederhold, J. M. Pyne, and B. K. Wiederhold, "A Randomized, Controlled Trial of Virtual Reality-Graded Exposure Therapy for Post-Traumatic Stress Disorder in Active Duty Service Members with Combat-Related Post-Traumatic Stress Disorder," *Cyberpsychology, Behavior, and Social Networking*, Vol. 14, No. 4, April 2011, pp. 223–229. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

McLean, C. P., Y. J. Su, and E. B. Foa, "Posttraumatic Stress Disorder and Alcohol Dependence: Does Order of Onset Make a Difference?" *Journal of Anxiety Disorders*, Vol. 28, No. 8, December 2014, pp. 894–901. Reason for exclusion: not military populations.

———, "Mechanisms of Symptom Reduction in a Combined Treatment for Comorbid Posttraumatic Stress Disorder and Alcohol Dependence," *Journal of Consulting and Clinical Psychology*, Vol. 83, No. 3, 2015, pp. 655–661. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Mehling, W. E., M. A. Chesney, T. J. Metzler, L. A. Goldstein, S. Maguen, C. Geronimo, G. Agcaoili, D. E. Barnes, J. A. Hlavin, and T. C. Neylan, "A 12-Week Integrative Exercise Program Improves Self-Reported Mindfulness and Interoceptive Awareness in War Veterans with Posttraumatic Stress Symptoms," *Journal of Clinical Psychology*, Vol. 74, No. 1, 2017. Reason for exclusion: interventions not recommended by DoD guidelines.

Menefee, D. S., W. S. Leopoulos, J. K. Tran, E. Teng, J. Wanner, E. Wilde, S. McCauley, and S. X. Day, "Inpatient Trauma-Focused Treatment for Veterans: Implementation and Evaluation of Patient Perceptions and Outcomes of an Integrated Evidence-Based Treatment Approach," *Military Medicine*, Vol. 181, No. 11, November 2016, pp. e1590–e1599. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Middleton, K., and C. D. 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. Reason for exclusion: review.

Mikuls, T. R., Prasad R. Padala, H. R. Sayles, F. Yu, K. Michaud, L. Caplan, G. S. Kerr, A. Reimold, G. W. Cannon, J. S. Richards, D. Lazaro, G. M. Thiele, and J. A. Boscarino, "Prospective Study of Posttraumatic Stress Disorder and Disease Activity Outcomes in US Veterans with Rheumatoid Arthritis," *Arthritis Care and Research*, Vol. 65, No. 2, 2013, pp. 227–234. Reason for exclusion: study does not report treatment retention, response, or remission.

Miller, M. W., A. E. McKinney, F. S. Kanter, K. J. Korte, and W. R. Lovallo, "Hydrocortisone Suppression of the Fear-Potentiated Startle Response and Posttraumatic Stress Disorder," *Psychoneuroendocrinology*, Vol. 36, No. 7, August 2011, pp. 970–980. Reason for exclusion: study does not report treatment retention, response, or remission.

Mills, A. C., C. L. Badour, K. J. Korte, T. K. Killeen, A. V. Henschel, and S. E. Back, "Integrated Treatment of PTSD and Substance Use Disorders: Examination of Imaginal Exposure Length," *Journal of Traumatic Stress*, Vol. 30, No. 2, 2017, pp. 166–172. Reason for exclusion: sample size not <50.

Mitchell, M. A., D. W. Capron, A. M. Raines, and N. B. Schmidt, "Reduction of Cognitive Concerns of Anxiety Sensitivity Is Uniquely Associated with Reduction of PTSD and Depressive Symptoms: A Comparison of Civilians and Veterans," *Journal of Psychiatric Research*, Vol. 48, No. 1, 2014, pp. 25–31. Reason for exclusion: not military populations.

Mithoefer, M. C., M. T. Wagner, A. T. Mithoefer, L. Jerome, and R. Doblin, "The Safety and Efficacy of ±3,4-Methylenedioxymethamphetamine-Assisted Psychotherapy in Subjects with Chronic, Treatment-Resistant Posttraumatic Stress Disorder: The First Randomized Controlled Pilot Study," *Journal of Psychopharmacology*, Vol. 25, No. 4, 2011, pp. 439–452. Reason for exclusion: medications not recommended by DoD guidelines.

Miyahira, S. D., R. A. Folen, H. G. Hoffman, A. Garcia-Palacios, J. L. Spira, and M. Kawasaki, "The Effectiveness of VR Exposure Therapy for PTSD in Returning Warfighters," *Studies in Health Technology and Informatics*, Vol. 181, 2012, pp. 128–132. Reason for exclusion: interventions not recommended by DoD guidelines.

Monnelly, E. P., and D. A. Ciraulo, "Risperidone Effects on Irritable Aggression in Posttraumatic Stress Disorder," *Journal of Clinical Psychopharmacology*, Vol. 19, No. 4, 1999, pp. 377–378. Reason for exclusion: medications not recommended by DoD guidelines.

Monnelly, Edward P., Domenic A. Ciraulo, Clifford Knapp, and Terence Keane, "Low-Dose Risperidone as Adjunctive Therapy for Irritable Aggression in Posttraumatic Stress Disorder," *Journal of Clinical Psychopharmacology*, Vol. 23, No. 2, April 2003, pp. 193–196. Reason for exclusion: medications not recommended by DoD guidelines.

Monson, C. M., S. J. Fredman, A. Macdonald, N. D. Pukay-Martin, P. A. Resick, and P. P. Schnurr, "Effect of Cognitive-Behavioral Couple Therapy for PTSD: A Randomized Controlled Trial," *JAMA*, Vol. 308, No. 7, August 15, 2012, pp. 700–709. Reason for exclusion: not military populations.

Monson, C. M., A. Macdonald, V. Vorstenbosch, P. Shnaider, E. S. R. Goldstein, A. G. Ferrier-Auerbach, and K. E. Mocciola, "Changes in Social Adjustment with Cognitive Processing Therapy: Effects of Treatment and Association with PTSD Symptom Change," *Journal of Traumatic Stress*, Vol. 25, No. 5, 2012, pp. 519–526. Reason for exclusion: sample size not <50.

Monson, C. M., B. F. Rodriguez, and R. A. Warner, "Cognitive-Behavioral Therapy for PTSD in the Real World: Do Interpersonal Relationships Make a Real Difference?" *Journal of Clinical Psychology*, Vol. 61, No. 6, 2005, pp. 751–761. Reason for exclusion: sample size not <50.

Moradi, A. R., S. Moshirpanahi, H. Parhon, J. Mirzaei, T. Dalgleish, and L. Jobson, "A Pilot Randomized Controlled Trial Investigating the Efficacy of MEmory Specificity Training in Improving Symptoms of Posttraumatic Stress Disorder," *Behavior Research and Therapy*, Vol. 56, May 2014, pp. 68–74. Reason for exclusion: interventions not recommended by DoD guidelines.

Morland, L. A., C. J. Greene, C. Rosen, P. D. Mauldin, and B. C. Frueh, "Issues in the Design of a Randomized Noninferiority Clinical Trial of Telemental Health Psychotherapy for Rural Combat Veterans with PTSD," *Contemporary Clinical Trials*, Vol. 30, No. 6, November 2009, pp. 513–522. Reason for exclusion: study does not report treatment retention, response, or remission.

Morland, L. A., C. J. Greene, C. S. Rosen, D. Foy, P. Reilly, J. Shore, Q. He, and B. C. Frueh, "Telemedicine for Anger Management Therapy in a Rural Population of Combat Veterans with Posttraumatic Stress Disorder: A Randomized Noninferiority Trial," *Journal of Clinical Psychiatry*, Vol. 71, No. 7, July 2010, pp. 855–863. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Morland, L. A., A. K. Hynes, M. A. Mackintosh, P. A. Resick, and K. M. Chard, "Group Cognitive Processing Therapy Delivered to Veterans via Telehealth: A Pilot Cohort," *Journal of Traumatic Stress*, Vol. 24, No. 4, August 2011, pp. 465–469. Reason for exclusion: sample size not <50.

Morland, L. A., M. A. Mackintosh, C. S. Rosen, E. Willis, P. Resick, K. Chard, and B. C. Frueh, "Telemedicine Versus In-Person Delivery of Cognitive Processing Therapy for Women with Posttraumatic Stress Disorder: A Randomized Noninferiority Trial," *Depression and Anxiety*, Vol. 32, No. 11, November 2015, pp. 811–820. Reason for exclusion: not military populations.

Morland, L. A., K. Pierce, and M. Y. Wong, "Telemedicine and Coping Skills Groups for Pacific Island Veterans with Post-Traumatic Stress Disorder: A Pilot Study," *Journal of Telemedicine and Telecare*, Vol. 10, No. 5, 2004, pp. 286–289. Reason for exclusion: sample size not <50.

Morland, L. A., M. Raab, M. A. Mackintosh, C. S. Rosen, C. E. Dismuke, C. J. Greene, and B. C. Frueh, "Telemedicine: A Cost-Reducing Means of Delivering Psychotherapy to Rural Combat Veterans with PTSD," *Telemedicine and e-Health*, Vol. 19, No. 10, October 2013, pp. 754–759. Reason for exclusion: study does not report treatment retention, response, or remission.

Motraghi, T. E., R. W. Seim, E. C. Meyer, and S. B. Morissette, "Virtual Reality Exposure Therapy for the Treatment of Posttraumatic Stress Disorder: A Methodological Review Using CONSORT Guidelines," *Journal of Clinical Psychology*, Vol. 70, No. 3, March 2014, pp. 197–208. Reason for exclusion: review.

Mott, J. M., N. E. Hundt, S. Sansgiry, J. Mignogna, and J. A. Cully, "Changes in Psychotherapy Utilization Among Veterans with Depression, Anxiety, and PTSD," *Psychiatric Services*, Vol. 65, No. 1, 2014, pp. 106–112. Reason for exclusion: study does not report treatment retention, response, or remission.

Mott, J. M., M. A. Stanley, R. L. Street, Jr., R. H. Grady, and E. J. Teng, "Increasing Engagement in Evidence-Based PTSD Treatment Through Shared Decision-Making: A Pilot Study," *Military Medicine*, Vol. 179, No. 2, February 2014, pp. 143–149. Reason for exclusion: study does not report treatment retention, response, or remission.

Mullen, K., R. Holliday, E. Morris, A. Raja, and A. Suris, "Cognitive Processing Therapy for Male Veterans with Military Sexual Trauma–Related Posttraumatic Stress Disorder," *Journal of Anxiety Disorders*, Vol. 28, No. 8, December 2014, pp. 761–764. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Mulligan, K., N. T. Fear, N. Jones, S. Wessely, and N. Greenberg, "Psycho-Educational Interventions Designed to Prevent Deployment-Related Psychological Ill-Health in Armed Forces Personnel: A Review," *Psychological Medicine*, Vol. 41, No. 4, April 2011, pp. 673–686. Reason for exclusion: review.

Mulvaney, S. W., J. H. Lynch, M. J. Hickey, T. Rahman-Rawlins, M. J. Schroeder, S. F. Kane, and E. G. Lipov, "Stellate Ganglion Block Used to Treat Symptoms Associated with Combat-Related Post-Traumatic Stress Disorder: A Case Series of 166 Patients," *Military Medicine*, Vol. 179, No. 10, 2014, pp. 1133–1140. Reason for exclusion: interventions not recommended by DoD guidelines.

Mulvaney, S. W., B. McLean, and J. B. De Leeuw, "The Use of Stellate Ganglion Block in the Treatment of Panic/Anxiety Symptoms with Combat-Related Post-Traumatic Stress Disorder; Preliminary Results of Long-Term Follow-Up: A Case Series," *Pain Practice*, Vol. 10, No. 4, 2010, pp. 359–365. Reason for exclusion: interventions not recommended by DoD guidelines.

Mushtaq, D., A. Ali, M. A. Margoob, I. Murtaza, and C. Andrade, "Association Between Serotonin Transporter Gene Promoter-Region Polymorphism and 4- and 12-week Treatment Response to Sertraline in Posttraumatic Stress Disorder," *Journal of Affective Disorders*, Vol. 136, No. 3, 2012, pp. 955–962. Reason for exclusion: not military populations.

Nacasch, N., E. B. Foa, L. Fostick, M. Polliack, Y. Dinstein, D. Tzur, P. Levy, and J. Zohar, "Prolonged Exposure Therapy for Chronic Combat-Related PTSD: A Case Report of Five Veterans," *CNS Spectrums*, Vol. 12, No. 9, 2007, pp. 690–695. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Nacasch, N., E. B. Foa, J. D. Huppert, D. Tzur, L. Fostick, Y. Dinstein, M. Polliack, and J. Zohar, "Prolonged Exposure Therapy for Combat- and Terror-Related Posttraumatic Stress Disorder: A Randomized Control Comparison with Treatment as Usual," *Journal of Clinical Psychiatry*, Vol. 72, No. 9, September 2011, pp. 1174–1180. Reason for exclusion: sample size not <50.

Nacasch, N., J. D. Huppert, Y. J. Su, Y. Kivity, Y. Dinshtein, R. Yeh, and E. B. Foa, "Are 60-Minute Prolonged Exposure Sessions with 20-Minute Imaginal Exposure to Traumatic Memories Sufficient to Successfully Treat PTSD? A Randomized Noninferiority Clinical Trial," *Behavior Therapy*, Vol. 46, No. 3, May 2015, pp. 328–341. Reason for exclusion: sample size not <50.

Najavits, L. M., and D. Hien, "Helping Vulnerable Populations: A Comprehensive Review of the Treatment Outcome Literature on Substance Use Disorder and PTSD," *Journal of Clinical Psychology*, Vol. 69, No. 5, 2013, pp. 433–479. Reason for exclusion: review.

Nakamura, Y., D. L. Lipschitz, R. Landward, R. Kuhn, and G. West, "Two Sessions of Sleep-Focused Mind-Body Bridging Improve Self-Reported Symptoms of Sleep and PTSD in Veterans: A Pilot Randomized Controlled Trial," *Journal of Psychosomatic Research*, Vol. 70, No. 4, April 2011, pp. 335–345. Reason for exclusion: interventions not recommended by DoD guidelines.

Nanda, U., H. L. Barbato Gaydos, K. Hathorn, and N. Watkins, "Art and Posttraumatic Stress: A Review of the Empirical Literature on the Therapeutic Implications of Artwork for War Veterans with Posttraumatic Stress Disorder," *Environment and Behavior*, Vol. 42, No. 3, 2010, pp. 376–390. Reason for exclusion: interventions not recommended by DoD guidelines.

Nappi, C. M., S. P. A. Drummond, S. R. Thorp, and J. R. McQuaid, "Effectiveness of Imagery Rehearsal Therapy for the Treatment of Combat-Related Nightmares in Veterans," *Behavior Therapy*, Vol. 41, No. 2, 2010, pp. 237–244. Reason for exclusion: interventions not recommended by DoD guidelines.

Naß, J., and T. Efferth, "Pharmacogenetics and Pharmacotherapy of Military Personnel Suffering from Post-Traumatic Stress Disorder," *Current Neuropharmacology*, Vol. 15, No. 6, 2017, pp. 831–860. Reason for exclusion: review.

Naylor, J. C., T. R. Dolber, J. L. Strauss, J. D. Kilts, T. J. Strauman, D. W. Bradford, S. T. Szabo, N. A. Youssef, K. M. Connor, J. R. Davidson, and C. E. Marx, "A Pilot Randomized Controlled Trial with Paroxetine for Subthreshold PTSD in Operation Enduring Freedom/Operation Iraqi Freedom Era Veterans," *Psychiatry Research*, Vol. 206, Nos. 2–3, April 30, 2013, pp. 318–320. Reason for exclusion: not PTSD.

Naylor, J. C., J. D. Kilts, D. W. Bradford, J. L. Strauss, B. P. Capehart, S. T. Szabo, K. D. Smith, C. E. Dunn, K. M. Conner, J. R. Davidson, H. R. Wagner, R. M. Hamer, and C. E. Marx, "A Pilot Randomized Placebo-Controlled Trial of Adjunctive Aripiprazole for Chronic PTSD in US Military Veterans Resistant to Antidepressant Treatment," *International Clinical Psychopharmacology*, Vol. 30, No. 3, May 2015, pp. 167–174. Reason for exclusion: medications not recommended by DoD guidelines.

Neal, L. A., W. Shapland, and C. Fox, "An Open Trial of Moclobemide in the Treatment of Post-Traumatic Stress Disorder," *International Clinical Psychopharmacology*, Vol. 12, No. 4, 1997, pp. 231–237. Reason for exclusion: not military populations.

Nelson, R. J., "Is Virtual Reality Exposure Therapy Effective for Service Members and Veterans Experiencing Combat-Related PTSD?" *Traumatology*, Vol. 19, No. 3, 2013, pp. 171–178. Reason for exclusion: review.

Nevison, C. B., J. J. M. Flower, and P. L. N. Naish, "The Post Traumatic Stress Management Course at RN Hospital, Haslar," *Journal of the Royal Naval Medical Services*, Vol. 82, No. 1, 1996, pp. 9–14. Reason for exclusion: not military populations.

Neylan, T. C., M. Lenoci, K. W. Samuelson, T. J. Metzler, C. Henn-Haase, R. W. Hierholzer, S. E. Lindley, C. Otte, F. B. Schoenfeld, J. A. Yesavage, and C. R. Marmar, "No Improvement of Posttraumatic Stress Disorder Symptoms with Guanfacine Treatment," *American Journal of Psychiatry*, Vol. 163, No. 12, December 2006, pp. 2186–2188. Reason for exclusion: medications not recommended by DoD guidelines.

Neylan, T. C., M. Lenoci, M. L. Maglione, N. Z. Rosenlicht, Y. Leykin, T. J. Metzler, F. B. Schoenfeld, and C. R. Marmar, "The Effect of Nefazodone on Subjective and Objective Sleep Quality in Posttraumatic Disorder," *Journal of Clinical Psychiatry*, Vol. 64, No. 4, 2003, pp. 445–450. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Neylan, Thomas C., Thomas J. Metzler, Frank B. Schoenfeld, Daniel S. Weiss, Maryann Lenoci, Suzanne R. Best, Tami L. Lipsey, and Charles R. Marmar, "Fluvoxamine and Sleep Disturbances in Posttraumatic Stress Disorder," *Journal of Traumatic Stress*, Vol. 14, No. 3, 2001, pp. 461–467. Reason for exclusion: study does not report treatment retention, response, or remission.

Niles, B. L., J. Klunk-Gillis, D. J. Ryngala, A. K. Silberbogen, A. Paysnick, and E. J. Wolf, "Comparing Mindfulness and Psychoeducation Treatments for Combat-Related PTSD Using a Telehealth Approach," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 4, No. 5, 2012, pp. 538–547. Reason for exclusion: interventions not recommended by DoD guidelines.

Niles, B. L., A. A. Vujanovic, A. K. Silberbogen, A. V. Seligowski, and C. M. Potter, "Changes in Mindfulness Following a Mindfulness Telehealth Intervention," *Mindfulness*, Vol. 4, No. 4, 2013, pp. 301–310. Reason for exclusion: interventions not recommended by DoD guidelines.

Norman, S. B., B. C. Davis, P. J. Colvonen, M. Haller, U. S. Myers, R. S. Trim, R. Bogner, and S. K. Robinson, "Prolonged Exposure with Veterans in a Residential Substance Use Treatment Program," *Cognitive and Behavioral Practice*, Vol. 23, No. 2, 2016, pp. 162–172. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Norman, S. B., M. Haller, A. D. Spadoni, S. P. Drummond, V. Risbrough, J. L. Hamblen, R. S. Trim, and E. X. Blanes, "Maximizing the Utility of a Single Site Randomized Controlled Psychotherapy Trial," *Contemporary Clinical Trials*, Vol. 42, May 2015, pp. 244–251. Reason for exclusion: study does not report treatment retention, response, or remission.

Norrholm, S. D., T. Jovanovic, M. Gerardi, K. G. Breazeale, M. Price, M. Davis, E. Duncan, K. J. Ressler, B. Bradley, A. Rizzo, P. W. Tuerk, and B. O. Rothbaum, "Baseline Psychophysiological and Cortisol Reactivity as a Predictor of PTSD Treatment Outcome in Virtual Reality Exposure Therapy," *Behavior Research and Therapy*, Vol. 82, July 2016, pp. 28–37. Reason for exclusion: sample size not <50.

O'Haire, M. E., N. A. Guérin, and A. C. Kirkham, "Animal-Assisted Intervention for Trauma: A Systematic Literature Review," *Frontiers in Psychology*, Vol. 6, 2015. Reason for exclusion: review.

Øktedalen, T., A. Hoffart, and T. Formo Langkaas, "Trauma-Related Shame and Guilt as Time-Varying Predictors of Posttraumatic Stress Disorder Symptoms During Imagery Exposure and Imagery Rescripting—A Randomized Controlled Trial," *Psychotherapy Research*, Vol. 25, No. 5, 2015, pp. 518–532. Reason for exclusion: not military populations.

Olden, M., K. Wyka, J. Cukor, M. Peskin, M. Altemus, F. S. Lee, L. Finkelstein-Fox, T. Rabinowitz, and J. Difede, "Pilot Study of a Telehealth-Delivered Medication-Augmented Exposure Therapy Protocol for PTSD," *Journal of Nervous and Mental Disease*, Vol. 205, No. 2, 2017, pp. 154–160. Reason for exclusion: not military populations.

Oman, D., and J. E. Bormann, "Mantram Repetition Fosters Self-Efficacy in Veterans for Managing PTSD: A Randomized Trial," *Psychology of Religion and Spirituality*, Vol. 7, No. 1, 2015, pp. 34–45. Reason for exclusion: interventions not recommended by DoD guidelines.

Omidi, A., A. Mohammadi, F. Zargar, and H. Akbari, "Efficacy of Mindfulness-Based Stress Reduction on Mood States of Veterans with Post-Traumatic Stress Disorder," *Archives of Trauma Research*, Vol. 1, No. 4, 2013, pp. 151–154. Reason for exclusion: interventions not recommended by DoD guidelines.

O'Neil, M. E., S. M. Nugent, B. J. Morasco, M. Freeman, A. Low, K. Kondo, B. Zakher, C. Elven, M. Motu'apuaka, R. Paynter, and D. Kansagara, "Benefits and Harms of Plant-Based Cannabis for Posttraumatic Stress Disorder: A Systematic Review," *Annals of Internal Medicine*, Vol. 167, No. 5, September 5, 2017, pp. 332–340. Reason for exclusion: review.

Orcutt, H. K., D. J. Erickson, and J. Wolfe, "The Course of PTSD Symptoms Among Gulf War Veterans: A Growth Mixture Modeling Approach," *Journal of Traumatic Stress*, Vol. 17, No. 3, 2004, pp. 195–202. Reason for exclusion: study does not report treatment retention, response, or remission.

Osório, C., N. Jones, M. Fertout, and N. Greenberg, "Changes in Stigma and Barriers to Care Over Time in U.K. Armed Forces Deployed to Afghanistan and Iraq Between 2008 and 2011," *Military Medicine*, Vol. 178, No. 8, 2013, pp. 846–853. Reason for exclusion: not PTSD.

Otis, J., "Intensive Treatment of Chronic Pain and PTSD for OEF/OIF Veterans," ClinicalTrials.gov, 2010. As of April 6, 2020: https://clinicaltrials.gov/ct2/show/NCT01120067. Reason for exclusion: not PTSD.

Otis, J. D., T. M. Keane, R. D. Kerns, C. Monson, and E. Scioli, "The Development of an Integrated Treatment for Veterans with Comorbid Chronic Pain and Posttraumatic Stress Disorder," *Pain Medicine*, Vol. 10, No. 7, 2009, pp. 1300–1311. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Ouimette, P., R. H. Moos, and J. W. Finney, "PTSD Treatment and 5-year Remission Among Patients with Substance Use and Posttraumatic Stress Disorders," *Journal of Consulting and Clinical Psychology*, Vol. 71, No. 2, 2003, pp. 410–414. Reason for exclusion: study does not report treatment retention, response, or remission.

Ouimette, P. C., C. E. Ahrens, R. H. Moos, and J. W. Finney, "Posttraumatic Stress Disorder in Substance Abuse Patients: Relationship to 1-Year Posttreatment Outcomes," *Psychology of Addictive Behaviors*, Vol. 11, No. 1, 1997, pp. 34–47. Reason for exclusion: study does not report treatment retention, response, or remission.

Outcalt, S. D., H. Maria Hoen, Z. Yu, T. M. Franks, and E. E. Krebs, "Does Comorbid Chronic Pain Affect Posttraumatic Stress Disorder Diagnosis and Treatment? Outcomes of Posttraumatic Stress Disorder Screening in Department of Veterans Affairs Primary Care," *Journal of Rehabilitation Research and Development*, Vol. 53, No. 1, 2016, pp. 37–44. Reason for exclusion: study does not report treatment retention, response, or remission.

Owens, G. P., D. G. Baker, J. Kasckow, J. A. Ciesla, and S. Mohamed, "Review of Assessment and Treatment of PTSD Among Elderly American Armed Forces Veterans," *International Journal of Geriatric Psychiatry*, Vol. 20, No. 12, 2005, pp. 1118–1130. Reason for exclusion: review.

Panahi, Y., B. R. Moghaddam, A. Sahebkar, M. A. Nazari, F. Beiraghdar, G. Karami, and A. R. Saadat, "A Randomized, Double-Blind, Placebo-Controlled Trial on the Efficacy and Tolerability of Sertraline in Iranian Veterans with Post-Traumatic Stress Disorder," *Psychological Medicine*, Vol. 41, No. 10, 2011, pp. 2159–2166. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Pantalon, M. V., and R. W. Motta, "Effectiveness of Anxiety Management Training in the Treatment of Posttraumatic Stress Disorder: A Preliminary Report," *Journal of Behavior Therapy and Experimental Psychiatry*, Vol. 29, No. 1, 1998. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Peniston, E. G., "EMG Biofeedback-Assisted Desensitization Treatment for Vietnam Combat Veterans Post-Traumatic Stress Disorder," *Clinical Biofeedback and Health*, Vol. 9, No. 1, 1986, pp. 35–41. Reason for exclusion: interventions not recommended by DoD guidelines.

Peniston, E. G., and P. J. Kulkosky, "Alpha-Theta Brainwave Neuro-Feedback Therapy for Vietnam Veterans with Combat-Related Post-Traumatic Stress Disorder," *Medical Psychotherapy*, Vol. 4, 1991, pp. 47–60. Reason for exclusion: interventions not recommended by DoD guidelines.

Pérez Benítez, C. I., C. Zlotnick, J. Gomez, M. J. Rendón, and A. Swanson, "Cognitive Behavioral Therapy for PTSD and Somatization: An Open Trial," *Behavior Research and Therapy*, Vol. 51, No. 6, 2013, pp. 284–289. Reason for exclusion: not military populations.

Petrakis, I., "Zonisamide in Addition to Enhanced Cognitive Processing Therapy-C (E-CPT-C) for Veterans with PTSD and Comorbid Alcohol Dependence," ClinicalTrials.gov, 2013. As of April 6, 2020: http://clinicaltrials.gov/show/nct01847469. Reason for exclusion: medications not recommended by DoD guidelines.

Petrakis, I. L., N. Desai, R. Gueorguieva, A. Arias, E. O'Brien, J. S. Jane, K. Sevarino, S. Southwick, and E. Ralevski, "Prazosin for Veterans with Posttraumatic Stress Disorder and Comorbid Alcohol Dependence: A Clinical Trial," *Alcoholism: Clinical and Experimental Research*, Vol. 40, No. 1, January 2016, pp. 178–186. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Petrakis, I. L., J. Poling, C. Levinson, C. Nich, K. Carroll, E. Ralevski, and B. Rounsaville, "Naltrexone and Disulfiram in Patients with Alcohol Dependence and Comorbid Post-Traumatic Stress Disorder," *Biological Psychiatry*, Vol. 60, No. 7, October 1, 2006, pp. 777–783. Reason for exclusion: medications not recommended by DoD guidelines.

Petrakis, I. L., E. Ralevski, N. Desai, L. Trevisan, R. Gueorguieva, B. Rounsaville, and J. H. Krystal, "Noradrenergic vs Serotonergic Antidepressant With or Without Naltrexone for Veterans with PTSD and Comorbid Alcohol Dependence," *Neuropsychopharmacology*, Vol. 37, No. 4, March 2012, pp. 996–1004. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Petrakis, I. L., and T. L. Simpson, "Posttraumatic Stress Disorder and Alcohol Use Disorder: A Critical Review of Pharmacologic Treatments," *Alcoholism: Clinical and Experimental Research*, Vol. 41, No. 2, February 2017, pp. 226–237. Reason for exclusion: review.

Philip, N. S., S. J. Ridout, S. E. Albright, G. Sanchez, and L. L. Carpenter, "5-Hz Transcranial Magnetic Stimulation for Comorbid Posttraumatic Stress Disorder and Major Depression," *Journal of Traumatic Stress*, Vol. 29, No. 1, February 2016, pp. 93–96. Reason for exclusion: interventions not recommended by DoD guidelines.

Pigeon, W., C. Allen, K. Possemato, D. Bergen-Cico, and S. Treatman, "Feasibility and Acceptability of a Brief Mindfulness Program for Veterans in Primary Care with Posttraumatic Stress Disorder," *Mindfulness*, Vol. 6, No. 5, 2015, pp. 986–995. Reason for exclusion: interventions not recommended by DoD guidelines.

Pitman, R. K., S. P. Orr, B. Altman, R. E. Longpre, R. E. Poire, and M. L. Macklin, "Emotional Processing During Eye Movement Desensitization and Reprocessing Therapy of Vietnam Veterans with Chronic Posttraumatic Stress Disorder," *Comprehensive Psychiatry*, Vol. 37, No. 6, November–December 1996, pp. 419–429. Reason for exclusion: study does not report treatment retention, response, or remission.

Pitman, R. K., S. P. Orr, B. Altman, R. E. Longpre, R. E. Poiré, M. L. Macklin, M. J. Michaels, and G. S. Steketee, "Emotional Processing and Outcome of Imaginal Flooding Therapy in Vietnam Veterans with Chronic Posttraumatic Stress Disorder," *Comprehensive Psychiatry*, Vol. 37, No. 6, 1996, pp. 409–418. Reason for exclusion: sample size not <50.

Pivac, N., D. Kozaric-Kovacic, and D. Muck-Seler, "Olanzapine Versus Fluphenazine in an Open Trial in Patients with Psychotic Combat-Related Post-Traumatic Stress Disorder," *Psychopharmacology*, Vol. 175, No. 4, 2004, pp. 451–456. Reason for exclusion: medications not recommended by DoD guidelines.

Plagge, J. M., M. W. Lu, T. I. Lovejoy, A. I. Karl, and S. K. Dobscha, "Treatment of Comorbid Pain and PTSD in Returning Veterans: A Collaborative Approach Utilizing Behavioral Activation," *Pain Medicine*, Vol. 14, No. 8, 2013, pp. 1164–1172. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Pollack, M. H., E. A. Hoge, J. J. Worthington, S. J. Moshier, R. S. Wechsler, M. Brandes, and N. M. Simon, "Eszopiclone for the Treatment of Posttraumatic Stress Disorder and Associated Insomnia: A Randomized, Double-Blind, Placebo-Controlled Trial," *Journal of Clinical Psychiatry*, Vol. 72, No. 7, 2011, pp. 892–897. Reason for exclusion: not military populations.

Polusny, M. A., C. R. Erbes, P. Thuras, A. Moran, G. J. Lamberty, R. C. Collins, J. L. Rodman, and K. O. Lim, "Mindfulness-Based Stress Reduction for Posttraumatic Stress Disorder Among Veterans: A Randomized Clinical Trial," *JAMA*, Vol. 314, No. 5, August 4, 2015, pp. 456–465. Reason for exclusion: interventions not recommended by DoD guidelines.

Possemato, K., D. Bergen-Cico, S. Treatman, C. Allen, M. Wade, and W. Pigeon, "A Randomized Clinical Trial of Primary Care Brief Mindfulness Training for Veterans with PTSD," *Journal of Clinical Psychology*, Vol. 72, No. 3, March 2016, pp. 179–193. Reason for exclusion: interventions not recommended by DoD guidelines.

Possemato, K., E. Kuhn, E. Johnson, J. E. Hoffman, J. E. Owen, N. Kanuri, L. De Stefano, and E. Brooks, "Using PTSD Coach in Primary Care With and Without Clinician Support: A Pilot Randomized Controlled Trial," *General Hospital Psychiatry*, Vol. 38, January–February 2016, pp. 94–98. Reason for exclusion: sample size not <50.

Possemato, K., P. Ouimette, and P. Knowlton, "A Brief Self-Guided Telehealth Intervention for Post-Traumatic Stress Disorder in Combat Veterans: A Pilot Study," *Journal of Telemedicine and Telecare*, Vol. 17, No. 5, 2011, pp. 245–250. Reason for exclusion: interventions not recommended by DoD guidelines.

Poulsen, D. V., U. Stigsdotter, and A. D. Refshage, "Whatever Happened to the Soldiers? Nature-Assisted Therapies for Veterans Diagnosed with Post-Traumatic Stress Disorder: A Literature Review," *Urban Forestry and Urban Greening*, Vol. 14, No. 2, 2015, pp. 438–445. Reason for exclusion: review.

Price, C. J., B. McBride, L. Hyerle, and D. R. Kivlahan, "Mindful Awareness in Body-Oriented Therapy for Female Veterans with Post-Traumatic Stress Disorder Taking Prescription Analgesics for Chronic Pain: A Feasibility Study," *Alternative Therapies in Health and Medicine*, Vol. 13, No. 6, November–December 2007, pp. 32–40. Reason for exclusion: interventions not recommended by DoD guidelines.

Price, J. L., H. Z. MacDonald, K. C. Adair, N. Koerner, and C. M. Monson, "Changing Beliefs About Trauma: A Qualitative Study of Cognitive Processing Therapy," *Behavioral and Cognitive Psychotherapy*, Vol. 44, No. 2, March 2016, pp. 156–167. Reason for exclusion: study does not report treatment retention, response, or remission.

Price, Jennifer L., Candice M. Monson, Kelley L. Callahan, and Benjamin F. Rodriguez, "The Role of Emotional Functioning in Military-Related PTSD and Its Treatment," *Journal of Anxiety Disorders*, Vol. 20, No. 5, 2006, pp. 661–674. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Prisco, M. K., M. C. Jecmen, K. J. Bloeser, K. K. McCarron, J. Akhter, A. D. Duncan, M. Balish, R. L. Amdur, and M. J. Reinhard, "Group Auricular Acupuncture for PTSD-Related Insomnia in Veterans: A Randomized Trial," *Medical Acupuncture*, Vol. 25, No. 6, 2013. Reason for exclusion: interventions not recommended by DoD guidelines.

Pruiksma, K. E., D. J. Taylor, J. S. Wachen, J. Mintz, S. Young-McCaughan, A. L. Peterson, J. S. Yarvis, E. V. Borah, K. A. Dondanville, B. T. Litz, E. A. Hembree, and P. A. Resick, "Residual Sleep Disturbances Following PTSD Treatment in Active Duty Military Personnel," *Psychological Trauma*, Vol. 8, No. 6, November 2016, pp. 697–701. Reason for exclusion: study does not report treatment retention, response, or remission.

Puetz, T. W., S. D. Youngstedt, and M. P. Herring, "Effects of Pharmacotherapy on Combat-Related PTSD, Anxiety, and Depression: A Systematic Review and Meta-Regression Analysis," *PLoS One*, Vol. 10, No. 5, 2015, p. e0126529. Reason for exclusion: review.

Quiñones, N., Y. Gomez Maquet, D. M. Agudelo Velez, and M. A. Lopez, "Efficacy of a Satyananda Yoga Intervention for Reintegrating Adults Diagnosed with Posttraumatic Stress Disorder," *International Journal of Yoga Therapy*, Vol. 25, No. 1, 2015, pp. 89–99. Reason for exclusion: not military populations.

Rademaker, A. R., E. Vermetten, and R. J. Kleber, "Multimodal Exposure-Based Group Treatment for Peacekeepers with PTSD: A Preliminary Evaluation," *Military Psychology*, Vol. 21, No. 4, 2009, pp. 482–496. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Raffa, S. D., M. L. Maciejewski, L. E. Zimmerman, L. J. Damschroder, P. A. Estabrooks, R. T. Ackermann, A. G. Tsai, T. Histon, and M. G. Goldstein, "A System-Level Approach to Overweight and Obesity in the Veterans Health Administration," *Journal of General Internal Medicine*, Vol. 32, Supp. 1, April 2017, pp. 79–82. Reason for exclusion: not PTSD.

Ragsdale, K. G., R. D. Cox, P. Finn, and R. M. Eisler, "Effectiveness of Short-Term Specialized Inpatient Treatment for War-Related Posttraumatic Stress Disorder: A Role for Adventure-Based Counseling and Psychodrama," *Journal of Traumatic Stress*, Vol. 9, No. 2, 1996, pp. 269–283. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Ramaswamy, S., D. Driscoll, C. Reist, L. M. Smith, L. J. Albers, J. Rose, L. Nguyen, V. Monga, R. Doria, and M. Hollifield, "A Double-Blind, Placebo-Controlled Randomized Trial of Vilazodone in the Treatment of Posttraumatic Stress Disorder and Comorbid Depression," *Primary Care Companion for CNS Disorders*, Vol. 19, No. 4, 2017. Reason for exclusion: medications not recommended by DoD guidelines.

Ramaswamy, S., V. Selvaraj, D. Driscoll, J. S. Madabushi, S. C. Bhatia, and V. Yeragani, "Effects of Escitalopram on Autonomic Function in Posttraumatic Stress Disorder Among Veterans of Operations Enduring Freedom and Iraqi Freedom (OEF/OIF)," *Innovations in Clinical Neuroscience*, Vol. 12, Nos. 5–6, 2015, pp. 13–19. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Randall, I., C. Maynard, G. Chan, B. Devine, and C. Johnson, "Assessing the Effect of the VHA PCMH Model on Utilization Patterns Among Veterans with PTSD," *American Journal of Managed Care*, Vol. 23, No. 5, 2017, pp. 291–296. Reason for exclusion: study does not report treatment retention, response, or remission.

Randall, P. K., J. D. Bremner, J. H. Krystal, L. M. Nagy, G. R. Heninger, A. L. Nicolaou, and D. S. Charney, "Effects of the Benzodiazepine Antagonist Flumazenil in PTSD," *Biological Psychiatry*, Vol. 38, No. 5, September 1, 1995, pp. 319–324. Reason for exclusion: medications not recommended by DoD guidelines.

Rapcencu, A. E., R. Gorter, M. Kennis, S. J. H. van Rooij, and E. Geuze, "Pre-Treatment Cortisol Awakening Response Predicts Symptom Reduction in Posttraumatic Stress Disorder After Treatment," *Psychoneuroendocrinology*, Vol. 82, 2017, pp. 1–8. Reason for exclusion: sample size not <50.

Raskind, M. A, "Update on the Use of Alpha-1 Adrenoreceptor Antagonists for PTSD," *International Journal of Neuropsychopharmacology*, Vol. 17, 2014, pp. 20–21. Reason for exclusion: medications not recommended by DoD guidelines.

Raskind, M. A., D. J. Dobie, E. D. Kanter, E. C. Petrie, C. E. Thompson, and E. R. Peskind, "The α_1-Adrenergic Antagonist Prazosin Ameliorates Combat Trauma Nightmares in Veterans with Posttraumatic Stress Disorder: A Report of 4 Cases," *Journal of Clinical Psychiatry*, Vol. 61, No. 2, 2000, pp. 129–133. Reason for exclusion: medications not recommended by DoD guidelines.

Raskind, M. A., S. P. Millard, E. C. Petrie, K. Peterson, T. Williams, D. J. Hoff, K. Hart, H. Holmes, J. Hill, C. Daniels, R. Hendrickson, and E. R. Peskind, "Higher Pretreatment Blood Pressure Is Associated with Greater Posttraumatic Stress Disorder Symptom Reduction in Soldiers Treated with Prazosin," *Biological Psychiatry*, Vol. 80, No. 10, November 15, 2016, pp. 736–742. Reason for exclusion: medications not recommended by DoD guidelines.

Raskind, M. A., E. R. Peskind, B. Chow, C. Harris, A. Davis-Karim, H. A. Holmes, K. L. Hart, M. McFall, T. A. Mellman, C. Reist, J. Romesser, R. Rosenheck, M.-C. Shih, M. B. Stein, R. Swift, T. Gleason, Y. Lu, and G. D. Huang, "Trial of Prazosin for Post-Traumatic Stress Disorder in Military Veterans," *New England Journal of Medicine*, Vol. 378, No. 6, 2018, pp. 507–517. Reason for exclusion: medications not recommended by DoD guidelines.

Raskind, M. A., E. R. Peskind, D. J. Hoff, K. L. Hart, H. A. Holmes, D. Warren, J. Shofer, J. O'Connell, F. Taylor, C. Gross, K. Rohde, and M. E. McFall, "A Parallel Group Placebo Controlled Study of Prazosin for Trauma Nightmares and Sleep Disturbance in Combat Veterans with Post-Traumatic Stress Disorder," *Biological Psychiatry*, Vol. 61, No. 8, April 15, 2007, pp. 928–934. Reason for exclusion: interventions not recommended by DoD guidelines.

Raskind, M. A., E. R. Peskind, E. D. Kanter, E. C. Petrie, A. Radant, C. E. Thompson, D. J. Dobie, D. Hoff, R. J. Rein, K. Straits-Troster, R. G. Thomas, and M. E. McFall, "Reduction of Nightmares and Other PTSD Symptoms in Combat Veterans by Prazosin: A Placebo-Controlled Study," *American Journal of Psychiatry*, Vol. 160, No. 2, February 2003, pp. 371–373. Reason for exclusion: medications not recommended by DoD guidelines.

Raskind, M. A., K. Peterson, T. Williams, D. J. Hoff, K. Hart, H. Holmes, D. Homas, J. Hill, C. Daniels, J. Calohan, S. P. Millard, K. Rohde, J. O'Connell, D. Pritzl, K. Feiszli, E. C. Petrie, C. Gross, C. L. Mayer, M. C. Freed, C. Engel, and E. R. Peskind, "A Trial of Prazosin for Combat Trauma PTSD with Nightmares in Active-Duty Soldiers Returned from Iraq and Afghanistan," *American Journal of Psychiatry*, Vol. 170, No. 9, September 2013, pp. 1003–1010. Reason for exclusion: medications not recommended by DoD guidelines.

Rasmusson, A. M., C. E. Marx, S. Jain, G. M. Farfel, J. Tsai, X. Sun, T. D. Geracioti, M. B. Hamner, J. Lohr, R. Rosse, L. Summerall, J. C. Naylor, C. Cusin, A. J. Lang, R. Raman, and M. B. Stein, "A Randomized Controlled Trial of Ganaxolone in Posttraumatic Stress Disorder," *Psychopharmacology*, Vol. 234, No. 15, 2017, pp. 2245–2257. Reason for exclusion: medications not recommended by DoD guidelines.

Rauch, S. A., A. P. King, J. Abelson, P. W. Tuerk, E. Smith, B. O. Rothbaum, E. Clifton, A. Defever, and I. Liberzon, "Biological and Symptom Changes in Posttraumatic Stress Disorder Treatment: A Randomized Clinical Trial," *Depression and Anxiety*, Vol. 32, No. 3, March 2015, pp. 204–212. Reason for exclusion: sample size not <50.

Rauch, S. A. M., T. E. E. Grunfeld, E. Yadin, S. P. Cahill, E. Hembree, and E. B. Foa, "Changes in Reported Physical Health Symptoms and Social Function with Prolonged Exposure Therapy for Chronic Posttraumatic Stress Disorder," *Depression and Anxiety*, Vol. 26, No. 8, 2009, pp. 732–738. Reason for exclusion: not military populations.

Rauch, S. A. M., A. P. King, I. Liberzon, and R. K. Sripada, "Changes in Salivary Cortisol During Psychotherapy for Posttraumatic Stress Disorder: A Pilot Study in 30 Veterans," *Journal of Clinical Psychiatry*, Vol. 78, No. 5, May 2017, pp. 599–603. Reason for exclusion: sample size not <50.

Ray, R. D., and R. A. Webster, "Group Interpersonal Psychotherapy for Veterans with Posttraumatic Stress Disorder: A Pilot Study," *International Journal of Group Psychotherapy*, Vol. 60, No. 1, 2010, pp. 131–140. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Ready, D. J., R. J. Gerardi, A. G. Backscheider, N. Mascaro, and B. O. Rothbaum, "Comparing Virtual Reality Exposure Therapy to Present-Centered Therapy with 11 U.S. Vietnam Veterans with PTSD," *Cyberpsychology, Behavior, and Social Networking*, Vol. 13, No. 1, February 2010, pp. 49–54. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Ready, D. J., P. Sylvers, V. Worley, J. Butt, N. Mascaro, and B. Bradley, "The Impact of Group-Based Exposure Therapy on the PTSD and Depression of 30 Combat Veterans," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 4, No. 1, 2012, pp. 84–93. Reason for exclusion: sample size not <50.

Reber, C. A. S., M. T. Boden, N. Mitragotri, J. Alvarez, J. J. Gross, and M. O. Bonn-Miller, "A Prospective Investigation of Mindfulness Skills and Changes in Emotion Regulation Among Military Veterans in Posttraumatic Stress Disorder Treatment," *Mindfulness*, Vol. 4, No. 4, 2013, pp. 311–317. Reason for exclusion: study does not report treatment retention, response, or remission.

Reddy, S., A. M. Dick, M. R. Gerber, and K. Mitchell, "The Effect of a Yoga Intervention on Alcohol and Drug Abuse Risk in Veteran and Civilian Women with Posttraumatic Stress Disorder," *Journal of Alternative and Complementary Medicine*, Vol. 20, No. 10, October 2014, pp. 750–756. Reason for exclusion: interventions not recommended by DoD guidelines.

Reger, G. M., T. L. Durham, K. A. Tarantino, D. D. Luxton, K. M. Holloway, and J. A. Lee, "Deployed Soldiers' Reactions to Exposure and Medication Treatments for PTSD," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 5, No. 4, 2013, pp. 309–316. Reason for exclusion: study does not report treatment retention, response, or remission.

Reger, G. M., K. M. Holloway, C. Candy, B. O. Rothbaum, J. Difede, A. A. Rizzo, and G. A. Gahm, "Effectiveness of Virtual Reality Exposure Therapy for Active Duty Soldiers in a Military Mental Health Clinic," *Journal of Traumatic Stress*, Vol. 24, No. 1, 2011, pp. 93–96. Reason for exclusion: sample size not <50.

Reinhardt, K. M., J. J. Noggle Taylor, J. Johnston, A. Zameer, S. Cheema, and S. B. S. Khalsa, "Kripalu Yoga for Military Veterans with PTSD: A Randomized Trial," *Journal of Clinical Psychology*, Vol. 74, No. 1, 2018, pp. 93–108. Reason for exclusion: interventions not recommended by DoD guidelines.

Reist, C., A. Gory, and M. Hollifield, "Sleep-Disordered Breathing Impact on Efficacy of Prolonged Exposure Therapy for Posttraumatic Stress Disorder," *Journal of Traumatic Stress*, Vol. 30, No. 2, 2017, pp. 186–189. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Reist, C., C. D. Kauffmann, R. J. Haier, C. Sangdahl, E. M. DeMet, A. Chicz-DeMet, and J. N. Nelson, "A Controlled Trial of Desipramine in 18 Men with Posttraumatic Stress Disorder," *American Journal of Psychiatry*, Vol. 146, No. 4, 1989, pp. 513–516. Reason for exclusion: medications not recommended by DoD guidelines.

Reiter, K., S. B. Andersen, and J. Carlsson, "Neurofeedback Treatment and Posttraumatic Stress Disorder: Effectiveness of Neurofeedback on Posttraumatic Stress Disorder and the Optimal Choice of Protocol," *Journal of Nervous and Mental Disease*, Vol. 204, No. 2, February 2016, pp. 69–77. Reason for exclusion: review.

Resick, P. A., J. S. Wachen, J. Mintz, S. Young-McCaughan, J. D. Roache, A. M. Borah, E. V. Borah, K. A. Dondanville, E. A. Hembree, B. T. Litz, and A. L. Peterson, "A Randomized Clinical Trial of Group Cognitive Processing Therapy Compared with Group Present-Centered Therapy for PTSD Among Active Duty Military Personnel," *Journal of Consulting and Clinical Psychology*, Vol. 83, No. 6, December 2015, pp. 1058–1068. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Resnick, S. G., and R. A. Rosenheck, "Integrating Peer-Provided Services: A Quasi-Experimental Study of Recovery Orientation, Confidence, and Empowerment," *Psychiatric Services*, Vol. 59, No. 11, 2008, pp. 1307–1314. Reason for exclusion: not PTSD.

Rezaei Ardani, A., G. Hosseini, M. R. Fayyazi Bordbar, A. Talaei, and H. Mostafavi Toroghi, "Effect of Rivastigmine Augmentation in Treatment of Male Patients with Combat-Related Chronic Posttraumatic Stress Disorder: A Randomized Controlled Trial," *Journal of Clinical Psychopharmacology*, Vol. 37, No. 1, February 2017, pp. 54–60. Reason for exclusion: medications not recommended by DoD guidelines.

Richardson, J. D., Jon D. E., and J. Sareen, "Predictors of Treatment Response in Canadian Combat and Peacekeeping Veterans with Military-Related Posttraumatic Stress Disorder," *Journal of Nervous and Mental Disease*, Vol. 199, No. 9, 2011, pp. 639–645. Reason for exclusion: sample size not <50.

Rizzo, A. A., J. Difede, B. Olasov Rothbaum, G. M. Reger, J. Spitalnick, J. Cukor, and R. N. McLay, "Development and Early Evaluation of the Virtual Iraq/Afghanistan Exposure Therapy System for Combat-Related PTSD," *Annals of the New York Academy of Sciences*, Vol. 1208, 2010, pp. 114–125. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Robert, S., M. B. Hamner, H. G. Ulmer, J. P. Lorberbaum, and V. L. Durkalski, "Open-Label Trial of Escitalopram in the Treatment of Posttraumatic Stress Disorder," *Journal of Clinical Psychiatry*, Vol. 67, No. 10, 2006, pp. 1522–1526. Reason for exclusion: medications not recommended by DoD guidelines.

Robison-Andrew, E. J., E. R. Duval, C. B. Nelson, A. Echiverri-Cohen, N. Giardino, A. Defever, S. D. Norrholm, T. Jovanovic, B. O. Rothbaum, I. Liberzon, and S. A. Rauch, "Changes in Trauma-Potentiated Startle with Treatment of Posttraumatic Stress Disorder in Combat Veterans," *Journal of Anxiety Disorders*, Vol. 28, No. 4, May 2014, pp. 358–362. Reason for exclusion: sample size not <50.

Rodgman, C., C. D. Verrico, M. Holst, D. Thompson-Lake, C. N. Haile, R. de la Garza, M. A. Raskind, and T. F. Newton, "Doxazosin XL Reduces Symptoms of Posttraumatic Stress Disorder in Veterans with PTSD: A Pilot Clinical Trial," *Journal of Clinical Psychiatry*, Vol. 77, No. 5, 2016. Reason for exclusion: medications not recommended by DoD guidelines.

Roepke, S., H. Danker-Hopfe, D. Repantis, B. Behnia, F. Bernard, M.-L. Hansen, and Christian Otte, "Doxazosin, an α-1-Adrenergic-Receptor Antagonist, for Nightmares in Patients with Posttraumatic Stress Disorder and/or Borderline Personality Disorder: A Chart Review," *Pharmacopsychiatry*, Vol. 50, No. 1, 2017, pp. 26–31. Reason for exclusion: medications not recommended by DoD guidelines.

Rogers, S., S. M. Silver, J. Goss, J. Obenchain, A. Willis, and R. L. Whitney, "A Single Session, Group Study of Exposure and Eye Movement Desensitization and Reprocessing in Treating Posttraumatic Stress Disorder Among Vietnam War Veterans: Preliminary Data," *Journal of Anxiety Disorders*, Vol. 13, Nos. 1–2, January–April 1999, pp. 119–130. Reason for exclusion: study does not report treatment retention, response, or remission.

Romesser, J., S. Shen, M. Reblin, J. Kircher, S. Allen, T. Roberts, and W. R. Marchand, "A Preliminary Study of the Effect of a Diagnosis of Concussion on PTSD Symptoms and Other Psychiatric Variables at the Time of Treatment Seeking Among Veterans," *Military Medicine*, Vol. 176, No. 3, 2011, pp. 246–252. Reason for exclusion: study does not report treatment retention, response, or remission.

Rona, R. J., M. Jones, J. Sundin, L. Goodwin, L. Hull, S. Wessely, and N. T. Fear, "Predicting Persistent Posttraumatic Stress Disorder (PTSD) in UK Military Personnel Who Served in Iraq: A Longitudinal Study," *Journal of* Psychiatric Research, Vol. 46, No. 9, September 2012, pp. 1191–1198. Reason for exclusion: study does not report treatment retention, response, or remission.

Ronconi, J. M., B. Shiner, and B. V. Watts, "A Meta-Analysis of Depressive Symptom Outcomes in Randomized, Controlled Trials for PTSD," *Journal of Nervous and Mental Disease*, Vol. 203, No. 7, July 2015, pp. 522–529. Reason for exclusion: review.

Ronis, D. L., E. W. Bates, A. J. Garfein, B. K. Buit, S. P. Falcon, and I. Liberzon, "Longitudinal Patterns of Care for Patients with Posttraumatic Stress Disorder," *Journal of Traumatic Stress*, Vol. 9, No. 4, 1996, pp. 763–781. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Rooney, K., C. Hunt, L. Humphreys, D. Harding, M. Mullen, and J. Kearney, "Prediction of Outcome for Veterans with Post-Traumatic Stress Disorder Using Constructs from the Transtheoretical Model of Behaviour Change," *Australian and New Zealand Journal of Psychiatry*, Vol. 41, No. 7, 2007, pp. 590–597. Reason for exclusion: sample size not <50.

Rosen, C. S., M. A. Greenbaum, J. E. Fitt, C. Laffaye, V. A. Norris, and R. Kimerling, "Stigma, Help-Seeking Attitudes, and Use of Psychotherapy in Veterans with Diagnoses of Posttraumatic Stress Disorder," *Journal of Nervous and Mental Disease*, Vol. 199, No. 11, 2011, pp. 879–885. Reason for exclusion: study does not report treatment retention, response, or remission.

Rosenberg, P. B., R. B. Mehndiratta, Y. P. Mehndiratta, A. Wamer, R. B. Rosse, and M. Balish, "Repetitive Transcranial Magnetic Stimulation Treatment of Comorbid Posttraumatic Stress Disorder and Major Depression," *Journal of Neuropsychiatry and Clinical Neuroscience*, Vol. 14, No. 3, Summer 2002, pp. 270–276. Reason for exclusion: interventions not recommended by DoD guidelines.

Rosenheck, R., and A. Fontana, "Impact of Efforts to Reduce Inpatient Costs on Clinical Effectiveness: Treatment of Posttraumatic Stress Disorder in the Department of Veterans Affairs," *Medical Care*, Vol. 39, No. 2, 2001. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Rosenheck, R. A., and A. Fontana, "Post–September 11 Admission Symptoms and Treatment Response Among Veterans with Posttraumatic Stress Disorder," *Psychiatric Services*, Vol. 54, No. 12, 2003, pp. 1610–1617. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

———, "Use of Mental Health Services by Veterans with PTSD After the Terrorist Attacks of September 11," *American Journal of Psychiatry*, Vol. 160, No. 9, 2003, pp. 1684–1690. Reason for exclusion: study does not report treatment retention, response, or remission.

Rothbaum, B. O., J. R. Davidson, D. J. Stein, R. Pedersen, J. Musgnung, X. W. Tian, S. Ahmed, and D. S. Baldwin, "A Pooled Analysis of Gender and Trauma-Type Effects on Responsiveness to Treatment of PTSD with Venlafaxine Extended Release or Placebo," *Journal of Clinical Psychiatry*, Vol. 69, No. 10, October 2008, pp. 1529–1539. Reason for exclusion: not military populations.

Rothbaum, B. O., M. Price, T. Jovanovic, S. D. Norrholm, M. Gerardi, B. Dunlop, M. Davis, B. Bradley, E. J. Duncan, A. Rizzo, and K. J. Ressler, "A Randomized, Double-Blind Evaluation of D-Cycloserine or Alprazolam Combined with Virtual Reality Exposure Therapy for Posttraumatic Stress Disorder in Iraq and Afghanistan War Veterans," *American Journal of Psychiatry*, Vol. 171, No. 6, June 2014, pp. 640–648. Reason for exclusion: medications not recommended by DoD guidelines.

Rothbaum, B. O., L. F. Hodges, D. J. Ready, K. Graap, and R. D. Alarcón, "Virtual Reality Exposure Therapy for Vietnam Veterans with Posttraumatic Stress Disorder," *Journal of Clinical Psychiatry*, Vol. 62, No. 8, 2001, pp. 617–622. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Roy, M. J., M. E. Costanzo, J. R. Blair, and A. A. Rizzo, "Compelling Evidence That Exposure Therapy for PTSD Normalizes Brain Function," *Annual Review of CyberTherapy and Telemedicine*, Vol. 12, 2014, pp. 61–65. Reason for exclusion: sample size not <50.

Roy, M. J., M. E. Costanzo, K. B. Highland, C. Olsen, D. Clayborne, and W. Law, "An App a Day Keeps the Doctor Away: Guided Education and Training via Smartphones in Subthreshold Post Traumatic Stress Disorder," *Cyberpsychology, Behavior, and Social Networking*, Vol. 20, No. 8, 2017, pp. 470–478. Reason for exclusion: interventions not recommended by DoD guidelines.

Roy, M. J., J. Francis, J. Friedlander, L. Banks-Williams, R. G. Lande, P. Taylor, J. Blair, J. McLellan, W. Law, V. Tarpley, I. Patt, H. Yu, A. Mallinger, J. Difede, A. Rizzo, and B. Rothbaum, "Improvement in Cerebral Function with Treatment of Posttraumatic Stress Disorder," *Annals of the New York Academy of Sciences*, Vol. 1208, October 2010, pp. 142–149. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Roy, M. J., K. B. Highland, and M. A. Costanzo, "GETSmart: Guided Education and Training via Smart Phones to Promote Resilience," *Studies in Health Technology and Informatics*, Vol. 219, 2015, pp. 123–128. Reason for exclusion: study does not report treatment retention, response, or remission.

Rubin, A., "Unanswered Questions About the Empirical Support for EMDR in the Treatment of PTSD: A Review of Research," *Traumatology*, Vol. 9, No. 1, 2003, pp. 4–30. Reason for exclusion: review.

Rusch, H. L., P. Guardado, T. Baxter, V. Mysliwiec, and J. M. Gill, "Improved Sleep Quality is Associated with Reductions in Depression and PTSD Arousal Symptoms and Increases in IGF-1 Concentrations," *Journal of Clinical Sleep Medicine*, Vol. 11, No. 6, June 15, 2015, pp. 615–623. Reason for exclusion: study does not report treatment retention, response, or remission.

Russell, M. C., and C. R. Figley, "Do the Military's Frontline Psychiatry/Combat Operational Stress Control Programs Benefit Veterans? Part Two: Systematic Review of the Evidence," *Psychological Injury and Law*, Vol. 10, No. 1, 2017, pp. 24–71. Reason for exclusion: review.

———, "Is the Military's Century-Old Frontline Psychiatry Policy Harmful to Veterans and Their Families? Part Three of a Systematic Review," *Psychological Injury and Law*, Vol. 10, No. 1, 2017, pp. 72–95. Reason for exclusion: review.

Rutledge, T., S. Nidich, R. H. Schneider, P. J. Mills, J. Salerno, P. Heppner, M. A. Gomez, C. Gaylord-King, and M. Rainforth, "Design and Rationale of a Comparative Effectiveness Trial Evaluating Transcendental Meditation Against Established Therapies for PTSD," *Contemporary Clinical Trials*, Vol. 39, No. 1, September 2014, pp. 50–56. Reason for exclusion: interventions not recommended by DoD guidelines.

Sadeh, N., M. W. Miller, E. J. Wolf, and K. L. Harkness, "Negative Emotionality and Disconstraint Influence PTSD Symptom Course via Exposure to New Major Adverse Life Events," *Journal of Anxiety Disorders*, Vol. 31, 2015, pp. 20–27. Reason for exclusion: study does not report treatment retention, response, or remission.

Sanchez Ortuno, M., G. Seda, C. Welsh, A. Halbower, and J. Edinger, "Comparative Meta-Analysis of Prazosin and Imagery Rehearsal Therapy for Nightmares, Sleep Disturbance and Post-Traumatic Stress," *Sleep Medicine*, Vol. 14, 2013, p. e48. Reason for exclusion: review.

Sautter, F. J., S. M. Glynn, J. R. Arseneau, J. Becker Cretu, and T. Yufik, "Structured Approach Therapy for PTSD in Returning Veterans and Their Partners: Pilot Findings," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 6, Supp. 1, 2014, pp. S66–S72. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Sautter, F. J., S. M. Glynn, J. Becker-Cretu, D. Senturk, and A. S. Vaught, "Efficacy of Structured Approach Therapy in Reducing PTSD in Returning Veterans: A Randomized Clinical Trial," *Psychological Services*, Vol. 12, No. 3, August 2015, pp. 199–212. Reason for exclusion: interventions not recommended by DoD guidelines.

Sautter, F. J., S. M. Glynn, J. J. Becker-Cretu, D. Senturk, A. P. Armelie, and D. B. Wielt, "Structured Approach Therapy for Combat-Related PTSD in Returning U.S. Veterans: Complementary Mediation by Changes in Emotion Functioning," *Journal of Traumatic Stress*, Vol. 29, No. 4, 2016. Reasons for exclusion: predictors (treatment features, patient characteristics) not reported, sample size not <50.

Sayer, N. A., E. M. Hagel, S. Noorbaloochi, M. R. Spoont, R. A. Rosenheck, J. M. Griffin, P. A. Arbisi, and M. Murdoch, "Gender Differences in VA Disability Status for PTSD Over Time," *Psychiatric Services*, Vol. 65, No. 5, May 1, 2014, pp. 663–669. Reason for exclusion: study does not report treatment retention, response, or remission.

Sayer, N. A., S. Noorbaloochi, P. A. Frazier, J. W. Pennebaker, R. J. Orazem, P. P. Schnurr, M. Murdoch, K. F. Carlson, A. Gravely, and B. T. Litz, "Randomized Controlled Trial of Online Expressive Writing to Address Readjustment Difficulties Among U.S. Afghanistan and Iraq War Veterans," *Journal of Traumatic Stress*, Vol. 28, No. 5, October 2015, pp. 381–390. Reason for exclusion: not PTSD.

Scher, C. D., M. K. Suvak, and P. A. Resick, "Trauma Cognitions Are Related to Symptoms up to 10 Years After Cognitive Behavioral Treatment for Posttraumatic Stress Disorder," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 9, No. 6, 2017, pp. 750–757. Reason for exclusion: not military populations.

Schmidt, U., G. D. Willmund, F. Holsboer, C. T. Wotjak, J. Gallinat, J. T. Kowalski, and P. Zimmermann, "Searching for Non-Genetic Molecular and Imaging PTSD Risk and Resilience Markers: Systematic Review of Literature and Design of the German Armed Forces PTSD Biomarker Study," *Psychoneuroendocrinology*, Vol. 51, January 2015, pp. 444–458. Reason for exclusion: review.

Schneier, F. R., R. Campeas, J. Carcamo, A. Glass, R. Lewis-Fernandez, Y. Neria, A. Sanchez-Lacay, D. Vermes, and M. M. Wall, "Combined Mirtazapine and SSRI Treatment of PTSD: A Placebo-Controlled Trial," *Depression and Anxiety*, Vol. 32, No. 8, 2015, pp. 570–579. Reason for exclusion: not military populations.

Schnurr, P. P., M. J. Friedman, C. C. Engel, E. B. Foa, M. T. Shea, B. K. Chow, P. A. Resick, V. Thurston, S. M. Orsillo, R. Haug, C. Turner, and N. Bernardy, "Cognitive Behavioral Therapy for Posttraumatic Stress Disorder in Women: A Randomized Controlled Trial," *JAMA*, Vol. 297, No. 8, February 28, 2007, pp. 820–830. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Schnurr, P. P., M. J. Friedman, D. W. Foy, M. T. Shea, F. Y. Hsieh, P. W. Lavori, S. M. Glynn, M. S. Wattenberg, and N. C. Bernardy, "Randomized Trial of Trauma-Focused Group Therapy for Posttraumatic Stress Disorder," *Archives of General Psychiatry*, Vol. 60, No. 5, 2003, pp. 481–489. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Schnurr, P. P., M. J. Friedman, T. E. Oxman, A. J. Dietrich, M. W. Smith, B. Shiner, E. Forshay, J. Gui, and V. Thurston, "RESPECT-PTSD: Re-Engineering Systems for the Primary Care Treatment of PTSD, a Randomized Controlled Trial," *Journal of General Internal Medicine*, Vol. 28, No. 1, January 2013, pp. 32–40. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Schnurr, P. P., C. A. Lunney, E. Forshay, V. L. Thurston, B. K. Chow, P. A. Resick, and E. B. Foa, "Sexual Function Outcomes in Women Treated for Posttraumatic Stress Disorder," *Journal of Women's Health*, Vol. 18, No. 10, October 2009, pp. 1549–1557. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Schnurr, P. P., A. Spiro III, and A. H. Paris, "Physician-Diagnosed Medical Disorders in Relation to PTSD Symptoms in Older Male Military Veterans," *Health Psychology*, Vol. 19, No. 1, 2000, pp. 91–97. Reason for exclusion: study does not report treatment retention, response, or remission.

Schnyder, U., J. Müller, A. Maercker, and L. Wittmann, "Brief Eclectic Psychotherapy for PTSD: A Randomized Controlled Trial," *Journal of Clinical Psychiatry*, Vol. 72, No. 4, 2011, pp. 564–566. Reason for exclusion: not military populations.

Schoorl, M., P. Putman, T. M. Mooren, S. Van Der Werff, and W. Van Der Does, "Attentional Bias Modification in Dutch Veterans with Posttraumatic Stress Disorder—A Case Series with a Personalized Treatment Version," *Journal of Traumatic Stress*, Vol. 27, No. 2, 2014, pp. 240–243. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Schreurs, B. G., and L. B. Burhans, "Eyeblink Classical Conditioning and Post-Traumatic Stress Disorder—A Model Systems Approach," *Frontiers in Psychiatry*, Vol. 6, 2015. Reason for exclusion: not military populations.

Schuman, D., "Veterans' Experiences Using Complementary and Alternative Medicine for Posttraumatic Stress: A Qualitative Interpretive Meta-Synthesis," *Social Work in Public Health*, Vol. 31, No. 2, 2016, pp. 83–97. Reason for exclusion: interventions not recommended by DoD guidelines.

Schumm, J. A., B. D. Dickstein, K. H. Walter, G. P. Owens, and K. M. Chard, "Changes in Posttraumatic Cognitions Predict Changes in Posttraumatic Stress Disorder Symptoms During Cognitive Processing Therapy," *Journal of Consulting and Clinical Psychology*, Vol. 83, No. 6, 2015, pp. 1161–1166. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Scott, J. C., G. Harb, J. A. Brownlow, J. Greene, R. C. Gur, and R. J. Ross, "Verbal Memory Functioning Moderates Psychotherapy Treatment Response for PTSD-Related Nightmares," *Behavior Research and Therapy*, Vol. 91, April 2017, pp. 24–32. Reason for exclusion: study does not report treatment retention, response, or remission.

Seal, K. H., S. Maguen, D. Bertenthal, S. L. Batki, J. Striebel, M. B. Stein, E. Madden, and T. C. Neylan, "Observational Evidence for Buprenorphine's Impact on Posttraumatic Stress Symptoms in Veterans with Chronic Pain and Opioid Use Disorder," *Journal of Clinical Psychiatry*, Vol. 77, No. 9, September 2016, pp. 1182–1188. Reason for exclusion: study does not report treatment retention, response, or remission.

Sebastian, B., and J. Nelms, "The Effectiveness of Emotional Freedom Techniques in the Treatment of Posttraumatic Stress Disorder: A Meta-Analysis," *Explore: The Journal of Science and Healing*, Vol. 13, No. 1, January–February 2017, pp. 16–25. Reason for exclusion: review.

Seda, G., M. M. Sanchez-Ortuno, C. H. Welsh, H. C. Ann, and J. D. Edinger, "Comparative Meta-Analysis of Prazosin and Imagery Rehearsal Therapy for Nightmares, Sleep Disturbance and Post-Traumatic Stress," *Sleep*, Vol. 37, 2014, p. A276. Reason for exclusion: review.

———, "Comparative Meta-Analysis of Prazosin and Imagery Rehearsal Therapy for Nightmare Frequency, Sleep Quality, and Posttraumatic Stress," *Journal of Clinical Sleep Medicine*, Vol. 11, No. 1, January 15, 2015, pp. 11–22. Reason for exclusion: review.

Seedat, S., D. J. Stein, and R. A. Emsley, "Open Trial of Citalopram in Adults with Post-Traumatic Stress Disorder," *International Journal of Neuropsychopharmacology*, Vol. 3, No. 2, 2000, pp. 135–140. Reason for exclusion: not military populations.

Seidel, R. W., F. D. Gusman, and F. R. Abueg, "Theoretical and Practical Foundations of an Inpatient Post-Traumatic Stress Disorder and Alcoholism Treatment Program," *Psychotherapy*, Vol. 31, No. 1, 1994, pp. 67–78. Reason for exclusion: study does not report treatment retention, response, or remission.

Seppälä, E. M., J. B. Nitschke, D. L. Tudorascu, A. Hayes, M. R. Goldstein, D. T. Nguyen, D. Perlman, and R. J. Davidson, "Breathing-Based Meditation Decreases Posttraumatic Stress Disorder Symptoms in U.S. Military Veterans: A Randomized Controlled Longitudinal Study," *Journal of Traumatic Stress*, Vol. 27, No. 4, August 2014, pp. 397–405. Reason for exclusion: interventions not recommended by DoD guidelines.

Sernyak, M. J., T. R. Kosten, A. Fontana, and R. Rosenheck, "Neuroleptic Use in the Treatment of Post-Traumatic Stress Disorder," Psychiatric Quarterly, Vol. 72, No. 3, 2001, pp. 197–213. Reason for exclusion: medications not recommended by DoD guidelines.

Sexton, M. B., K. M. Avallone, E. R. Smith, K. E. Porter, L. Ashrafioun, J. T. Arnedt, and S. A. M. Rauch, "Sleep Disturbances as Predictors of Prolonged Exposure Therapy Effectiveness Among Veterans with PTSD," *Psychiatry Research*, Vol. 256, 2017, pp. 118–123. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Shallcross, S. L., P. A. Arbisi, M. A. Polusny, M. D. Kramer, and C. R. Erbes, "Social Causation Versus Social Erosion: Comparisons of Causal Models for Relations Between Support and PTSD Symptoms," *Journal of Traumatic Stress*, Vol. 29, No. 2, 2016, pp. 167–175. Reason for exclusion: interventions not recommended by DoD guidelines.

Sherman, J. J., "Effects of Psychotherapeutic Treatments for PTSD: A Meta-Analysis of Controlled Clinical Trials," *Journal of Traumatic Stress*, Vol. 11, No. 3, July 1998, pp. 413–435. Reason for exclusion: review.

Sherman, M. D., E. P. Fischer, K. H. Sorocco, and W. R. McFarlane, "Adapting the Multifamily Group Model to the Veterans Affairs System: The REACH Program," *Professional Psychology: Research and Practice*, Vol. 40, No. 6, 2009, pp. 593–600. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Shin, H. J., M. A. Greenbaum, S. Jain, and C. S. Rosen, "Associations of Psychotherapy Dose and SSRI or SNRI Refills with Mental Health Outcomes Among Veterans with PTSD," *Psychiatric Services*, Vol. 65, No. 10, 2014, pp. 1244–1248. Reason for exclusion: sample size not <50.

Shin, H. J., C. S. Rosen, M. A. Greenbaum, and Shaili Jain, "Longitudinal Correlates of Aggressive Behavior in Help-Seeking U.S. Veterans with PTSD," *Journal of Traumatic Stress*, Vol. 25, No. 6, 2012, pp. 649–656. Reason for exclusion: study does not report treatment retention, response, or remission.

Shiner, B., C. Leonard Westgate, N. C. Bernardy, P. P. Schnurr, and B. V. Watts, "Anticonvulsant Medication Use in Veterans with Posttraumatic Stress Disorder," *Journal of Clinical Psychiatry*, Vol. 78, No. 5, 2017, pp. e545–e552. Reason for exclusion: study does not report treatment retention, response, or remission.

Silver, S. M., A. Brooks, and J. Obenchain, "Treatment of Vietnam War Veterans with PTSD: A Comparison of Eye Movement Desensitization and Reprocessing, Biofeedback, and Relaxation Training," *Journal of Traumatic Stress*, Vol. 8, No. 2, 1995. Reason for exclusion: study does not report treatment retention, response, or remission.

Simpson, T. L., K. Lehavot, and I. L. Petrakis, "No Wrong Doors: Findings from a Critical Review of Behavioral Randomized Clinical Trials for Individuals with Co-Occurring Alcohol/Drug Problems and Posttraumatic Stress Disorder," *Alcoholism: Clinical and Experimental Research*, Vol. 41, No. 4, April 2017, pp. 681–702. Reason for exclusion: review.

Skipper, L. D., S. Churchill, S. H. Wilson, K. Deru, R. J. Labutta, and B. B. Hart, "Hyperbaric Oxygen for Persistent Post-Concussive Symptoms: Long-Term Follow-Up," *Undersea and Hyperbaric Medicine*, Vol. 43, No. 5, August–September 2016, pp. 601–613. Reason for exclusion: interventions not recommended by DoD guidelines.

Sloan, D. M., B. A. Feinstein, M. W. Gallagher, J. G. Beck, and T. M. Keane, "Efficacy of Group Treatment for Posttraumatic Stress Disorder Symptoms: A Meta-Analysis," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 5, No. 2, 2013, pp. 176–183. Reason for exclusion: review.

Sloan, D. M., M. W. Gallagher, B. A. Feinstein, D. J. Lee, and G. M. Pruneau, "Efficacy of Telehealth Treatments for Posttraumatic Stress-Related Symptoms: A Meta-Analysis," *Cognitive Behaviour Therapy*, Vol. 40, No. 2, 2011, pp. 111–125. Reason for exclusion: review.

Sloan, D. M., D. J. Lee, S. D. Litwack, A. T. Sawyer, and B. P. Marx, "Written Exposure Therapy for Veterans Diagnosed with PTSD: A Pilot Study," *Journal of Traumatic Stress*, Vol. 26, No. 6, 2013, pp. 776–779. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Sloan, D. M., B. P. Marx, D. J. Lee, and P. A. Resick, "A Brief Exposure-Based Treatment vs Cognitive Processing Therapy for Posttraumatic Stress Disorder: A Randomized Noninferiority Clinical Trial," *JAMA Psychiatry*, 2018. Reason for exclusion: not military populations.

Smeeding, S. J. W., D. H. Bradshaw, K. Kumpfer, S. Trevithick, and G. J. Stoddard, "Outcome Evaluation of the Veterans Affairs Salt Lake City Integrative Health Clinic for Chronic Pain and Stress-Related Depression, Anxiety, and Post-Traumatic Stress Disorder," *Journal of Alternative and Complementary Medicine*, Vol. 16, No. 8, 2010, pp. 823–835. Reason for exclusion: interventions not recommended by DoD guidelines.

Smith-Osborne, A., and B. Felderhoff, "Formal and Family Caregiver Protective Factors in Systems of Care: A Systematic Review with Implications Toward a Resilience Model for Aging Veterans," *Traumatology*, Vol. 22, No. 1, 2016, pp. 29–39. Reason for exclusion: review.

Sokolski, K. N., T. F. Denson, R. T. Lee, and C. Reist, "Quetiapine for Treatment of Refractory Symptoms of Combat-Related Post-Traumatic Stress Disorder," *Military Medicine*, Vol. 168, No. 6, 2003, pp. 486–489. Reason for exclusion: medications not recommended by DoD guidelines.

Solomon, Z., M. Mikulincer, M. Waysman, and D. H. Marlowe, "Delayed and Immediate Onset Posttraumatic Stress Disorder, I: Differential Clinical Characteristics," *Social Psychiatry and Psychiatric Epidemiology*, Vol. 26, No. 1, 1991, pp. 1–7. Reason for exclusion: study does not report treatment retention, response, or remission.

Solomon, Z., Y. Neria, A. Ohry, M. Waysman, and K. Ginzburg, "PTSD Among Israeli Former Prisoners of War and Soldiers with Combat Stress Reaction: A Longitudinal Study," *American Journal of Psychiatry*, Vol. 151, No. 4, 1994, pp. 554–559. Reason for exclusion: study does not report treatment retention, response, or remission.

Solomon, Z., R. Shklar, and M. Mikulincer, "Frontline Treatment of Combat Stress Reaction: A 20-Year Longitudinal Evaluation Study," *American Journal of Psychiatry*, Vol. 162, No. 12, 2005, pp. 2309–2314. Reason for exclusion: interventions not recommended by DoD guidelines.

Speicher, S. M., K. H. Walter, and K. M. Chard, "Interdisciplinary Residential Treatment of Posttraumatic Stress Disorder and Traumatic Brain Injury: Effects on Symptom Severity and Occupational Performance and Satisfaction," *American Journal of Occupational Therapy*, Vol. 68, No. 4, 2014, pp. 412–421. Reason for exclusion: sample size not <50.

Spoont, M. R., D. B. Nelson, M. Murdoch, T. Rector, N. A. Sayer, S. Nugent, and J. Westermeyer, "Impact of Treatment Beliefs and Social Network Encouragement on Initiation of Care by VA Service Users with PTSD," *Psychiatric Services*, Vol. 65, No. 5, 2014, pp. 654–662. Reason for exclusion: study does not report treatment retention, response, or remission.

Spoont, M. R., J. W. Williams, Jr., S. Kehle-Forbes, J. A. Nieuwsma, M. C. Mann-Wrobel, and R. Gross, "Does This Patient Have Posttraumatic Stress Disorder?: Rational Clinical Examination Systematic Review," *JAMA*, Vol. 314, No. 5, August 4, 2015, pp. 501–510. Reason for exclusion: review.

Steenkamp, MM., B. T. Litz, C. W. Hoge, and C. R. Marmar, "Psychotherapy for Military-Related PTSD: A Review of Randomized Clinical Trials," *JAMA*, Vol. 314, No. 5, August 4, 2015, pp. 489–500. Reason for exclusion: review.

Steenkamp, M. M., W. P. Nash, and B. T. Litz, "Post-Traumatic Stress Disorder: Review of the Comprehensive Soldier Fitness Program," *American Journal of Preventive Medicine*, Vol. 44, No. 5, 2013, pp. 507–512. Reason for exclusion: study does not report treatment retention, response, or remission.

Stein, D. J., R. Pedersen, B. O. Rothbaum, D. S. Baldwin, S. Ahmed, J. Musgnung, and J. Davidson, "Onset of Activity and Time to Response on Individual CAPS-SX17 Items in Patients Treated for Post-Traumatic Stress Disorder with Venlafaxine ER: A Pooled Analysis," *International Journal of Neuropsychopharmacology*, Vol. 12, No. 1, February 2009, pp. 23–31. Reason for exclusion: not military populations.

Stein, D. J., S. Seedat, G. J. H. van der Linden, and Nompumelelo Zungu-Dirwayi, "Selective Serotonin Reuptake Inhibitors in the Treatment of Post-Traumatic Stress Disorder: A Meta-Analysis of Randomized Controlled Trials," *International Clinical Psychopharmacology*, Vol. 15, Suppl. 2, 2000, pp. S31–S39. Reason for exclusion: review.

Stein, M. B., N. A. Kline, and J. L. Matloff, "Adjunctive Olanzapine for SSRI-Resistant Combat-Related PTSD: A Double-Blind, Placebo-Controlled Study," *American Journal of Psychiatry*, Vol. 159, No. 10, October 2002, pp. 1777–1779. Reason for exclusion: medications not recommended by DoD guidelines.

Stein, N. R., B. D. Dickstein, J. Schuster, B. T. Litz, and P. A. Resick, "Trajectories of Response to Treatment for Posttraumatic Stress Disorder," *Behavior Therapy*, Vol. 43, No. 4, 2012, pp. 790–800. Reason for exclusion: not military populations.

Stephenson, K. R., T. L. Simpson, M. E. Martinez, and D. J. Kearney, "Changes in Mindfulness and Posttraumatic Stress Disorder Symptoms Among Veterans Enrolled in Mindfulness-Based Stress Reduction," *Journal of Clinical Psychology*, Vol. 73, No. 3, 2017, pp. 201–217. Reason for exclusion: interventions not recommended by DoD guidelines.

Stewart, C. L., and T. A. Wrobel, "Evaluation of the Efficacy of Pharmacotherapy and Psychotherapy in Treatment of Combat-Related Post-Traumatic Stress Disorder: A Meta-Analytic Review of Outcome Studies," *Military Medicine*, Vol. 174, No. 5, May 2009, pp. 460–469. Reason for exclusion: review.

Stoller, C. C., J. H. Greuel, L. S. Cimini, M. S. Fowler, and J. A. Koomar, "Effects of Sensory-Enhanced Yoga on Symptoms of Combat Stress in Deployed Military Personnel," *American Journal of Occupational Therapy*, Vol. 66, No. 1, 2012, pp. 59–68. Reason for exclusion: interventions not recommended by DoD guidelines.

Strachan, M., D. F. Gros, K. J. Ruggiero, C. W. Lejuez, and R. Acierno, "An Integrated Approach to Delivering Exposure-Based Treatment for Symptoms of PTSD and Depression in OIF/OEF Veterans: Preliminary Findings," *Behavior Therapy*, Vol. 43, No. 3, September 2012, pp. 560–569. Reason for exclusion: sample size not <50.

Su, H., J.-T. Wang, Z.-S. Lou, and H. T. Lu, "Cognitive-Exposure Therapy for Post-Traumatic Stress Disorder," *Journal of Clinical Rehabilitative Tissue Engineering Research*, Vol. 11, No. 39, 2007. Reason for exclusion: not in English.

Sullivan, G., J. Gendreau, R. Michael Gendreau, J. Engels, P. Peters, A. Peters, and S. Lederman, "Phase 2 Multisite Double-Blind Placebo-Controlled Trial of TNX-102 SL in Military-Related Posttraumatic Stress Disorder (PTSD): Mediators and Moderators of Treatment Response," *Biological Psychiatry*, Vol. 81, No. 10, 2017, p. S346. Reason for exclusion: medications not recommended by DoD guidelines.

Sullivan, G., J. Gendreau, R. Michael Gendreau, A. Schaberg, B. Daugherty, H. Jividen, A. Peters, P. Peters, F. Weathers, and S. Lederman, "The AtEase Study: A Multicenter Randomized Clinical Trial of the Safety and Efficacy of TNX-102 Sl in the Treatment of Military-Related PTSD," *Neuropsychopharmacology*, Vol. 41, 2016, pp. S543–S544. Reason for exclusion: medications not recommended by DoD guidelines.

Sullivan, G. M., J. F. Gendreau, R. M. Gendreau, A. Schaberg, B. L. Daugherty, H. Jividen, A. Peters, P. Peters, and S. Lederman, "An Evaluation of the Efficacy of a Low Dose, Bedtime, Sublingual Formulation of Cyclobenzaprine (TNX-102 SL∗) in Military-Related PTSD," *CNS Spectrums*, Vol. 21, No. 1, 2016, p. 121. Reason for exclusion: medications not recommended by DoD guidelines.

Sullivan, M., H. Adams, T. Ellis, R. Clark, C. Sully, and P. Thibault, "Treatment-Related Reductions in Catastrophizing Predict Return to Work in Individuals with Post-Traumatic Stress Disorder," *Journal of* Applied Biobehavioral Research, Vol. 22, No. 1, 2017 Reason for exclusion: not military populations.

Surís, A., R. Holliday, B. Adinoff, N. Holder, and C. S. North, "Facilitating Fear-Based Memory Extinction with Dexamethasone: A Randomized Controlled Trial in Male Veterans with Combat-Related PTSD," *Psychiatry*, Vol. 80, No. 4, 2017, pp. 399–410. Reason for exclusion: medications not recommended by DoD guidelines.

Suris, A., J. Link-Malcolm, K. Chard, C. Ahn, and C. 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. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Suris, A., C. North, B. Adinoff, C. M. Powell, and R. Greene, "Effects of Exogenous Glucocorticoid on Combat-Related PTSD Symptoms," *Annals of Clinical Psychiatry*, Vol. 22, No. 4, November 2010, pp. 274–279. Reason for exclusion: medications not recommended by DoD guidelines.

Surís, A., J. Smith, C. Powell, and C. S. North, "Interfering with the Reconsolidation of Traumatic Memory: Sirolimus as a Novel Agent for Treating Veterans with Posttraumatic Stress Disorder," *Annals of Clinical Psychiatry*, Vol. 25, No. 1, February 2013, pp. 33–40. Reason for exclusion: medications not recommended by DoD guidelines.

Taft, C. T., A. Macdonald, S. K. Creech, C. M. Monson, and C. M. Murphy, "A Randomized Controlled Clinical Trial of the Strength at Home Men's Program for Partner Violence in Military Veterans," *Journal of Clinical Psychiatry*, Vol. 77, No. 9, September 2016, pp. 1168–1175. Reason for exclusion: study does not report treatment retention, response, or remission.

Talbot, L. S., S. Maguen, T. J. Metzler, M. Schmitz, S. E. McCaslin, A. Richards, M. L. Perlis, D. A. Posner, B. Weiss, L. Ruoff, J. Varbel, and T. C. Neylan, "Cognitive Behavioral Therapy for Insomnia in Posttraumatic Stress Disorder: A Randomized Controlled Trial," *Sleep*, Vol. 37, No. 2, February 1, 2014, pp. 327–341. Reason for exclusion: not military populations.

Tan, G., I. Teo, D. Srivastava, D. Smith, S. L. Smith, W. Williams, and M. P. Jensen, "Improving Access to Care for Women Veterans Suffering from Chronic Pain and Depression Associated with Trauma," *Pain Medicine*, Vol. 14, No. 7, 2013, pp. 1010–1020. Reason for exclusion: interventions not recommended by DoD guidelines.

Tarrier, N., C. Sommerfield, J. Connell, B. Deakin, H. Pilgrim, and M. Reynolds, "The Psychophysiological Responses of PTSD Patients: Habituation, Responses to Stressful and Neutral Vignettes and Association with Treatment Outcome," *Behavioural and Cognitive Psychotherapy*, Vol. 30, No. 2, 2002, pp. 129–142. Reason for exclusion: not military populations.

Tawa, J., and S. Murphy, "Psychopharmacological Treatment for Military Posttraumatic Stress Disorder: An Integrative Review," *Journal of American Association of Nurse Practitioners*, Vol. 25, No. 8, August 2013, pp. 419–423. Reason for exclusion: review.

Teng, E. J., S. D. Bailey, A. D. Chaison, N. J. Petersen, J. D. Hamilton, and N. J. Dunn, "Treating Comorbid Panic Disorder in Veterans with Posttraumatic Stress Disorder," *Journal of Consulting and Clinical Psychology*, Vol. 76, No. 4, August 2008, pp. 704–710. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Teng, E. J., T. L. Barrera, E. L. Hiatt, A. D. Chaison, N. J. Dunn, N. J. Petersen, and M. A. Stanley, "Intensive Weekend Group Treatment for Panic Disorder and Its Impact on Co-Occurring PTSD: A Pilot Study," *Journal of Anxiety Disorders*, Vol. 33, 2015, pp. 1–7. Reason for exclusion: interventions not recommended by DoD guidelines.

Teng, E. J., E. L. Hiatt, V. McClair, M. E. Kunik, B. C. Frueh, and M. A. Stanley, "Efficacy of Posttraumatic Stress Disorder Treatment for Comorbid Panic Disorder: A Critical Review and Future Directions for Treatment Research," *Clinical Psychology: Science and Practice*, Vol. 20, No. 3, 2013, pp. 268–284. Reason for exclusion: review.

Thorp, S. R., M. B. Stein, D. V. Jeste, T. L. Patterson, and J. Loebach Wetherell, "Prolonged Exposure Therapy for Older Veterans with Posttraumatic Stress Disorder: A Pilot Study," *American Journal of Geriatric Psychiatry*, Vol. 20, No. 3, 2012, pp. 276–280. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Tolin, D. F., and E. B. Foa, "Sex Differences in Trauma and Posttraumatic Stress Disorder: A Quantitative Review of 25 Years of Research," *Psychological Bulletin*, Vol. 132, No. 6, November 2006, pp. 959–992. Reason for exclusion: review.

Trafton, J. A., J. Minkel, and K. Humphreys, "Opioid Substitution Treatment Reduces Substance Use Equivalently in Patients With and Without Posttraumatic Stress Disorder," *Journal of Studies on Alcohol*, Vol. 67, No. 2, 2006, pp. 228–235. Reason for exclusion: not PTSD.

Tran, K., K. Moulton, N. Santesso, and D. Rabb, "Cognitive Processing Therapy for Post-Traumatic Stress Disorder: A Systematic Review and Meta-Analysis," *CADTH Health Technologies Assessments*, No. 141, 2016, pp. 1–107. Reason for exclusion: review.

Tsan, J. Y., E. M. Stock, D. S. Greenawalt, J. E. Zeber, and L. A. Copeland, "Mental Health Treatment After Major Surgery Among Vietnam-Era Veterans with Posttraumatic Stress Disorder," *Journal of Health Psychology*, Vol. 21, No. 7, 2016, pp. 1249–1260. Reason for exclusion: study does not report treatment retention, response, or remission.

Tucker, P., K. L. Beebe, C. Burgin, D. B. Wyatt, D. E. Parker, B. K. Masters, and O. Nawar, "Paroxetine Treatment of Depression with Posttraumatic Stress Disorder: Effects on Autonomic Reactivity and Cortisol Secretion," *Journal of Clinical Psychopharmacology*, Vol. 24, No. 2, 2004, pp. 131–140. Reason for exclusion: not military populations.

Tucker, P., W. D. Ruwe, B. Masters, D. E. Parker, A. Hossain, R. P. Trautman, and D. B. Wyatt, "Neuroimmune and Cortisol Changes in Selective Serotonin Reuptake Inhibitor and Placebo Treatment of Chronic Posttraumatic Stress Disorder," *Biological Psychiatry*, Vol. 56, No. 2, 2004, pp. 121–128. Reason for exclusion: not military populations.

Turgoose, D., R. Ashwick, and D. Murphy, "Systematic Review of Lessons Learned from Delivering Tele-Therapy to Veterans with Post-Traumatic Stress Disorder," *Journal of Telemedicine and Telecare*, Vol. 24, No. 9, 2018. Reason for exclusion: review.

Tylee, D. S., R. Gray, S. J. Glatt, and F. Bourke, "Evaluation of the Reconsolidation of Traumatic Memories Protocol for the Treatment of PTSD: A Randomized, Wait-List-Controlled Trial," *Journal of Military, Veteran and Family Health*, Vol. 3, No. 1, 2017, pp. 21–33. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Ulmer, C. S., J. D. Edinger, and P. S. Calhoun, "A Multi-Component Cognitive-Behavioral Intervention for Sleep Disturbance in Veterans with PTSD: A Pilot Study," *Journal of Clinical Sleep Medicine*, Vol. 7, No. 1, February 15, 2011, pp. 57–68. Reason for exclusion: sample size not <50.

Vagharseyyedin, S. A., M. Gholami, M. Hajihoseini, and A. Esmaeili, "The Effect of Peer Support Groups on Family Adaptation from the Perspective of Wives of War Veterans with Posttraumatic Stress Disorder," *Public Health Nursing*, Vol. 34, No. 6, November 2017, pp. 547–554. Reason for exclusion: not military populations.

Van Dam, D., E. Vedel, T. Ehring, and P. M. Emmelkamp, "Psychological Treatments for Concurrent Posttraumatic Stress Disorder and Substance Use Disorder: A Systematic Review," *Clinical Psychology Review*, Vol. 32, No. 3, April 2012, pp. 202–214. Reason for exclusion: review.

Van der Kolk, B. A., D. Dreyfuss, M. Michaels, D. Shera, R. Berkowitz, R. Fisler, and G. Saxe, "Fluoxetine in Posttraumatic Stress Disorder," *Journal of Clinical Psychiatry*, Vol. 55, No. 12, December 1994, pp. 517–522. Reason for exclusion: not military populations.

Van Liempt, S., E. Vermetten, E. Geuze, and H. G. Westenberg, "Pharmacotherapy for Disordered Sleep in Post-Traumatic Stress Disorder: A Systematic Review," *International Clinical Psychopharmacology*, Vol. 21, No. 4, July 2006, pp. 193–202. Reason for exclusion: review.

Van Rooij, S. J., E. Geuze, M. Kennis, A. R. Rademaker, and M. Vink, "Neural Correlates of Inhibition and Contextual Cue Processing Related to Treatment Response in PTSD," *Neuropsychopharmacology*, Vol. 40, No. 3, February 2015, pp. 667–675. Reason for exclusion: sample size not <50.

Van Rooij, S. J. H., M. Kennis, R. Sjouwerman, M. P. van den Heuvel, R. S. Kahn, and E. Geuze, "Smaller Hippocampal Volume as a Vulnerability Factor for the Persistence of Post-Traumatic Stress Disorder," *Psychological Medicine*, Vol. 45, No. 13, 2015, pp. 2737–2746. Reason for exclusion: sample size not <50.

Van Rooij, S. J. H., M. Kennis, M. Vink, and E. Geuze, "Predicting treatment Outcome in PTSD: A Longitudinal Functional MRI Study on Trauma-Unrelated Emotional Processing," *Neuropsychopharmacology*, Vol. 41, No. 4, 2016, pp. 1156–1165. Reason for exclusion: sample size not <50.

Van Voorhees, B. W., J. Gollan, and J. Fogel, "Pilot Study of Internet-Based Early Intervention for Combat-Related Mental Distress," *Journal of Rehabilitation Research and Development*, Vol. 49, No. 8, 2012, pp. 1175–1190. Reason for exclusion: not PTSD.

Van 't W., M., S. M. Longo, M. K. Reddy, N. S. Philip, M. T. Bowker, and B. D. Greenberg, "Transcranial Direct Current Stimulation May Modulate Extinction Memory in Posttraumatic Stress Disorder," *Brain and Behavior*, Vol. 7, No. 5, 2017, n.p. Reason for exclusion: interventions not recommended by DoD guidelines.

Varma, A., M. B. Moore, C. W. T. Miller, and S. Himelhoch, "Topiramate as Monotherapy or Adjunctive Treatment for Posttraumatic Stress Disorder: A Meta-Analysis," *Journal of Traumatic Stress*, Vol. 31, No. 1, 2018, pp. 125–133. Reason for exclusion: review.

Vella, E. J., B. Milligan, and J. L. Bennett, "Participation in Outdoor Recreation Program Predicts Improved Psychosocial Well-Being Among Veterans with Post-Traumatic Stress Disorder: A Pilot Study," *Military Medicine*, Vol. 178, No. 3, 2013, pp. 254–260. Reason for exclusion: interventions not recommended by DoD guidelines.

Ventura, B., "CSP #563—Prazosin and Combat Trauma PTSD (PACT)," ClinicalTrials.gov, 2007. As of April 6, 2020: https://clinicaltrials.gov/ct2/show/NCT00532493. Reason for exclusion: medications not recommended by DoD guidelines.

Verstrael, S., P. van der Wurff, and E. Vermetten, "Eye Movement Desensitization and Reprocessing (EMDR) as Treatment for Combat-Related PTSD: A Meta-Analysis," *Military Behavioral Health*, Vol. 1, No. 2, 2013, pp. 68–73. Reason for exclusion: review.

Vilibić, M., M. Zivkovic, M. Tomljenovic, B. Kolaric, I. Zegura, and V. Jukić, "Fluvoxamine Versus Mirtazapine in the Treatment of Patients with Chronic Posttraumatic Stress Disorder: A Pilot Study," *European Neuropsychopharmacology*, Vol. 26, 2016, p. S622. Reason for exclusion: medications not recommended by DoD guidelines.

Villarreal, G., J. M. Cañive, L. A. Calais, G. Toney, and A. K. Smith, "Duloxetine in Military Posttraumatic Stress Disorder," *Psychopharmacology Bulletin*, Vol. 43, No. 3, 2010, pp. 26–34. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Villarreal, G., M. B. Hamner, J. M. Canive, S. Robert, L. A. Calais, V. Durklaski, Y. Zhai, and C. Qualls, "Efficacy of Quetiapine Monotherapy in Posttraumatic Stress Disorder: A Randomized, Placebo-Controlled Trial," *American Journal of Psychiatry*, Vol. 173, No. 12, Dec 1, 2016, pp. 1205–1212. Reason for exclusion: medications not recommended by DoD guidelines.

Wahbeh, H., E. Goodrich, E. Goy, and B. S. Oken, "Mechanistic Pathways of Mindfulness Meditation in Combat Veterans with Posttraumatic Stress Disorder," *Journal of Clinical Psychology*, Vol. 72, No. 4, April 2016, pp. 365–383. Reason for exclusion: interventions not recommended by DoD guidelines.

Wahbeh, H., A. Senders, R. Neuendorf, and J. Cayton, "Complementary and Alternative Medicine for Posttraumatic Stress Disorder Symptoms: A Systematic Review," *Journal of Evidence-Based Complementary and Alternative Medicine*, Vol. 19, No. 3, 2014, pp. 161–175. Reason for exclusion: review.

Wald, I., S. Bitton, O. Levi, S. Zusmanovich, E. Fruchter, K. Ginat, D. S. Charney, D. S. Pine, and Y. Bar-Haim, "Acute Delivery of Attention Bias Modification Training (ABMT) Moderates the Association Between Combat Exposure and Posttraumatic Symptoms: A Feasibility Study," Biological Psychology, Vol. 122, January 2017, pp. 93–97. Reason for exclusion: interventions not recommended by DoD guidelines.

Wald, I., E. Fruchter, K. Ginat, E. Stolin, D. Dagan, P. D. Bliese, P. J. Quartana, M. L. Sipos, D. S. Pine, and Y. Bar-Haim, "Selective Prevention of Combat-Related Post-Traumatic Stress Disorder Using Attention Bias Modification Training: A Randomized Controlled Trial," *Psychological Medicine*, Vol. 46, No. 12, September 2016, pp. 2627–2636. Reason for exclusion: study does not report treatment retention, response, or remission.

Wald, J., and S. Taylor, "Efficacy of Interoceptive Exposure Therapy Combined with Trauma-Related Exposure Therapy for Posttraumatic Stress Disorder: A Pilot Study," *Journal of Anxiety Disorders*, Vol. 21, No. 8, 2007, pp. 1050–1060. Reason for exclusion: not military populations.

Waltz, T. J., D. G. Campbell, J. E. Kirchner, A. Lombardero, C. Bolkan, K. Zivin, A. B. Lanto, E. F. Chaney, and L. V. Rubenstein, "Veterans with Depression in Primary Care: Provider Preferences, Matching, and Care Satisfaction," *Families Systems and Health*, Vol. 32, No. 4, December 2014, pp. 367–377. Reason for exclusion: not PTSD.

Wangelin, B. C., M. B. Powers, J. A. Smits, and P. W. Tuerk, "Enhancing Exposure Therapy for PTSD with Yohimbine HCL: Protocol for a Double-Blind, Randomized Controlled Study Implementing Subjective and Objective Measures of Treatment Outcome," *Contemporary Clinical Trials*, Vol. 36, No. 2, November 2013, pp. 319–326. Reason for exclusion: medications not recommended by DoD guidelines.

Warner, M. D., M. R. Dorn, and C. A. Peabody, "Survey on the Usefulness of Trazodone in Patients with PTSD with Insomnia or Nightmares," *Pharmacopsychiatry*, Vol. 34, No. 4, July 2001, pp. 128–131. Reason for exclusion: medications not recommended by DoD guidelines.

Watkins, N. J., F. Cole, and S. Weidemann, "The War Memorial as Healing Environment: The Psychological Effect of the Vietnam Veterans Memorial on Vietnam War Combat Veterans' Posttraumatic Stress Disorder Symptoms," *Environment and Behavior*, Vol. 42, No. 3, 2010, pp. 351–375. Reason for exclusion: interventions not recommended by DoD guidelines.

Watson, C. G., J. R. Tuorila, E. Detra, L. P. Gearhart, and R. M. Wielkiewicz, "Effects of a Vietnam War Memorial Pilgrimage on Veterans with Posttraumatic Stress Disorder," *Journal of Nervous and Mental Disease*, Vol. 183, No. 5, 1995, pp. 315–319. Reason for exclusion: interventions not recommended by DoD guidelines.

Watson, C. G., J. R. Tuorila, K. S. Vickers, L. P. Gearhart, and C. M. Mendez, "The Efficacies of Three Relaxation Regimens in the Treatment of PTSD in Vietnam War Veterans," *Journal of Clinical Psychology*, Vol. 53, No. 8, 1997, pp. 917–923. Reason for exclusion: interventions not recommended by DoD guidelines.

Watts, Bradley V., Barbara Landon, Alicia Groft, and Yinong Young-Xu, "A Sham Controlled Study of Repetitive Transcranial Magnetic Stimulation for Posttraumatic Stress Disorder," *Brain Stimulation*, Vol. 5, No. 1, January 2012, pp. 38–43. Reason for exclusion: interventions not recommended by DoD guidelines.

Watts, B. V., P. P. Schnurr, L. Mayo, Y. Young-Xu, W. B. Weeks, and M. J. Friedman, "Meta-Analysis of the Efficacy of Treatments for Posttraumatic Stress Disorder," *Journal of Clinical Psychiatry*, Vol. 74, No. 6, June 2013, pp. e541–e550. Reason for exclusion: review.

Watts, B. V., P. P. Schnurr, M. Zayed, Y. Young-Xu, P. Stender, and H. Llewellyn-Thomas, "A Randomized Controlled Clinical Trial of a Patient Decision Aid for Posttraumatic Stress Disorder," *Psychiatric Services*, Vol. 66, No. 2, February 1, 2015, pp. 149–154. Reason for exclusion: interventions not recommended by DoD guidelines.

Watts, B. V., B. Shiner, L. Zubkoff, E. Carpenter-Song, J. M. Ronconi, and C. M. Coldwell, "Implementation of Evidence-Based Psychotherapies for Posttraumatic Stress Disorder in VA Specialty Clinics," *Psychiatric Services*, Vol. 65, No. 5, May 1, 2014, pp. 648–653. Reason for exclusion: study does not report treatment retention, response, or remission.

Weaver, C. M., J. A. Trafton, R. D. Walser, and R. E. Kimerling, "Pilot Test of Seeking Safety Treatment with Male Veterans," *Psychiatric Services*, Vol. 58, No. 7, July 2007, pp. 1012–1013. Reason for exclusion: study does not report treatment retention, response, or remission.

Wesemann, U., J. T. Kowalski, T. Jacobsen, S. Beudt, H. Jacobs, J. Fehr, J. Buchler, and P. L. Zimmermann, "Evaluation of a Technology-Based Adaptive Learning and Prevention Program for Stress Response—A Randomized Controlled Trial," *Military Medicine*, Vol. 181, No. 8, August 2016, pp. 863–871. Reason for exclusion: study does not report treatment retention, response, or remission.

Whitworth, J. W., and J. T. Ciccolo, "Exercise and Post-Traumatic Stress Disorder in Military Veterans: A Systematic Review," *Military Medicine*, Vol. 181, No. 9, September 2016, pp. 953–960. Reason for exclusion: review.

Wiederhold, B., "The Efficacy of Virtual Reality (VR) as an Adjunct Therapy for Acute Combat-Related Post-Traumatic Stress Disorder (PTSD) in Non-Combatants," ClinicalTrials.gov, 2009. As of April 6, 2020: https://clinicaltrials.gov/ct2/show/NCT00992953. Reason for exclusion: study does not report treatment retention, response, or remission.

Williams, R., R. Holliday, M. Clem, E. Anderson, E. E. Morris, and A. Surís, "Borderline Personality Disorder and Military Sexual Trauma: Analysis of Previous Traumatization and Current Psychiatric Presentation," *Journal of Interpersonal Violence*, Vol. 32, No. 15, 2017, pp. 2223–2236. Reason for exclusion: study does not report treatment retention, response, or remission.

Williams, W., D. P. Graham, K. McCurry, A. Sanders, J. Eiseman, P. H. Chiu, and B. King-Casas, "Group Psychotherapy's Impact on Trust in Veterans with PTSD: A Pilot Study," *Bulletin of the Menninger Clinic*, Vol. 78, No. 4, 2014, pp. 335–348. Reason for exclusion: sample size not <50.

Wilson, D. L., S. M. Silver, W. G. Covi, and S. Foster, "Eye Movement Desensitization and Reprocessing: Effectiveness and Autonomic Correlates," *Journal of Behavior Therapy and Experimental Psychiatry*, Vol. 27, No. 3, 1996, pp. 219–229. Reason for exclusion: not military populations.

Wiltsey Stirman, S., N. Shields, J. Deloriea, M. S. Landy, J. M. Belus, M. M. Maslej, and C. M. Monson, "A Randomized Controlled Dismantling Trial of Post-Workshop Consultation Strategies to Increase Effectiveness and Fidelity to an Evidence-Based Psychotherapy for Posttraumatic Stress Disorder," *Implementation Science*, Vol. 8, August 1, 2013, p. 82. Reason for exclusion: study does not report treatment retention, response, or remission.

Wolf, E. G., L. M. Baugh, C. M. Kabban, M. F. Richards, and J. Prye, "Cognitive Function in a Traumatic Brain Injury Hyperbaric Oxygen Randomized Trial," *Undersea and Hyperbaric Medicine*, Vol. 42, No. 4, July–August 2015, pp. 313–332. Reason for exclusion: not PTSD.

Wolf, M. E., A. Alavi, and A. D. Mosnaim, "Posttraumatic Stress Disorder in Vietnam Veterans—Clinical and EEG Findings: Possible Therapeutic Effects of Carbamazepine," *Biological Psychiatry*, Vol. 23, No. 6, 1988, pp. 642–644. Reason for exclusion: medications not recommended by DoD guidelines.

Wolfe, J., D. J. Erickson, E. J. Sharkansky, D. W. King, and L. A. King, "Course and Predictors of Posttraumatic Stress Disorder Among Gulf War Veterans: A Prospective Analysis," *Journal of Consulting and Clinical Psychology*, Vol. 67, No. 4, 1999, pp. 520–528. Reason for exclusion: study does not report treatment retention, response, or remission.

Wood, D. P., R. N. McLay, J. Webb-Murphy, M. D. Wiederhold, J. L. Spira, J. M. Pyne, and B. K. Wiederhold, "Virtual Reality Graded Exposure Therapy with Arousal Control for the Treatment of Combat Related Posttraumatic Stress Disorder: A Follow Up Case Series," *Annual Review of CyberTherapy and Telemedicine*, Vol. 12, 2014, pp. 141–145. Reason for exclusion: study does not report treatment retention, response, or remission.

Wood, N. E., M. L. Rosasco, A. M. Suris, J. D. Spring, M. F. Marin, N. B. Lasko, J. M. Goetz, A. M. Fischer, S. P. Orr, and R. K. Pitman, "Pharmacological Blockade of Memory Reconsolidation in Posttraumatic Stress Disorder: Three Negative Psychophysiological Studies," *Psychiatry Research*, Vol. 225, Nos. 1–2, January 30, 2015, pp. 31–39. Reason for exclusion: medications not recommended by DoD guidelines.

Wu, S., X. Zhu, Y. Zhang, J. Liang, X. Liu, Y. Yang, H. Yang, and D. Miao, "A New Psychological Intervention: '512 Psychological Intervention Model' Used for Military Rescuers in Wenchuan Earthquake in China," *Social Psychiatry and Psychiatric Epidemiology*, Vol. 47, No. 7, July 2012, pp. 1111–1119. Reason for exclusion: interventions not recommended by DoD guidelines.

Yarborough, B. J. H., A. A. Owen-Smith, S. P. Stumbo, M. T. Yarborough, N. A. Perrin, and C. A. Green, "An Observational Study of Service Dogs for Veterans with Posttraumatic Stress Disorder," *Psychiatric Services*, Vol. 68, No. 7, 2017, pp. 730–734. Reason for exclusion: interventions not recommended by DoD guidelines.

Yehuda, R., "The Effect of Hydrocortisone Augmentation on Prolonged Exposure Psychotherapy Outcomes," *Neuropsychopharmacology*, Vol. 43, 2017, p. S90. Reason for exclusion: medications not recommended by DoD guidelines.

Yehuda, R., L. M. Bierer, L. C. Pratchett, A. Lehrner, E. C. Koch, J. A. Van Manen, J. D. Flory, I. Makotkine, and T. Hildebrandt, "Cortisol Augmentation of a Psychological Treatment for Warfighters with Posttraumatic Stress Disorder: Randomized Trial Showing Improved Treatment Retention and Outcome," *Psychoneuroendocrinology*, Vol. 51, January 2015, pp. 589–597. Reason for exclusion: medications not recommended by DoD guidelines.

Yehuda, R., N. P. Daskalakis, F. Desarnaud, I. Makotkine, A. L. Lehrner, E. F. Koch, J. D. Flory, J. D. Buxbaum, M. J. Meaney, and L. M. Bierer, "Epigenetic Biomarkers as Predictors and Correlates of Symptom Improvement Following Psychotherapy in Combat Veterans with PTSD," *Frontiers in Psychiatry*, Vol. 4, 2013. Reason for exclusion: sample size not <50.

Yehuda, R., P. D. Harvey, M. Buchsbaum, L. Tischler, and J. Schmeidler, "Enhanced Effects of Cortisol Administration on Episodic and Working Memory in Aging Veterans with PTSD," *Neuropsychopharmacology*, Vol. 32, No. 12, December 2007, pp. 2581–2591. Reason for exclusion: medications not recommended by DoD guidelines.

Yehuda, R., L. C. Pratchett, M. W. Elmes, A. Lehrner, N. P. Daskalakis, E. F. Koch, I. Makotkine, J. D. Flory, and L. M. Bierer, "Glucocorticoid-Related Predictors and Correlates of Post-Traumatic Stress Disorder Treatment Response in Combat Veterans," *Interface Focus*, Vol. 4, No. 5, 2014. Reason for exclusion: sample size not <50.

Yoder, M. S., B. E. Lozano, K. B. Center, A. Miller, R. E. Acierno, and P. W. Tuerk, "Effectiveness of Prolonged Exposure for PTSD in Older Veterans," *International Journal of Psychiatry in Medicine*, Vol. 45, No. 2, 2013, pp. 111–124. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Youssef, N. A., C. E. Marx, D. W. Bradford, S. Zinn, M. A. Hertzberg, J. D. Kilts, J. C. Naylor, M. I. Butterfield, and J. L. Strauss, "An Open-Label Pilot Study of Aripiprazole for Male and Female Veterans with Chronic Post-Traumatic Stress Disorder Who Respond Suboptimally to Antidepressants," *International Clinical Psychopharmacology*, Vol. 27, No. 4, 2012, pp. 191–196. Reason for exclusion: medications not recommended by DoD guidelines.

Yuen, E. K., D. F. Gros, M. Price, S. Zeigler, P. W. Tuerk, E. B. Foa, and R. Acierno, "Randomized Controlled Trial of Home-Based Telehealth Versus In-Person Prolonged Exposure for Combat-Related PTSD in Veterans: Preliminary Results," *Journal of Clinical Psychology*, Vol. 71, No. 6, June 2015, pp. 500–512. Reason for exclusion: sample size not <50.

Zandberg, L. J., D. Rosenfield, C. P. McLean, M. B. Powers, A. Asnaani, and E. B. Foa, "Concurrent Treatment of Posttraumatic Stress Disorder and Alcohol Dependence: Predictors and Moderators of Outcome," *Journal of Consulting and Clinical Psychology*, Vol. 84, No. 1, January 2016, pp. 43–56. Reason for exclusion: not military populations.

Ziemba, S. J., N. S. Bradley, L. A. Landry, C. H. Roth, L. S. Porter, and R. N. Cuyler, "Posttraumatic Stress Disorder Treatment for Operation Enduring Freedom/Operation Iraqi Freedom Combat Veterans Through a Civilian Community-Based Telemedicine Network," *Telemedicine and e-Health*, Vol. 20, No. 5, May 2014, pp. 446–450. Reason for exclusion: sample size not <50.

Zimmermann, P., K. Heinz Biesold, K. Barre, and M. Lanczik, "Long-Term Course of Post-Traumatic Stress Disorder (PTSD) in German Soldiers: Effects of Inpatient Eye Movement Desensitization and Reprocessing Therapy and Specific Trauma Characteristics in Patients with Non-Combat-Related PTSD," *Military Medicine*, Vol. 172, No. 5, 2007, pp. 456–460. Reason for exclusion: sample size not <50.

Zisook, S., Y. E. Chentsova-Dutton, A. Smith-Vaniz, N. A. Kline, G. L. Ellenor, A. B. Kodsi, and J. C. Gillin, "Nefazodone in Patients with Treatment-Refractory Posttraumatic Stress Disorder," *Journal of Clinical Psychiatry*, Vol. 61, No. 3, 2000, pp. 203–208. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Zlotnick, C., B. F. Rodriguez, R. B. Weisberg, S. E. Bruce, M. A. Spencer, L. Culpepper, and M. B. Keller, "Chronicity in Posttraumatic Stress Disorder and Predictors of the Course of Posttraumatic Stress Disorder Among Primary Care Patients," *Journal of Nervous and Mental Disease*, Vol. 192, No. 2, 2004, pp. 153–159. Reason for exclusion: not military populations.

Zohar, J., D. Amital, C. Miodownik, M. Kotler, A. Bleich, R. M. Lane, and C. Austin, "Double-Blind Placebo-Controlled Pilot Study of Sertraline in Military Veterans with Posttraumatic Stress Disorder," *Journal of Clinical Psychopharmacology*, Vol. 22, No. 2, April 2002, pp. 190–195. Reason for exclusion: predictors (treatment features, patient characteristics) not reported.

Appendix C. Evidence Table

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Author, year: Acierno et al., 2017 **Region:** United States/ Canada	**Number of patients:** 132 **Mean age (*SD*):** 41.8 (14.5) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population:** Married, 56.6%; employed, 49.1%; education, 12.4 years; baseline PCL score, 59.2; baseline BDI score, 27.7; mean service connection rating (referring to compensated disability for injury suffered while in the military), 53.5%. **Inclusion:** Diagnosis per CAPS for PTSD; combat-related Criterion A traumatic event. **Exclusion:** Actively psychotic, acutely suicidal, or meeting criteria for current substance dependence, as determined by the Structured Clinical Interview for *DSM-IV* (SCID-IV).	Ten to 12 90-minute sessions of prolonged exposure via home-based telehealth (PE-HBT; mean 7.6 sessions) or prolonged exposure in person (PE-IP; mean 8.6 sessions).	**Predictors:** Treatment characteristics: treatment delivery via home-based telehealth versus in person (standard). **Control variables:** Age, race, combat theater, disability status, depression, PTSD severity, social support. **Analytic method:** Stratified results and Cox proportional hazards model.	**Retention:** Not completing at least eight therapy sessions. Disability and treatment group were significant predictors of dropout. Age: β = −.01; *SE* = .01; *p* = .69 Race: β = −.56; *SE* = .37; *p* = .13 Combat theater: β = −.23; *SE* = .34; *p* = .49 Disability status: β = −.99; *SE* = .44; *p* = .02 Baseline BDI-II: β. = 01; *SE* = .02; *p* = .53 Baseline PCL: β = .001; *SE* = .01; *p* = .96 DRRI social support: β = −.04; *SE* = .02; *p* = .36 Treatment condition: β = .68; *SE* = .29; *p* = .05 **Response:** PTSD symptoms, measured by 90-minute PCL-M, at treatment end, three months posttreatment, and six months posttreatment. Negative numbers indicate poorer performance for PE-HBT at end of treatment (mean = −3.2; 90% CI [−8.6 to 2.1]); three months (mean = −2.8; 90% CI: [−7.6 to 2.0]); and six months (mean = 0.03; 90% CI [−4.9 to 5.0]), indicating PE-HBT was not inferior to PE-IP. **Remission:** NR.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Author, year: Agha, 2008; Thorp et al., 2012 **Study Number:** NCT00645047 **Region:** United States/ Canada	**Number of patients:** 207 **Mean age (*SD*):** 48.4 (14.1) **Gender:** Majority male. **Race/ethnicity:** NR/unclear. **Population description:** Veterans receiving CPT for PTSD in San Diego; 77% male. **Inclusion criteria:** Diagnosis of PTSD from combat, 18 years or older, speaking English fluently. **Exclusion criteria:** Dementia, psychosis or manic episodes in the last year, substance use in the last year, concurrent therapy for PTSD or depression, speech/vision/hearing impairment, severe respiratory/cardiovascular disease, loss of consciousness for more than 20 minutes from head trauma.	Telemedicine or in-person CBT. Therapy provided over 12 weekly sessions lasting 60 minutes each.	**Predictors:** Treatment characteristics: treatment type (telemedicine versus in-person CBT). **Control variables:** None. **Analytic method:** Stratified results.	**Retention:** NR **Response:** CAPS-5. Thirty-item clinician-administered interview designed to diagnose current and lifetime PTSD and to assess PTSD symptom severity over the past week. Total symptom severity score may range from 0 to 80. Mean CAPS score at baseline was 71.3 among telemedicine CBT group and 72.5 among in-person CBT group. At six-month follow-up, scores decreased to 56.6 for telemedicine CBT and 57.3 for in-person CBT. Statistical significance of difference between group is not reported. **Remission:** NR.
Author, year: Badour et al., 2012 **Region:** United States/ Canada	**Number of patients:** 1,073 **Mean age (*SD*):** 52.39 (8.41) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** 78.5% of participants had been exposed to combat. Participants reported experiences in Vietnam (58.5%), followed by the Persian Gulf War (19.2%), Iraq (15.8%), and Afghanistan (4.1%). **Inclusion criteria:** Clinician-referred veterans whose severe PTSD symptoms had not been successfully alleviated through outpatient treatment. Participants who completed one or more of the primary measures of interest at intake (PTSD symptom severity, avoidance coping) were included in analysis. **Exclusion criteria:** Current psychotic symptoms, substance use within 15 days of starting treatment, and having a medical condition that would interfere with or prevent receiving treatment (e.g., not being able to move about independently).	Residential treatment. Participants primarily received CBT in a group format. (The study does not say what the other forms of treatment were.)	**Predictors:** Patient characteristics: avoidance coping measured by the Brief COPE Inventory; three scales: denial, behavioral disengagement, and substance use. Each scale rated on a two-item, four-point Likert scale (1 = I haven't been doing this at all . . . 4 = I've been doing this a lot). **Control variables:** Length of stay, Avoidance coping, and three subscales of avoidance coping: denial, behavioral disengagement, and substance use. PTSD symptom severity, and three PTSD "symptom clusters": reexperiencing, avoidance/ numbing, and hyperarousal. **Analytic method:** Model: Cross-lagged path models, correlation.	**Retention:** Length of stay (days): not significantly associated with avoidance coping or PTSD severity at intake. **Response:** PTSD symptom severity measured with the PCL-M as defined by the *DSM-IV-TR* (APA, 2000). Avoidance coping at intake was significantly, positively correlated with PTSD symptom severity at discharge, and PTSD symptom severity at discharge was significantly, positively associated with avoidance coping at follow-up. Higher levels of avoidance coping among veterans reluctant to receive treatment may play a role in maintaining PTSD symptom severity during treatment, and this maintained level of PTSD severity could help perpetuate avoidance coping after treatment. **Remission:** NR.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Author, year: Belsher et al., 2012 **Region:** United States/ Canada	**Number of patients:** 725 **Mean age (*SD*):** 49.9 (12.5) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** 82.6% had served in a war zone, and 82.9% had received hostile or friendly fire. 40% were married, nearly 30% were divorced, 15% had never been married, 9% were separated, 3% had remarried, and nearly 2.5% were widowed. **Inclusion criteria:** Veterans who received specialized trauma care in one of five VA SIPPS. **Exclusion criteria:** Participants neither currently having nor seeking compensation (this group of participants [*N* = 10] was too small to analyze under normality assumption); participants who listed their service-connected compensation as >100%, and participants who said they were 100% service connected and seeking an increase in compensation.	Five residential treatment programs that varied in the services provided—medication management, skills-focused psychotherapy (e.g., anger management, communication), or psychotherapy targeting PTSD symptoms.	**Predictors:** Patient characteristics: treatment expectations. Participants listed the three most important problems they wanted to address and then rated the degree of improvement they expected through treatment on an 11-point Likert scale (–5 = Will make it [the problem] much worse . . . 5 = Will make it much better). Status of compensation, based on a baseline questionnaire: • those without compensation seeking compensation • those with compensation not seeking an increase • those with compensation seeking an increase • veteran status (current or other era). **Control variables:** Age, gender, received friendly/hostile fire during service, baseline symptoms nested within treatment site. **Analytic method:** Correlation model: Stepwise mixed-model longitudinal analysis; general linear model.	**Retention:** Length of stay. Treatment expectations were moderately, positively associated associated with length of stay. Compensation status was not significantly associated with length of stay. **Response:** PTSD symptoms, as measured by a modified version of the PCL. The study did not use the PCL-M, but modified the phrasing of the PCL from "problems and complaints that people sometimes have in response to stressful life experiences" so that participants would other combat and non-combat-related traumatic events: "problems and complaints that people sometimes have in response to extremely stressful events such as being in combat, being attacked, being sexually assaulted, being physically or sexually abused, seeing someone killed or injured, or being in a fire, flood, or natural disaster." Otherwise, the study used the same standard 17 items measuring PTSD symptoms according to the *DSM-IV*. Treatment expectations were significantly, positively associated with reductions in PTSD symptoms. Compensation status and current-era or other-era status were not significantly associated with changes in PTSD symptoms. **Remission:** NR.
Author, year: Boden et al., 2012 **Region:** United States/ Canada	**Number of patients:** 636 **Mean age (*SD*):** 51.7 (7.9) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** 81.2% had been exposed to combat. All participants had a primary diagnosis of PTSD. The	Residential program at VA medical center for severe PTSD rehabilitation. Mean length of stay, 76.8 days. The program admitted only "clinician-referred military Veterans with severe PTSD symptoms that have not	**Predictors:** Patient characteristics: avoidant coping and active coping: 24-item, "well-validated," abridged version of the the COPE Inventory, which measured 12 subscales (self distraction, active coping, denial, substance use, emotional	**Retention:** NR. **Response:** PTSD symptom severity, as measured by the PCL-M and defined by the *DSM-IV* (APA, 1994). Intake PTSD symptom severity significantly predicted discharge PTSD symptom severity. The addition of avoidant and active coping scores at Step 2 significantly and

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	SCID-IV was used to screen 44.3 percent of participants for diagnoses other than PTSD (due to "limitations in resources"). Of this subset, 90.4% had a current mood disorder, 73.5% were drug/alcohol dependent, and 19.7% had an anxiety disorder other than PTSD. **Inclusion criteria:** Clinician-referred veterans whose severe PTSD symptoms had not been successfully alleviated through outpatient treatment. **Exclusion criteria:** Current psychotic symptoms, substance use within 15 days of starting treatment, and having a medical condition that would interfere with or prevent receiving treatment (e.g., not being able to move about independently).	been successfully ameliorated with outpatient treatment." Participants exclusively received treatment in groups, and mostly using a CBT framework. Groups included cognitive therapy, psychoeducation, communication skills, parenting skills, process groups, recreation therapy, and specific coping skills (example cited by authors of affect management using CBT approaches).	support, behavioral disengagement, positive reframing, planning, venting, acceptance, humor, religion). For each item, respondents indicate on a four-point Likert scale how frequently they use a particular coping strategy (1 = Not at all . . . 4 = A lot). **Control variables:** PTSD severity at intake, change in active coping, change in avoidant coping, length of stay in treatment, trauma severity. A hierarchical multiple regression analysis was conducted to test the primary hypotheses. Step 1: the intake value of PTSD severity was entered as a covariate. Step 2: change in avoidant and active coping were simultaneously entered. **Analytic method:** Correlation, model: hierarchical multiple regression analysis.	substantially improved the prediction of total PTSD symptom severity. Step 1: r^2 = 0.05, p <.01 Step 2: $F_{(3,635)}$ = 075.5, p <.001 Avoidant coping at intake was significantly, positively correlated with PTSD symptom severity at intake and discharge. Active coping at intake was significantly, negatively correlated with PTSD symptom severity at intake and discharge. **Remission:** NR.
Author, year: Boden et al., 2013 **Region:** United States/ Canada	**Number of patients:** 93 **Mean age (*SD*):** 44.5 (14.4) **Gender:** All male. **Race/ethnicity:** Majority white. **Population description:** Veterans who had been deployed to Iraq/Afghanistan (45.1%), Vietnam (33.3%), and the Persian Gulf (16.2%). Over half were unemployed; 12% had been certified disabled by the VA. **Inclusion criteria:** Veterans with PTSD admitted to a VA residential rehabilitation program between 2008 and 2010 who completed measures of emotion regulation and PTSD symptom severity at treatment intake and discharge.	Residential treatment included group CPT, individual CBT, communication skills, psychoeducation, process groups, parenting skills, recreation therapy, self-help groups for those who reported substance use problems. Mean length of stay, 84 days.	**Predictors:** Patient characteristics: expressive suppression, cognitive reappraisal. **Control variables:** PTSD severity at intake. **Analytic method:** Model: Stepwise hierarchical linear regression.	**Retention:** NR. **Response:** PCL-M at discharge. Addition of expressive suppression and cognitive reappraisal change scores in the hierarchical linear model significantly improved the prediction of PTSD total (p <.01). Lower total PTSD symptom severity was significantly predicted by reductions in the use of expressive suppression and increases in the use of cognitive reappraisal (p <0.01). **Remission:** NR.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	Exclusion criteria: At risk of harm to self or others, active withdrawal or not substance-free during treatment, not suited for residential level care based on medical/psychiatric conditions, unable to partake in treatment, absent from treatment because of legal issues.			
Author, year: Bonn-Miller et al., 2013 **Region:** United States/ Canada	**Number of patients:** 260 **Mean age (*SD*):** 52.57 (5.47) **Gender:** All male. **Race/ethnicity:** Majority white. **Population description:** 31% had CUD. **Inclusion criteria:** Veterans who completed any amount of treatment within the VA residential rehabilitation program for PTSD during the study period (2000 to 2008), who remained abstinent from alcohol and illicit drugs for at least 15 days before treatment intake and during treatment. The program specifically admitted clinician-referred veterans with severe PTSD symptoms for whom outpatient treatment was not successful. **Exclusion criteria:** Having current psychotic symptoms, substance use (alcohol or illicit drugs) within 15 days of starting treatment, and medical conditions that would likely, significantly interfere with or prevent treatment (i.e., unable to move on one's own).	Residential treatment program with group treatment format and CBT framework. Substance use relapse prevention groups were also incorporated into the program (e.g., 12-step meetings).	**Predictors:** Patient characteristics: presence of CUD. **Control variables:** Age, psychological distress (BDI), and combat exposure severity (Combat Exposure Scale). **Analytic method:** Model: Hierarchical linear regression.	**Retention:** NR. **Response:** Change in PTSD symptom severity, defined by the PCL-M, from intake to discharge. Having a CUD was significantly associated with lower improvements in PTSD symptom severity. Regression results: CUD: β = –0.14, p <0.05. Having a CUD was significantly associated with lower improvements in PTSD symptom severity. **Remission:** NR.
Author, year: Bray et al., 2016 **Region:** United States/ Canada	**Number of patients:** 474 **Mean age (*SD*):** 17–25, 28.9%; 26–34, 37.3%; 35 or older: 33.8% **Gender:** Majority male. **Race/ethnicity:** Majority nonwhite. **Population description:** 66.9% were married. 56.5% had some college education, 30.8% with a high school degree only, and 12.7% with a college	Twelve-month collaborative care in a primary care setting (centrally assisted stepped collaborative telecare management or usual integrated collaborative mental health care) for military personnel with PTSD and/or depression.	**Predictors:** Patient characteristics: age, male sex, race/ethnicity, combat exposure, lifetime trauma burden (excluding combat), comorbid problems. **Control variables:** Treatment arm, age, male sex, race/ethnicity, combat exposure, lifetime trauma burden (excluding combat), comorbid problems,	**Retention:** NR **Response:** PTSD symptoms over time measured by the PTSD Outcome Measure of the PDS; growth mixture modeling identified two PTSD symptom trajectories: subjects reporting persistent symptoms (persisters, 81.9%, n = 388), and subjects reporting improved symptoms (improvers, 18.1%, n = 86). After adjusting for all variables

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	degree. Roughly equal proportions of subjects were in the low-, moderate-, and high-combat exposure groups (26.9%, 27.9%, and 28.3%, respectively). Baseline PCL-C score: 62.59; baseline PDS score: 32.57; lifetime trauma burden (excluding combat): 6.61; PTSD comorbidities: 38.4% alcohol use, 94.7% depression, 71.5% pain, 85.0% somatic symptoms; 16.0% mental health, 17.7% physical health, 36.9% mTBI; comorbidity (mean): 1.2. **Inclusion criteria:** Secondary analysis of RCT. Active-duty personnel meeting *DSM-IV-TR* (APA, 2000) criteria on the PCL-C or probable depression on the PHQ-9, or both; having internet and email access. Only subjects with a score ≥50 on the PCL-C were analyzed, constituting a high symptom sample. **Exclusion criteria:** NR.		Army post. **Analytic method:** Model: Logistic regression models were used to predict improver trajectory status.	in the model, only high combat exposure, (*aOR* = 0.39, 95% CI [0.17, 0.87]) and moderate combat exposure (*aOR* = 0.44, 95% CI [0.20, 0.98]) were statistically significant—that is, subjects reporting high or moderate combat exposure were less likely to be in the improver group. **Remission:** NR.
Author, year: Cook et al., 2013 **Region:** United States/ Canada	**Number of patients:** 99 **Mean age (*SD*):** 59.4 (3.6) **Gender:** All male. **Race/ethnicity:** Majority nonwhite. **Population description:** Nearly half (46%) had completed some college or had a college degree, and 40% had a high school diploma. Married or cohabiting, 61%; separated or divorced, 28%. Depressive disorder, 57%; anxiety disorder, 52%. Prescribed psychotropic medication, 93%. **Inclusion criteria:** Veterans with PTSD (as assessed by the "1, 2 rule" of CAPS) who had accompanying major depression or anxiety disorders as assessed by the Structured Clinical Interview—Patient version, and who were on a stable psychotropic medication regimen for a minimum of three months.	Six weekly, 90-minute sessions of two different CBTs, either IR or SN, based on manualized protocols. All patients received handouts and homework.	**Predictors:** Patient characteristics: demographics (e.g., race), medication use (e.g., SSRIs), education, combat exposure, other trauma exposure, service connection, treatment credibility, treatment expectancy, reexperiencing symptoms, avoidance symptoms, hyperarousal symptoms, number of nightmares per week, sleep quality. **Control variables:** All of the above in model. **Analytic method:** Model: Bivariate and multivariate logistic regressions.	**Retention:** Dropout: attending four or fewer of six total sessions. "To limit the number of predictors included in the regression analysis, bivariate maximum-likelihood logistic regression analyses were performed using each potential predictor to predict dropout. Then, a multivariate logistic regression was conducted to determine the unique contributions of the statistically significant variables from the bivariate analyses." Imagery Rehearsal (IR) In the bivariate model, certain variables significantly predicted dropout: being non–African American, use of SSRIs, having more traumas, having lower expected treatment credibility. In the multivariate model, no variable significantly predicted dropout.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	Exclusion criteria: Current or lifetime schizophrenia, other psychotic disorders, bipolar disorder, SUD in the last six months, medical disorders known to affect sleep (e.g., narcolepsy), and untreated sleep apnea.			**Bivariate *OR*:** Race (African American); 0.28 (0.08–0.92) Education (no high school): 1.03 (0.23–4.52) Medication (SSRIs): 5.23 (1.07–25.70) Medication (benzodiazepines): 0.59 (0.16–2.13) Service connection (%): 1.00 (0.99–1.02) Combat exposure: 1.04 (0.97–1.12) Other trauma exposure: 1.39 (1.10–1.77) Treatment credibility: 0.57 (0.33–0.99) Treatment expectancy: 0.98 (0.94–1.02) Reexperiencing symptoms: 1.00 (0.91–1.11) Avoidance symptoms: 0.98 (0.92–1.05) Hyperarousal symptoms: 1.02 (0.91–1.15) Nightmares (per week): 1.07 (0.85–1.35) Sleep quality: 1.12 (1.00–1.26) **Multivariate *OR*:** Race (African American): 0.51 (0.06–4.34) Medication (SSRIs): 3.08 (0.79–10.42) Other trauma exposure: 1.24 (0.84–1.84) Treatment credibility: 0.71 (0.36–1.39) Sleep and nightmare management (SN) In both the bivariate and multivariate models, low avoidance symptoms predicted dropout. **Bivariate *OR*:** Race (African American): 4.83 (0.53–43.96 Education (no high school): NR Medication (SSRIs): 1.46 (0.25–8.60)

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
				Medication (benzodiazepines): 0.61 (0.07–5.71) Service connection (%): 1.00 (0.98–1.02) Combat exposure: 1.08 (0.93–1.06) Other trauma exposure: 0.94 (0.71–1.05) Treatment credibility: NR Treatment expectancy: 0.07 (0.01–4.20) Reexperiencing symptoms: 0.99 (0.86–1.15) Avoidance symptoms: * 0.80 (0.68–0.96) Hyperarousal symptoms: 0.89 (0.76–1.04) Nightmares (per week): 1.05 (0.90–1.22) Sleep quality: 1.14 (0.91–1.45) **Multivariate *OR*:** Avoidance symptoms: * 0.80 (0.68–0.96) **Response:** NR. **Remission:** NR.
Author, year: Creamer et al., 2002 **Region:** Australia/ New Zealand	**Number of patients:** 202 **Mean age (*SD*):** Inpatient: 51.2 (4.7); day hospital: 52.3 (5.3) **Gender:** All male. **Race/ethnicity:** NR/unclear. **Population description:** The majority of participants (inpatient sample, 69.1%; day hospital sample, 75.0%) were married or cohabiting. **Inclusion criteria:** Veterans who met diagnosis for PTSD according to the *DSM-IV*, assessed via CAPS; having undergone detoxification for alcohol or substance use; and who were enrolled in either inpatient-outpatient and day hospital programs at any one of the four facilities. **Exclusion criteria:** Being psychotic, involved in a major life crisis, actively	The inpatient-outpatient programs involved a four-week inpatient stay, followed by a one-day-per-week outpatient phase for eight weeks (about 28 days total). Day hospital programs involved three to four days per week for six weeks, followed by one day per week for six weeks (about 24–30 days total). Otherwise, both models had the same components. Both admitted cohorts of six to eight patients. Both programs include psychoeducation about PTSD and PTSD treatment; symptom management (e.g., anxiety, depression, anger); working	**Predictors:** Treatment characteristics: setting (inpatient-outpatient versus day hospital). **Control variables:** Time. **Analytic method:** Model: General linear model.	**Retention:** NR. **Response:** PTSD symptoms (as measured by the PCL). There were not significant differences in PTSD symptom improvements between participants in inpatient-outpatient versus day hospital settings. **Remission:** NR.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	suicidal or homicidal.	on substance use and addictive behaviors; developing interpersonal, problem solving, and communication skills; physical health and lifestyle issues; and relapse prevention. Programs also had to include a trauma-informed component in group and/or individual settings and to provide education and support to veterans' partners (usually in weekly group meetings). Finally, all programs had to provide veterans with 12 weekly individual counseling or therapy sessions, as well as regular medication reviews. At three and nine months postdischarge, veterans returned to the treatment facility for a one-day treatment review and booster session.		
Author, year: Currier, Holland, and Drescher, 2014 **Region:** United States/ Canada	**Number of patients:** 805 **Mean age (*SD*):** 51.53 (8.03) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Gender: 89.1% male. Race/ethnicity: white, 59.5%; African American, 16.6%; Latino; 14.7%; Asian American, 2.2%; Native American,1.9%; other minority groups, 5.1%. Marital status: divorced, 35.8%; separated, 8.0%; married or living with a domestic partner, 32.1%; never married,18.4%; widowed, 5.7%. Education: mean, 11.61 years (*SD* = 1.31). Income: median annual income ranged from $20,000 to $30,000. Service	Residential 60- to 90-day program (mean length of stay, 66 days) in which patients participated in a range of psychological interventions throughout the day and evening hours (e.g., discussing traumas via exposure sessions, anger management, stress reduction, communication skills, psychoeducation, interpersonal process groups, parenting skills, recreation therapy). Treatment was exclusively provided in a group format.	**Predictors:** Patient characteristics: age, sex, race/ethnicity, combat exposure, physical health status, mental health status, substance abuse problems. **Control variables:** All of the above. **Analytic method:** Stratified results, correlation. Model: Latent growth curve analysis.	**Retention:** NR. **Response:** PCL-M: a cutoff score of 50 recommended for a probable PTSD diagnosis; in addition, predictors of three response trajectories (stable high, improving moderate, or stable low PTSD) were modeled. Latent class growth analysis, using a three-class model: 1. stable high PTSD: veterans with more severe pretreatment PTSD symptomatology with relatively stable symptomatology through follow-up 2. stable low PTSD: veterans with lower pretreatment PTSD symptomatology with relatively stable symptomatology through follow-up

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	theater: Vietnam, large majority; Iraq and/or Afghanistan, 4.2%. **Inclusion criteria:** The study focused on veterans with severe PTSD symptomatology (and who had minimal success with other less intensive options) who completed a 60- to 90-day residential PTSD treatment program. The sample included only those patients for which PTSD symptom severity was completed via the PCL at pretreatment, posttreatment, and follow-up (four months after discharge), as well as several other self-report instruments at pretreatment that might also affect their responses to treatment. **Exclusion criteria:** Active psychotic symptoms, alcohol/drug misuse within the previous 14 days, presence of medical conditions that would significantly interfere with or prevent their engagement in any treatment activities/procedures. In cases where veterans had more than one admission to these programs, information from the first admission was included in the analyses. Veterans who were admitted to the program during the same period but had incomplete information were also excluded.			3. improving moderate PTSD: veterans with moderate pretreatment PTSD symptomatology that significantly declined by follow-up. Bivariate correlations (coefficient, *p*-value) with posttreatment PTSD severity score: Sex (0.153, $p < 0.001$); combat exposure (0.224, $p < 0.001$); physical health status (–0.136, $p < 0.001$); mental health status (–0.224, $p < 0.001$); substance abuse problems (0.134, $p < 0.001$). At four-month follow-up: Sex (0.123, $p < 0.001$); combat exposure (0.127, $p < 0.001$); physical health status (–0.126, $p < 0.001$); mental health status (–0.197, $p < 0.001$); substance abuse problems (0.119, $p < 0.001$). Multinomial logistic regression analysis predicting class membership for the three-class model. Coefficients for stable high PTSD versus improving moderate PTSD: Age (0.006, $p = 0.676$); Sex (0.200, $p = 0.677$); ethnicity (–0.295, $p = 0.205$); combat exposure (0.022, $p = 0.055$); physical health status (–0.046, $p = 0.001$); mental health status (–0.080, $p < 0.001$); substance abuse (0.011, $p = 0.154$). Coefficients for stable low PTSD versus improving moderate PTSD: Age (0.051, $p = 0.045$); Sex (0.080, $p = 0.885$); ethnicity (0.361, $p = 0.321$); combat exposure (–0.053, $p = 0.007$); physical health status (0.056, $p = 0.002$); mental health status (0.089, $p < 0.001$); substance abuse (–0.033, $p = 0.006$). Coefficients for stable high PTSD versus stable low PTSD: Age (–0.045, $p = 0.081$); Sex (0.120, $p = 0.862$); ethnicity (–0.656, $p = 0.083$); combat exposure (0.075, $p = 0.001$);

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
				physical health status (–0.102, p <0.001); mental health status (–0.169, p <0.001); substance abuse (0.013, p <0.001). **Remission:** NR.
Author, year: DeViva et al., 2017 **Region:** United States/ Canada	**Number of patients:** 182 **Mean age (*SD*):** Intervention: 50.3 (15.0); control: 46.6 (17.8) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** A larger proportion of intervention cases (30.7%) than control cases (7.4%) were already being treated by providers in the PTSD clinic for at least the prior six months. Intervention group was also more likely to have been prescribed psychiatric medication (71.2%), than control group (51.5%), and especially antidepressants, mood stabilizers, and benzodiazepines, but not sleep/nightmare medication or antipsychotics; total number of psychiatric medications prescribed was not different. **Inclusion criteria:** Veterans with a confirmed PTSD diagnosis. **Exclusion criteria:** NR.	Four-session education/ treatment planning group, then CPT or PE in VA outpatient treatment. At least one session of the four-session weekly education/ treatment planning group focused on education about PTSD, problem identification, barriers to treatment, and treatment options.	**Predictors:** Patient and treatment characteristics: service era, marital status, employment status, treatment history, school enrollment, race, age, gender, distance from the VA facility, comorbid SUDs, number of medications, service connection. **Control variables:** None. **Analytic method:** Stratified results.	**Retention:** Completion of chosen EBPs: Among the 46 intervention cases that chose an EBP and for which data were available, completing the EBP as planned was not related to service era, marital status, employment status, treatment history, school enrollment, race, age, gender, distance from the VA facility, comorbid SUDs, or number of medications. Among the 12 intervention cases that chose an EBP and were service connected for PTSD, three (25.0%) completed treatment, which was significantly lower than the 21 of 34 cases (61.7%) that were not service connected for PTSD who chose and completed an EBP. Of 46 intervention (education/treatment planning) cases with available data, 24 (52.2%) completed the EBPs as planned. Of the ten control cases that chose EBPs, six (60.0%) completed the EBPs as planned. These percentages were not significantly different. **Response:** NR. **Remission:** NR.
Author, year: Elliott et al., 2005; Creamer et al., 1999; Creamer et al., 2002 **Region:** Australia/ New Zealand	**Number of patients:** 1,491 **Mean age (*SD*):** Completers: 52.60 (4.86); concompleters: 51.62 (5.39) **Gender:** All male. **Race/ethnicity:** NR/unclear. **Population description:** Military branch: Army, 86.2%; Navy, 9.6%; Air Force, 4.2%. Marital status at program intake: never married, 4.7%, married/in de facto relationship, 78.9%; widowed/separated/	Twelve weeks of treatment in cohorts of six to eight veterans, with most of the program conducted in group format. The first four weeks of the program were more intensive (up to five days per week) than the remaining eight weeks (one or two days per week). Some programs offered the	**Predictors:** Patient characteristics: PTSD trajectory group, PCL); Combat Exposure Scale; CAPS; anxiety (Hospital Anxiety and Depression Scale [HADS]); depression (HADS); anger (U.S. VA protocol); AUDIT; age. **Control variables:** PCL at intake, six months, 12 months,	**Remission:** NR. **Retention:** NR. **Response:** Change in the PCL. There were three PTSD trajectory groups: Group 1 comprised 62.2% of participants, those with the highest levels of PTSD symptoms at intake and greatest rate of improvement over time); Group 2 comprised 33.9% of participants, those with more moderate levels of PTSD symptoms at intake and consistent improvements over time;

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	divorced, 16.4%. Work: classified as unable to work, 66.7%. **Inclusion criteria:** Vietnam veterans with a diagnosis of PTSD confirmed via CAPS who were consecutive admissions to approved PTSD treatment programs between 1996 and 2002. **Exclusion criteria:** Diagnosed as psychotic, actively suicidal or homicidal, or currently involved in a major life crisis.	intensive phase as an inpatient model, while others conducted the whole program as a day hospital or outpatient model. Program content was broadly cognitive behavioral in orientation, with an emphasis on psychoeducation, symptom management skills, trauma exposure, and cognitive restructuring.	and 24 months; age; anger; alcohol use; CAPS; combat exposure; anxiety; depression. **Analytic method:** Stratified results. Model: Latent growth mixture modeling.	Group 3 comprised those with relatively low levels of PTSD symptoms at intake, deteriorating over the first six months and returning to intake symptom levels by 24 months. Differences between the three PTSD trajectory groups: Age: 52.07 Group 1 versus 52.56 Group 2 versus 53.23 Group 3 (p <0.05); post hoc tests: none. Anger: 3.83 Group 1 versus 2.89 Group 2 versus 2.15 Group 3 (p <0.001); post hoc tests: 1 > 2 > 3. Alcohol use: 16.46 Group 1 versus 13.39 Group 2 versus 10.99 Group 3 (p <0.001); post hoc tests: 1 > 2,3. CAPS: 87.70 Group 1 versus 76.83 Group 2 versus 65.79 Group 3 (p <0.001); post hoc tests: 1 > 2 > 3. Combat exposure: 20.41 Group 1 versus 18.05 Group 2 versus 16.17 Group 3 (p <0.001); post hoc tests: 1 > 2,3. Anxiety: 16.20 Group 1 versus 13.16 Group 2 versus 9.26 Group 3 (p <0.001): post hoc tests: 1 > 2 > 3. Depression: 13.10 Group 1 versus 10.17 Group 2 versus 7.17 Group 3 (p <0.001); post hoc tests: 1 > 2 > 3. **Remission:** NR.
Author, year: Engel et al., 2015 **Region:** United States/ Canada	**Number of patients:** 66 **Mean age (*SD*):** DESTRESS-PC, 36.2 (7.75); OUC: 36.7 (9.75) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** DESTRESS-PC: 60.5% married; 62.8% had some college education; 86.0% served in the Army, 64.3% active duty, 92.9% enlisted; mean baseline PCL 58.56. OUC: 67.6% married; 59.5% had some college	DESTRESS-PC intervention uses non-trauma-focused CBT-based and stress inoculation training approaches in a nurse-guided online patient self-management paradigm. Participants were given up to eight weeks to complete the treatment program. Optimized usual PTSD care consisted of usual primary care PTSD treatment	**Predictors:** Treatment characteristics: DESTRESS-PC intervention versus optimized usual care. **Control variables:** Time, treatment group, treatment group by time interaction, recruitment site, gender. **Analytic method:** Model: Mixed-model regression.	**Retention:** NR. **Response:** Changes in PTSD symptoms, measured using the PCL) for the *DSM-IV* (APA, 1994). The DESTRESS-PC group improved at a faster rate than the OUC group and showed larger treatment gains (treatment by time interaction, p = .012); main effects for time (p <0.001) and recruitment site (p = .005) were significant, with the largest treatment effect seen at 12 weeks and diminishing by the 18-week follow-up. Six-week effect size was 0.23 (small), 12-week effect size

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	education; 91.9% served in the Army, 56.8% active duty, 94.6% enlisted; mean baseline PCL, 55.16. **Inclusion criteria:** Veterans and active-duty personnel reporting war-related trauma during deployment (including military sexual trauma); screened positive on the four-item Primary Care PTSD Screen; meeting criteria for PTSD on CAPS) using the "1, 2 rule." **Exclusion criteria:** Active engagement in trauma-focused mental health treatment in the previous two months; recent history of failed specialty mental health treatment for PTSD or an associated condition; acute psychosis, psychotic episode, or psychotic disorder diagnosed within the past two years; active substance dependence in the past year; active suicidal or homicidal ideation within the past two months; currently taking antipsychotic or mood stabilizing medication; unstable administration schedule or dosing of any antidepressant, anxiolytic, or sedative-hypnotic during the last month; acute or unstable physical illness.	augmented with low-intensity care management, feedback to the primary care provider, and training of the clinic providers in management of PTSD.		was 0.47 (medium), and 18-week effect size was 0.08. **Remission:** NR.
Author, year: Evans, Cowlishaw, and Hopwood, 2009 **Region:** Australia/ New Zealand	**Number of patients:** 311 **Mean age (*SD*):** 52.10 (4.74) **Gender:** All male. **Race/ethnicity:** NR/unclear. **Population description:** Major depressive disorder, 39.5%; alcohol dependence and abuse, 27.5%; small number reporting various anxiety, depressive, and dissociative disorders (not specified). Married, 79.7%; in committed relationships, 4.5%; separated or divorced, 11.6%; the remainder were	Four-week intensive (inpatient or residential) and eight-week outpatient CBT program with recommended evidence-based components such as exposure, anger management, anxiety management, alcohol withdrawal, problem-solving, and management of depression. All patients were seen by psychiatrist, and some were prescribed medications. First-line	**Predictors:** Patient characteristics: PTSD as measured by the PCL-M with subscales for intrusion, avoidance, and hyperarousal. Cutoff of 50 indicated PTSD diagnosis. Family functioning: as 12-item general functioning scale. Mental health: The General Health Questionnaire GHQ-28 (used to measure depression, anxiety, and social functioning.	**Retention:** NR. **Response:** Change in PTSD scores over time, as measured by the PCL-M). The β coefficient from Time 1 family functioning to Time 2 PTSD was 0.16, indicating that a 1 *SD* increase in Time 1 family (dys)functioning predicted a 0.16 *SD* increase in Time 2 levels of PTSD when Time 1 values of PTSD were held constant. A similar β coefficient (β = 0.17) was found for the pathway between Time 2 family functioning and Time 3 PTSD.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	widowed, living separately, or never married. **Inclusion criteria:** Veterans diagnosed with PTSD using the CAPS diagnostic interview (Weathers, Keane, and Davidson, 2001), and assessed by psychiatric registrars trained in CAPS administration. Score of 40–59: PTSD; score of 60–79: severe PTSD. **Exclusion criteria:** 25% or more missing data (most was attrition from second or third wave). Female (only one case).	medications included antidepressants (SSRIs, sertraline, and paroxetine most widely used). A "significant proportion" was prescribed benzodiazepines. A small proportion was prescribed antipsychotics and other "agents to help arousal."	Alcohol use: the Alcohol Use Disorders Identification Test AUDIT used to identify veterans at risk or currently experiencing alcohol problems. **Control variables:** Same as above. *Note:* Independent group *t*-tests enabled us to screen for the effects of missing data. Of the 311 cases, 85 still had missing data, and authors used expectation-maximization algorithm (to replace these missing values. **Analytic method:** Correlation. Model: Structural equation modeling (cross-lagged panel analysis).	The relationships (from FAD-12 to PCL-M) remained significant even after including AUDIT and GHQ-28. "Our study has demonstrated that after controlling for prior levels of family dysfunction and PTSD symptoms, higher levels of family dysfunction were associated with increased levels of PTSD symptoms over the course of treatment." **Remission:** NR.
Author, year: Evans et al., 2010 **Region:** Australia/ New Zealand	**Number of patients:** 1,822 **Mean age (*SD*):** 53.9 (7.36) **Gender:** NR. **Race/ethnicity:** NR/unclear. **Population description:** 78.0% of veterans reported being married, 4.2% were living together, and 10.1% were separated or divorced. The remainder were represented by small groups who were widowed or living separately: 84.9% were living with a partner, 7.2% were living alone, 2.4% were living with children, and the remainder were living with parents, siblings, or friends. Veterans served in the armed forces as either regular personnel (60.6%) or conscripted (39.4%). The mean age of entry into service was 18.97 (*SD* = 2.41), and the mean years served was 8.38 (*SD* = 8.34). Given the age and the time since service, the majority of veterans in the group had a delayed onset of PTSD or had suffered PTSD symptoms for many	A 12-week group cognitive behavioral program (with six to 10 participants per group) that included recommended components such as exposure, anger management, anxiety management, problem-solving, and management of depression. Between eight and 16 sessions of individual therapy were also provided to participants over the course of treatment, depending on veteran need and staff availability. Partners of veterans also completed a psychoeducational group program.	**Predictors:** Patient characteristics: family functioning, measured with the McMaster Family Assessment Device, a 12-item general functioning scale. **Control variables:** PTSD symptoms (Time 2 analysis), depression, alcohol use. **Analytic method:** Model: Structural equation modeling (cross-lagged panel analysis).	**Retention:** NR. **Response:** Changes in PTSD symptom clusters (i.e., intrusion, avoidance, and hyperarousal) over time, assessed using the PCL-M (Time 1 (baseline) distressed family functioning was significantly and positively related to Time 2 (three months) levels of intrusion, avoidance, and hyperarousal symptoms. Whereas no significant pathways extending from Time 1 PTSD symptoms to subsequent family functioning were observed, Time 2 distressed family functioning predicted increases in both avoidance and hyperarousal symptoms at Time 3 (nine months). In this wave of data, avoidance symptoms also predicted changes in family functioning. All pathways remained significant when controlling for depression and alcohol abuse. **Remission:** NR.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	years prior to the study. **Inclusion criteria:** Veterans who were diagnosed with PTSD as their primary presenting problem and had entered PTSD treatment programs administered at different locations around Australia. **Exclusion criteria:** NR.			
Author, year: Foa et al., 2018 **Study number:** NCT01049516 **Region:** United States/ Canada	**Number of patients:** 219 **Mean age (*SD*):** Massed PE: 32.65 (7.54) spaced PE: 32.89 (7.05) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Massed PE: married or cohabiting, 69.1%. College experience, 74.5%; high school, 23.6%; postgraduate, 1.8%. Number of times deployed: one or two, 58.2%; three or more, 41.8%; time in military: 11.88 years. Depressive symptoms (BDI-II), 29.12; alcohol use (AUDIT), 5.10; physical functioning (VR-12), 40.57; mental functioning (VR-12), 31.71. Number of psychotropic medications in use per day: none, 54.5%; one, 24.5%; two, 16.4%; three or more, 4.5%. Spaced PE: Married or cohabiting, 74.3%. College experience, 63.3%; high school, 34.9%; postgraduate, 1.8%. Number of times deployed: one or two, 58.7%; three or more, 41.3%; time in military: 11.01 years. Depressive symptoms, 29.21; alcohol use, 5.57; physical functioning, 37.39; mental functioning, 32.73. Number of psychotropic medications in use per day: none, 58.7%; one, 24.8%; two, 11.9%; three or more, 4.6%. **Inclusion criteria:** Active-duty military, activated Reserves, activated National Guard, or veterans who had deployed to OEF/OIF/OND, ages 18–65 years. PTSD diagnosis according to the *DSM-IV-TR* (APA, 2000) assessed via PSS-I;	PE therapy, CBT involving exposure to trauma memories/reminders, administered as massed therapy (ten sessions over two weeks) or spaced therapy (ten sessions over eight weeks).	**Predictors:** Treatment characteristics: massed PE therapy administered on ten consecutive weekdays over a two-week period versus spaced therapy delivered over eight weeks (consistent with how PE therapy has been implemented in previous studies). **Control variables:** Baseline level of outcome, age, sex, and baseline mental and physical functioning. In each analysis, nonsignificant covariates (defined as $p > .05$) were removed and final models recomputed. **Analytic method:** Model: Linear mixed models, generalized linear mixed models, piecewise models.	**Retention:** NR. **Response:** Differences In PSS-I at two-week and 12-week follow-ups. The mean PSS-I scores for massed therapy and spaced therapy were 18.82 (17.59–20.04) and 18.03 (16.71–19.34) at two-week follow-up, and 18.88 (17.70–20.07) and 18.34 (17.04–19.64) at 12-week follow-up. The difference in mean PSS-I scores between massed therapy and spaced therapy at the two-week follow-up was 0.79 (massed therapy was worse than spaced therapy (one-sided 95% CI [−∞ to 2.29]; $p = .049$ for noninferiority). At 12-week follow-up, the difference in mean PSS-I scores between massed therapy and spaced therapy was 0.55 (one-sided 95% CI [−∞ to 2.05]; $p = .03$ for noninferiority), meeting criteria for noninferiority. **Remission:** The rate of PTSD diagnosis for massed therapy and spaced therapy were 55.0% (48.0%–61.8%) and 52.3% (44.3%–60.1%) at two-week follow-up, and 57.2% (50.7%–63.5%) and 56.7% (49.1%–64.0%) at 12-week follow-up. The PTSD diagnosis difference was 2.7%.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	exposure to a *DSM-IV-TR* criterion; a combat-related traumatic event; and command support to attend treatment. **Exclusion criteria:** Current bipolar or psychotic disorders, alcohol dependence, moderate to severe TBI, suicidal ideation, or other disorders warranting immediate attention.			
Author, year: Fontana, Ford, and Rosenheck, 2003; Fontana and Rosenheck, 1997; Fontana and Rosenheck, 1998 **Region:** United States/ Canada	**Number of patients:** 455 outpatient, 553 inpatient **Mean age (*SD*):** Outpatient: 46.08 (8.90); inpatient: 45.22 (3.25) **Gender:** All male. **Race/ethnicity:** Majority white. **Population description:** Ethnicity: African American: outpatient, 23%; inpatient, 14%. Latin American: outpatient, 0.1%; inpatient, 4%. Marital status: Married: outpatient, 54%; inpatient, 43%. Divorced: outpatient, 27%; inpatient, 38%. Education (years): Outpatient, 12.85; inpatient, 12.95. Other diagnosis: Alcohol abuse: outpatient, 38%; inpatient: 43%. Drug abuse: outpatient, 19%; inpatient: 24%. Personality disorder: outpatient, 17%; inpatient: 20%. Combat exposure: Outpatient, 27.55; inpatient, 30.53. Participation in abusive violence: Outpatient, 29%: inpatient: 54%. **Inclusion criteria:** Subjects were drawn from outpatient and inpatient studies of treatment outcomes for PTSD in VA programs, with complete data (including a follow-up interview) and service connection for PTSD (outpatient, 87.2%; inpatient, 98.5%) or another psychiatric disorder.	Inpatient: specialized PTSD treatment programs of a long stay type (Specialized Inpatient PTSD Unit [SIPU], 100 days), specialized PTSD programs of a short to medium stay type (Evaluation and Brief PTSD Treatment Unit [EBPTU], 30 days), or general psychiatric programs (30 days). SIPUs utilized a mix of individual and group therapies intensively focusing on war experiences and social functioning and encouraged peer support; EBTPUs were like SIPUs but were less selective, had shorter waiting lists and lengths of stay, and focused less intensively on war experience. Outpatient: The PTSD Clinical Teams Program, using a variety of modalities including focuses on war trauma experience and social skill training; mean 0.81 individual sessions and 0.62 sessions at four months.	**Predictors:** Patient characteristics and treatment characteristics. For retention: age, education, social isolation, minority race, employed, participation in atrocities, commitment, PTSD score at admission, satisfaction. For response: Compensation seeking versus not compensation seeking: Compensation seeking: veterans who were applying for compensation or for an increase in disability rating and those who were already certified as service connected. Not compensation seeking: veterans not service connected and not planning to apply for service connection. Inpatient: EBTPU, SIPU, medications, social climate. Outpatient: Individual sessions, group sessions. **Control variables:** None. **Analytic method:** Correlation. Other: multivariate analyses of variance (MANOVAs), univariate ANOVAs for each outcome.	**Retention:** Length of stay in days for inpatients. Correlation coefficients (an r = .07 was statistically significant at p <.05): age .05, education .04, social isolation .09, minority .00, working –.02, participation in atrocities .01, commitment .13, PTSD score at admission –.09, PTSD outcome .04, satisfaction .24. Length of stay in days for inpatient: EBTPU –.34, SIPU .68, medications –.07, social climate .20. **Response:** Both outpatient and inpatient studies used changes in the Mississippi Scale. For inpatient studies only, CAPS) was also used to measure changes. Correlation coefficients (an r = .07 was statistically significant at p <.05): Inpatient: age –.04, education –.03, social isolation –.07, minority –.02, working –.06, participation in atrocities .18, commitment –.09, PTSD score at admission .61, satisfaction –.13. Outpatient: age –.33, education –.16, social isolation .06, minority .09, working –.18, participation in atrocities .22, commitment .00, PTSD admission .77, improvement rating –.01, satisfaction –.I8 Seeking compensation seeking versus not seeking compensation, over all: Outpatient: MANOVA produced a significant main effect for group (F = 85.97, df = 1,453, p <0.0001) but not time

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	Exclusion criteria: Did not complete follow-up, non-service-connected PTSD or other psychiatric condition.			(*F* = 0.25, *df* = 1,453, *p* <0.60), and a significant interaction between group and time (*F* = 4.16, *df* = 1,453, *p* <0.05); by univariate ANOVA to compare the group means, the outcome means for the Mississippi Scale for the interaction of compensation seeking by time was significantly different (*F* = 8.75, *df* = 1,453, *p* <0.005)—seeking compensation was lower than not seeking compensation. Inpatient: MANOVA yield significant main effects for both group (*F* = 29.62, *df* = 1,551, *p* <0.001) and time (*F* = 27.58, *df* = 1,551, *p* <0.001). There was also a significant interaction between group and time (*F* = 9.48, *df* = 1,551, *p* <0.003). The univariate ANOVA for the outcome means for CAPS for the interaction of compensation seeking by time was significant (*F* = 11.42, *df* = 1,551, *p* <0.001). Vets who were seeking compensation improved less/ deteriorated compared with those not seeking compensation. The inpatient sample was divided into two subsamples: (1) long stay, four SIPUs and (2) moderate lengths of stay, three EBPTUs plus three general psychiatric units. Interaction between compensation seeking group and time was not significant for the moderate-stay sample (*p* >0.10), but was significant for the long-stay sample (*F* = 39.31, *df* = 1,227, *p* <0.0001). Inpatient: Severity of PTSD symptoms at discharge and four months after discharge, measured by the Short Form of the Mississippi Scale. Outpatient: Severity of PTSD symptoms were assessed by structured interview at four and 12 months. Correlation

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
				coefficients (an r = .07 was statistically significant at p <.05): Inpatient: EBTPU –.11, SIPU .07, medications .01, social climate –.13. Outpatient: Individual sessions .18, group sessions .18. Stratified analysis comparing the three inpatient program types: Admission versus discharge: CAPS X^2 = 20.94, p = 0.0001 (Bonferroni p = 0.0006). Long-stay PTSD units 87.79 admission versus 76.43 discharge; short-stay PTSD units 102.66 admission versus 82.77 discharge; general psychiatric units 97.08 admission versus 81.76 discharge. Admission versus Follow-up at four, eight, and 12 months: CAPS X^2 = 38.77, p = 0.0001 (Bonferroni p = 0.0006). Long-stay PTSD units 87.79 admission versus 84.32 at four months postdischarge, 84.80 at eight months postdischarge, 84.29 at 12 months postdischarge; short-stay PTSD units 102.66 admission versus 91.53 at four months postdischarge, 91.00 at eight months postdischarge, 87.89 at 12 months postdischarge; general psychiatric units 97.08 admission versus 91.18 at four months postdischarge, 91.70 at eight months postdischarge, 91.74 at 12 months postdischarge. Admission versus discharge: Mississippi Scale, X^2 = 7.35, n.s. Long-stay PTSD units 135.32 admission versus 134.99 discharge; short-stay PTSD units 133.69 admission versus 130.03 discharge; General psychiatric units 136.90 admission versus 133.13 discharge. Admission versus follow-up at four,

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
				eight, and 12 months: Mississippi Scale, X^2 = 8.75, n.s. Long-stay PTSD units 135.32 admission versus 138.16 at four months postdischarge, 138.09 at eight months postdischarge, 139.29 at 12 months postdischarge; short-stay PTSD units 133.69 admission versus 136.37 at four months postdischarge, 137.19 at eight months postdischarge, 136.07 at 12 months postdischarge; general psychiatric units 136.90 admission versus 136.60 at four months postdischarge, 137.64 at eight months postdischarge, 137.45 at 12 months postdischarge. **Remission:** NR. **Retention:** NR. **Response:** PTSD symptom change after treatment as measured by the PCL). Significant main effects were found for time ($F_{(2,132)}$ = 22.56, p <0.001), group ($F_{(2,133)}$ = 12.51, p <0.001), and the interaction effect ($F_{(4,266)}$ = 3.35, p <0.02). Subsequent univariate analyses indicated that Groups 1 and 3 improved from intake to three months, while Group 2 did not demonstrate any significant improvement overtime. Cross-sectional analyses were significant at intake (F(2,133) = 15.91, p <0.001), three months (F(2,133) = 5.28, p <0.01), and nine months (F(2,133) = 8.48, p <0.001). Post hoc analyses identified that, while Groups 1 and 3 were undifferentiated at intake (although both more severe than Group 2), by nine months posttreatment Group 3 was significantly more severe than both Groups 1 and 2. No significant differences were evident
Author, year: Forbes et al., 2003 **Region:** Australia/ New Zealand	**Number of patients:** 136 (data available for model) **Mean age (*SD*):** 50.63 (3.93). **Gender:** NR. **Race/ethnicity:** NR/unclear. **Population description:** At intake: mean CAPS severity score = 81.53 (*SD* = 17.68). Mean CES (= 20.29 (*SD* = 8.70). Comorbidities: Substance abuse/dependence, 56%; depression, 52%; other anxiety disorder, 16%. **Inclusion criteria:** Australian Vietnam veterans with combat-related PTSD attending treatment at a veterans' PTSD program with CAPS confirmed diagnosis. Complete data: Completed a range of measures as part of routine clinical assessment and evaluation procedures before beginning the treatment program: Minnesota Multiphasic Personality Inventory, second revised version	Primarily a CBT group treatment program, 12 weeks long with a four-week inpatient phase followed by an outpatient phase of one day per week for eight weeks. Components included psychoeducation, trauma-focused sessions, arousal management, alcohol management, and problem solving. Sixteen sessions of individual therapy were also provided to participants over the course of the program.	**Predictors:** Patient characteristics: three groups derived from hierarchical cluster analysis based on veterans' MMPI-2 profiles: 1. Group 1, high PTSD: introversion/somatization 2. Group 2, low PTSD: subclinical personality pathology 3. Group 3, high PTSD: disinhibition/externalization. **Control variables:** Time, group, baseline PCL. **Analytic method:** Model: Repeated measures and cross-sectional general linear model analyses.	

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	(MMPI-2); measures of PTSD on the PCL; associated anxiety and depression (HADS); and alcohol use (AUDIT) were included. **Exclusion criteria:** If MMPI-Infrequency–Psychopathology Validity Indicator *F(p)* >100 or if MMPI-2 Variable Response Inconsistency >80.			between Groups 1 and 2 at this point. **Remission:** NR.
Author, year: Forbes et al., 2005 **Region:** Australia/ New Zealand	**Number of patients:** 99 **Mean age (*SD*):** Peacekeepers: 35.68 (7.05); Vietnam: 52.69 (3.02) **Gender:** NR. **Race/ethnicity:** NR/unclear. **Population description:** Peacekeeping deployments including Cambodia, Rwanda, Somalia, and Timor. **Inclusion criteria:** A convenience sample of Australian Vietnam and peacekeeping veterans attending "PTSD treatment programs." All participants met PTSD criteria on CAPS. **Exclusion criteria:** NR.	"The treatment protocol in all programs followed a set of guidelines established by the Australian Centre for Posttraumatic Mental Health." Treatment conducted in groups of six to eight.	**Predictors:** Patient characteristics: AUDIT, HADS, PCL, and the anger items of the War Stress Inventory (used by the VA). **Control variables:** Above, plus peacekeeping versus Vietnam veteran, age. **Analytic method:** Model: Hierarchical linear regression. Other: MANOVA, effect sizes (Cohen's *d*).	**Retention:** NR. **Response:** Decrease in CAPS. The hierarchical regression revealed that anger—but not duration of illness, alcohol use, depression, or anxiety—was a significant predictor of three-month follow-up PTSD (controlling for PTSD at intake) for the peacekeeper group (F change = 6.01, df = 1, 50, B = 1.56, SE = 0.64, β = 0.27, t = 2.45, p <0.05), accounting for an additional 3% of the variance. Lower anger levels were associated with better outcomes. **Remission:** NR.
Author, year: Forbes et al., 2008 **Region:** Australia/ New Zealand	**Number of patients:** 4,339 **Mean age (*SD*):** 54.50 (8.86) **Gender:** All male. **Race/ethnicity:** NR/unclear. **Population description:** Comorbidity: substance abuse/dependence, 36%; depression, 39%; other anxiety disorder, 11%. Military service: Army, 80%; Navy, 15%; Air Force, 3% Marital status: Married/de facto relationship, 74%. Veterans pension: Receiving, 93%. **Inclusion criteria:** PTSD diagnosis (CAPS) and admitted to an accredited	Primarily CBT, conducted by trained mental health professionals with closed cohorts of six to ten participants. Key components included psychoeducation, symptom management skills (with a particular focus on arousal and anger), trauma focus work, cognitive restructuring, alcohol management, and problem solving. Between eight and 16 sessions of individual therapy were also provided. Content was consistent across these program types:	**Predictors:** Treatment characteristics: intensity of treatment, setting. **Control variables:** CAPS score, PCL, type of treatment (metropolitan—high, moderate, or low; regional—moderate). CAPS score at intake (tertile), PCL, type of therapy (metropolitan [high or moderate] versus regional [low]). **Analytic method:** Other: Repeated Measure ANOVAs (RMANOVAs).	**Retention:** NR. **Response:** PCL RMANOVA: The test of time × program effects indicated significant improvements (by PCL) in all program types over the 12-month time period, with no significant differences in levels of improvement by program type (all groups, p <0.01). RMANOVA: change in outcome measures (tertiles: high, medium, or low intensity for metropolitan or regional moderate) versus CAPS severity score at intake: Low-severity CAPS score at intake: metropolitan—high (effect size: 0.51); metropolitan—moderate (effect size: 0.53), metropolitan—low ((effect size:

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	PTSD treatment program between 1995 and March 2008. **Exclusion criteria:** NR.	• High-intensity inpatient-outpatient programs: hospital settings with an intensive inpatient phase of 3–4 weeks followed by an outpatient phase of approximately eight weeks at one day per week. • High-intensity residential programs: these had the same structure as the inpatient programs, but participants returned home each day during the intensive phase; those who lived some distance from the hospital were housed in residential accommodation, rather than a hospital ward, for the intensive phase. • Moderate-intensity day hospital programs: outpatient basis at a metropolitan hospital with an intensive phase of at least 2–3 days per week for 4–6 weeks followed by a less intensive phase for the remaining weeks. • Moderate-intensity regional day hospital programs: these had the same structure as the day hospital programs, but were conducted solely in a regional center close to where the participating veterans lived. The treatment		0.74), regional—moderate (effect size: 0.78). Moderate-severity CAPS score at intake: metropolitan—high (effect size: 0.71), metropolitan—moderate (effect size: 0.72), metropolitan—low (effect size: 0.80), regional—moderate (effect size: 0.77). High-severity CAPS score at intake: metropolitan—high (effect size: 0.80), metropolitan—moderate (effect size: 0.80), metropolitan—low (effect size: 0.52), regional—moderate (effect size: 0.92). Comparison of the two moderate-intensity programs: Low-severity CAPS score at intake (metropolitan versus regional), $p = 0.06$. Moderate-severity CAPS score at intake (metropolitan versus regional), $p = 0.69$. High-severity CAPS score at intake (metropolitan versus regional), $p = 0.33$. **Remission:** NR.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
		team from the metropolitan facility would travel to the designated regional area and deliver the program from a local facility. • Low-intensity programs, on a once-weekly basis over approximately six months (*n* = 273).		
Author, year: Forbes et al., 2010 **Region:** Australia/ New Zealand	**Number of patients:** 103 **Mean age (*SD*):** 53.3 (7) **Gender:** All male. **Race/ethnicity:** NR/unclear. **Population description:** Mean CAPS severity score at intake: 71.72 (*SD* = 19.17) Comorbidities: Substance abuse/ dependence, 41%; major depression, 37%; other anxiety disorder, 7%. **Inclusion criteria:** Male Vietnam veterans with CAPS-confirmed PTSD attending treatment in a specialist veterans' PTSD program, treated between 2002 and 2005 and completed self-report questionnaires (Relationship Styles, PCL). **Exclusion criteria:** NR.	Group treatment programs, primarily CBT in orientation, with cohorts of between six and ten participants. Key components: psychoeducation, symptom management skills (focus on arousal and anger), trauma focus work, cognitive restructuring, alcohol management, and problem solving. Between eight and 16 sessions of individual therapy were also provided.	**Predictors:** Patient characteristics: relationship/attachment styles (fearful, dismissive, secure, and preoccupied). **Control variables:** PTSD severity at intake. **Analytic method:** Model: Regression model for path analysis.	**Retention:** NR. **Response:** Difference in score at intake (CAPS) and at nine months posttreatment (PCL; PTSD severity at intake was a significant predictor of change (*SRW* = 0.24, *p* = 0.02). **Remission:** NR.
Author, year: Ford, Fisher, and Larson, 1997 **Region:** United States/ Canada	**Number of patients:** 68 **Mean age (*SD*):** 48 (5.9) **Gender:** All male. **Race/ethnicity:** Majority white. **Population description:** Education (years): 12.5 (*SD* = 1.4) Race/ethnicity: White, 82%; Native American, 15%; Latino, 3% Service theater: Vietnam, 90%.	The inpatient PTSD Residential Rehabilitation Program (PRRP) included intensive multimodal care in a three-month inpatient stay: case management and weekly individual counseling (psychotherapy); aftercare planning (spanning the time before admission, continuing throughout treatment, and	**Predictors:** Patient characteristics fall into three distinct subgroups utilizing object relations clinical rating (OR-C): 1. moderate OR-C levels and a SCID PTSD diagnosis 2. low OR-C levels and a SCID PTSD diagnosis 3. low OR-C levels without a SCID PTSD diagnosis.	**Retention:** **Response:** Measured changes in PTSD severity in the year before treatment versus the year after treatment according to the Mississippi Scale; the Penn PTSD Scale; the Impact of Event Scale (IES)—scored for two subscales, Intrusive Reexperiencing Symptom Severity [IES-I] and Avoidance and Emotional Numbing symptom severity [IES-A]; and

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	All participants had definite war trauma exposure and a history of chronic severe psychosocial impairment. All had extensive histories of alcohol and substance abuse but were abstinent at the outset of treatment. **Inclusion criteria:** Consecutive admission to a VA inpatient PTSD residential rehabilitation program for those who consented to participate. **Exclusion criteria:** NR.	including coordination with key social, vocational, and therapeutic resources); group psychotherapy (four times per week, with six to ten veterans per group); and an array of psychoeducational classes and in vivo experiences.	The four components of OR-C are 1. complexity of representations of people 2. affect tone of relationship paradigms 3. capacity for emotional investment in relationships and moral standards 4. understanding of social causality. **Control variables:** Multivariate analysis of covariance (MANCOVA): education level, object relation,PTSD group membership, time. Hierarchic logistic regression A (indices of psychiatric chronicity and intensive utilization): • number of admissions and total length of stay in VA psychiatric units in the year before PRRP treatment • total length of stay in VA homeless domiciliaries in the year before PRRP treatment • number of lifetime admissions to VA psychiatric units • number of lifetime admissions to VA inpatient substance abuse units. Hierarchic logistic regression B (demographics, initial symptom severity, trauma exposure, personality disorder status, PTSD diagnostic status): • education level	MANCOVA-Scheffe comparisons of pretest and adjusted posttest scores. Hierarchical Model A: Mississippi Scale (first step: admissions, second step: OR-C), coefficient 0.56, $p = 0.001$; Penn PTSD Scale (first step: none, second step: OR-C), coefficient = 0.59, $p = 0.001$; IES-I (first step: admissions, VA homeless domiciliaries length of stay, second step: OR-C), coefficient = 0.39, $p = 0.002$). Hierarchical Model B: Mississippi Scale (first step: none, second step: OR-C), coefficient 0.64, $p = 0.001$; Penn PTSD Scale (first step: pretest, second step: OR-C), coefficient = 0.55, $p = 0.001$; IES-I (first step: pretest, second step: OR-C), coefficient = 0.48, $p = 0.001$; IES-A (first step: pretest, second step: OR-C), coefficient = 0.41, p = 0.003. **Remission:** NR.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
			• pretest score on the outcome measure • personality disorder diagnosis • war-zone trauma level • early childhood trauma status. **Analytic method:** Nonparametric Mann-Whitney U Test correlation. Model: repeated measures, MANCOVA, hierarchic logistic regression.	
Author, year: Fortney, 2015 **Study number:** NCT00821678 **Region:** United States/ Canada	**Number of patients:** 225 **Mean age (*SD*):** 52.2 (13.8) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Most also had a military service–connected disability for PTSD, and comorbidity was highly prevalent (78.9% major depressive disorder; 44.2% panic disorder; 67.2% generalized anxiety disorder). Half of the sample reported that their worst trauma was combat related. Mean CAPS score = 75. **Inclusion criteria:** Patients recruited from 11 affiliated outpatient clinics for 22 months (2009–2011), with provider-designated diagnosis of PTSD, via the CAPS Structured Clinical Interview for *DSM*, symptom calibrated, scoring rule as defined by the PCL-M. **Exclusion criteria:** Diagnosis of schizophrenia, bipolar disorder, substance dependence, or hearing impairment; no telephone; having a life-threatening illness; lacking capacity to consent.	Usual care: services available at a distant VA medical center, including medication, psychotherapy (CPT, EMDR, PE therapy, acceptance and commitment therapy, and the Seeking Safety model). Treatment group, in which participants in the group were further supported by Telemedicine Outreach for PTSD (TOP), which is designed to support the on-site VHA Community-Based Outpatient Clinic provider that managed the participant's PTSD. Off-site TOP teams included telephone nurse care managers, telephone pharmacists, telepsychologists, and telepsychiatrists.	**Predictors:** Treatment characteristics: enrollment versus nonenrollment in TOP. **Control variables:** All regressions specified VAMC as a random effect to adjust for the potential clustering. Patients' adherence to at least 80% of their medication regimens. Adherence to CPT: at least eight sessions. **Analytic method:** Correlation. Model: linear regression.	**Retention:** NR. **Response:** Reduction in CAPS (At six months, TOP patients had significantly larger decreases in CAPS score (35.0 to 29.1) compared with usual care (33.5 to 32.1) (β = −3.81; p = .002). At 12 months, TOP patients had significantly larger decreases in CAPS (35.0 to 30.1) compared with usual care (33.5 to 31.7) (β = −2.49; p = .04). Attendance at eight or more CPT sessions significantly predicted improvement in CAPS scores (β = −3.86 [95% CI, −7.19, −0.54]; p = .02) and fully mediated the intervention effect at 12 months. **Remission:** NR.
Author, year: Friedman et al., 2007	**Number of patients:** 129 **Mean age (*SD*):** Sertraline: 45;	Sertraline (25 mg/day for one week; then increased to 50mg/day in the second	**Predictors:** Treatment: sertraline versus placebo.	**Retention:** NR. **Response:** Mean change in CAPS-2

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Region: United States/ Canada	placebo: 46 **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Veterans with a *DSM-III-R* diagnosis of PTSD (APA, 1987). Mean duration of illness = 17 years in sertraline group and 22 years in placebo group. **Inclusion criteria:** Patients who use VA outpatient service and had PTSD diagnosis (at least six months of PTSD); Clinician-Administered PTSD Scale—2 (CAPS-2) score ≥ 50 at the end of a one-week placebo period. **Exclusion criteria:** Met *DSM-III-R* (APA, 1987) criteria for major depression single episode, dysthymic disorder, personality disorder, obsessive compulsive disorder, generalized anxiety disorder, panic disorder, social/simple phobia, agoraphobia, anxiety disorder, bipolar disorder. Patients with current psychotic features or schizophrenia were excluded. Received psychotherapy, had depo neuroleptic within six months or were receiving behavior therapy during the study period. History of malignancy, hematologic, endocrine, cardiovascular, renal, hepatic, neurologic, or gastrointestinal disease; liver problems (function test result greater than times upper limit of normal range); impulse control problems or involved in litigation for disability benefits; other disorder.	week if there were no adverse events; 50 mg increments to a maximum of 200 mg/day) or placebo for 12 weeks.	**Control variables:** ANCOVA modeled, based on treatment, center, treatment by center interaction term. Mixed effects model was estimated using fixed effects for treatment, site, treatment and time interaction, gender, age, duration of illness, severity of illness (CAPS-2 score). **Analytic method:** Model: ANCOVA; mixed-effects linear model.	severity score, ≥30% improvement in CAPS-2 score, Impact of Event 15-item scale. Primary: There was no statistically significant difference between placebo and sertraline group in mean change of CAPS-2 score and rate of change in CAPS-2 core. The sertraline group showed change at the end point of –13.1 (*SE* = 3.0) from a baseline score of 72.1 (*SD* = 19.1). The placebo group showed change at the end point of –15.4 (S*E* = 3.1) from baseline score of 73.8 (*SD* = 19.8). Across treatment groups, neither gender, duration of illness, nor history of alcohol/substance abuse were related to CAPS-2 outcomes. However, there was significant main effect for type of trauma on CAPS-2, and significant interactions of treatment groups with gender (on the IES), and type of trauma (on the IES). There also were significant main effects for severity of illness on the IES (*F* = 5.8, *df* = 1,144, *p* = .017), but no significant treatment by illness interactions. The significant main effects for severity of illness as a predictor of change on the IES (*F* = 5.8, *df* = 1,144; *p* = .017) were a function of patients with more severe illness showing greater change from baseline to end point with sertraline compared with placebo. The significant main effect for type of trauma with the CAPS-2 total score (*F* = 4.4, *df* = 1,141; *p* = .039) was a result of greater improvements found with noncombat traumas (adjusted mean change to end point = –22.2, *SE* = 4.4, *N* = 48) compared with combat traumas (mean change = –11.7, *SE* = 2.4, *N* = 118) across drug and placebo groups.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
				On the IES, the significant (F = 7.3, df = 1,143; p = .0077) type of trauma by treatment interaction was a function of an extremely large placebo response among the small group of patients with noncombat trauma (adjusted mean change = –18.7, SE = 3.7, N = 23) compared with those with combat trauma who received placebo (adjusted mean change = –4.4, SE = 2.1, N = 59), but little difference between those with civilian trauma receiving sertraline (adjusted mean change = –7.1, SE = 3.7, N = 25) compared with those with combat trauma receiving sertraline (adjusted mean change = –9.2, SE = 2.0, N = 59). The significant (F = 5.0, df = 1,143; p = .027) treatment by gender interaction on the IES was largely due to a large placebo response for women (adjusted mean change = –16.5, SE = 4.6, N = 16) compared with men (adjusted mean change = –6.5, SE = 2.0, N = 66), and a slightly better response to sertraline among men (adjusted mean change = –9.6, SE = 2.0, N = 66) compared with women (adjusted mean change = –4.2, SE = 4.3, N = 18), although pairwise comparisons among these adjusted means yielded no significant differences. **Remission:** NR. **Retention:** NR. **Response:** Change in the PCL-M A ten-point reduction on the PCL and a 25% change in PHQ-9 (depression) scores are considered clinically significant. Participants who were suicidal at baseline also had higher PTSD scores at baseline and were observed to have a significant reduction in PTSD (Z = –6.09, p <0.01) over time.
Author, year: Gallegos, Streltzov, and Stecker, 2016 **Region:** United States/ Canada	**Number of patients:** 274 **Mean age (*SD*):** Suicidal: 30.5; nonsuicidal: 28.72 **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Men composed 81.7% of the suicidal and 90.1% of the nonsuicidal groups. The suicidal group was 69.2% white,	A brief CBT intervention: sessions were conducted by telephone and lasted approximately 45–60 minutes. Sessions were based on the CBT framework that thoughts, feelings, and behaviors interact with each other and influence behavior.	**Predictors:** Patient characteristics: suicidal versus not suicidal. **Control variables:** Time, group by time intervention, control, and suicidality (suicidal at baseline or not) effects. **Analytic method:** Generalized equation models.	

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	13.2% black, 7.7% Hispanic, 4.4% Asian American, 2.2% American Indian or Alaskan Native, and 3.3% other. The nonsuicidal group was 71.3% white, 15.2% black, 7.9% Hispanic, 0.6% Asian American, 2.2% American Indian or Alaskan Native, and 2.8% other. **Inclusion criteria:** Service members or former service members that screened positive for PTSD after deployment to Iraq and/or Afghanistan who had not initiated PTSD treatment. **Exclusion criteria:** Previous treatment for PTSD.			**Remission:** NR.
Author, year: Garcia et al., 2011 **Region:** United States/ Canada	**Number of patients:** 38 **Mean age (*SD*):** 32.36 (7.86) **Gender:** Majority male. **Race/ethnicity:** Majority nonwhite. **Population description:** Race/ethnicity: 54.7% Hispanic, 30.8% white, 10.3% black, 2.6% other, and 1.7% Asian. Gender: 95.7% male, 4.3% female. **Inclusion criteria:** Patients seeking treatment through a VA medical center PTSD clinic for PTSD secondary to warzone or combat exposure. **Exclusion criteria:** Veterans with substance dependence were referred for addiction treatment and not included in this sample.	Cognitive therapy and PE, individually and in group formats: individual PE or cognitive therapy, group cognitive therapy, or individual or group cognitive therapy plus PE. Number and frequency of sessions not predetermined; all tracks also included psychoeducation and relaxation training; group tracks (eight to 11 sessions) included anger management and assertiveness training.	**Predictors:** Patient characteristics: age; PTSD symptom severity as measured by the PCL-M (*DSM-IV-TR)* symptoms of PTSD (APA, 1987); MMPI-2 scales for depression, negative treatment indicators, and infrequency (*F*). **Control variables:** Differences between treatment completers and noncompleters on pretreatment variables were explored using a *t*-test of the chi-square statistic. Clinical variables that differed between completers and noncompleters deemed "eligible" were entered into logistic analysis. **Analytic method:** Correlation. Model: logistic analysis (Wald), Hosmer–Lemeshow chi-square test.	**Retention:** Treatment dropout: leaving treatment prior to reaching predefined treatment goals (agreed upon by the clinician and patient). Depression was different between treatment noncompleters and completers ($p = 0.045$). Negative treatment indicators and infrequency (*F*) were also different between treatment dropouts and completers ($p = 0.004$ and $p = 0.026$, respectively). MMPI-2 negative treatment indicators (TRT): coefficient 0.38 ($p = 0.014$). Age: coefficient –0.56 ($p = 0.032$). For both, $R^2 = 0.142$. **Response:** NR. **Remission:** NR.
Author, year: Gilman, Schumm, and Chard, 2012 **Region:**	**Number of patients:** 147 **Mean age (*SD*):** 50 (NR). **Gender:** Majority male. **Race/ethnicity:** Majority white.	A seven-week residential program that administered CPT (based on a manual) in group and individual format twice a week. Participants attended 12 group sessions	**Predictors:** Patient characteristics: patient-rated hope according to the Hope Scale. **Control variables:** Age, gender,	**Retention:** NR. **Response:** Pre- to posttreatment changes in CAPS. Pre- to posttreatment changes as measured by the PCL.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
United States/ Canada	**Population description:** Gender: 35% female. Race/ethnicity: White, 64%; African American, 36%. Index trauma: Combat, 52%; sexual assault, 26%. **Inclusion criteria:** All veterans diagnosed with PTSD who entered a seven-week VA residential treatment program over a three-year period, regardless of whether or not they completed the treatment. **Exclusion criteria:** NR.	of CPT and 12–13 individual CPT sessions with a primary therapist. Additional group sessions provided psychoeducational curricula around specific aspects of the disorder (e.g., PTSD education and nutrition).	marital status, race/ethnicity, employment status, years of education, whether or not the patient had a service-connected disability for PTSD, whether or not the patient's CAPS index trauma indicated combat, total number of individual CPT sessions attended, and BDI-II. **Analytic method:** Correlation: two- or three-wave cross-lagged panel design model.	Baseline PTSD severity correlated with change in severity. Service connection not significant, data not provided. Number of sessions not significant predictor of response. **Remission:** NR.
Author, year: Graca, Palmer, and Occhietti, 2014 **Region:** United States/ Canada	**Number of patients:** 51 **Mean age (*SD*):** 47.49 (12.88) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Veterans who attended a PTSD residential treatment program in a Midwestern VA health care system. Predominantly white (82.4%) and male (92.2%). **Inclusion criteria:** Veterans who were treated in PTSD residential treatment program in a Midwestern VA health care system. **Exclusion criteria:** NR.	CPT, EMDR, and trauma group exposure (TGE) in residential treatment. Participants averaged four hours of therapeutic contact per day. Average stay was seven weeks.	**Predictors:** Treatment characteristics: components (CPT versus EMDR versus TGE). **Control variables:** Baseline PCL-C, time. **Analytic method:** MANCOVA.	**Retention:** NR. **Response:** Follow up PCL-C scores were significantly lower for EMDR when compared with TGE (p <.01) and for CPT when compared with TGE (p <.05). There were no significant differences between EMDR and CPT. **Remission:** NR.
Author, year: Gros, 2011; Gros et al., 2013 **Region:** United States/ Canada	**Number of patients:** 66 **Mean age (*SD*):** 33.8 (9.3) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Participants receiving psychotropic medication were not excluded from participation, nor were those with comorbid mood or anxiety disorders (explicitly to increase generalizability). **Inclusion criteria:** Combat veterans of OEF/OIF recruited through PTSD clinic referrals at a large Southeastern VA	All participants were offered eight 90-minute sessions of behavioral activation and therapeutic exposure: a transdiagnostic exposure-based psychotherapy specifically designed for depression/PTSD comorbidity. Participants were randomized into either in-person treatment (n = 49) or home-based telehealth	**Predictors:** Patient characteristics: PTSD severity, assessed through CAPS and the PCL; psychiatric comorbidities, assessed through SCID-IV; depression, assessed through the BDI-II; demographic variables (ethnicity, marital status, disability status, employment, age); deployment factors (combat exposure, perceived threat), and postdeployment factors (social support, stressors), assessed through the DRRI; disability	**Retention:** Discontinuing treatment prior to the completion of all eight sessions of the behavioral activation and therapeutic exposure treatment protocol; 28.3% of the sample (n = 26) discontinued treatment. Participants (versus those who discontinued) endorsed higher symptoms of PTSD on the PCL and depression on the BDI-II, as well as higher combat exposure, higher deployment concerns, higher postdeployment stressors, and lower postdeployment social support on the DRRI.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	medical center who met criteria for combat-related PTSD/subthreshold PTSD, defined as fulfillment of Criterion A (traumatic event) and Criterion B (reexperiencing), and either Criterion C (avoidance) or Criterion D (hyperarousal). **Exclusion criteria:** Individuals who were actively psychotic, acutely suicidal, or met criteria for substance dependence on the SCID.	(*n* = 35).	status, assessed through the self-report demographic question, "Are you currently classified as disabled?" **Control variables:** As stated above. **Analytic method:** Hierarchical logistic regression.	Disability status was positively associated with discontinuation (*OR* = 3.38, *p* = .04, 95% CI [1.05, 10.81]). Postdeployment support was negatively associated with discontinuation of treatment (*OR* = 0.89, *p* = .01, 95% CI [0.82, 0.97]). The total model (including measures of mental health and deployment factors) demonstrated good fit (*p* = .82), and improvement of the fit over the first step of the logistic regression (*p* = .71). Treatment condition (telehealth versus in person), ethnicity, marital status, age, and employment status were unrelated to treatment discontinuation. **Response:** NR. **Remission:** NR.
Author, year: Gros, 2011 **Region:** United States / Canada	**Number of patients:** 65 **Mean age (*SD*):** Telehealth: 45.1 (15.0); in-person: 45.2 (16.0) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Veterans recruited at a large Southeastern VA medical center. Telehealth patients: White, 50.0%; African American, 45.2%. In-person patients: White, 51.9%; African American: 48.1%. 54.8% were receiving disability services for a mental health condition through the VA. **Inclusion criteria:** PTSD patients who completed 12 sessions of exposure therapy either in person or through telehealth. **Exclusion criteria:** Patients with co-occurring psychotic spectrum disorder diagnosis or who were actively suicidal.	Twelve sessions of exposure therapy, scheduled weekly, lasted between 60 and 90 minutes depending on their content (e.g., sessions containing imaginal exposure generally were longer in duration).	**Predictors:** Treatment characteristics: telehealth versus in-person treatment. **Control variables:** Pretreatment scores, age, race, combat region, sex, disability status. **Analytic method:** Correlation. Model: ANCOVA.	**Retention:** NR. **Response:** PCL-M. Significant reductions were evidenced across all measures of symptomatology in the telehealth (*t* >3.5, *p* <.05, d= .76) and in-person (*t* >8.9, *p* <.001, *d* = 3.00) samples. There was a significant effect of setting on the posttreatment PCL-M after controlling for pretreatment scores (*F* >13.4, *p* <.01, *d* = .56), suggesting that patients receiving in-person treatment evidenced greater symptom reductions. Bivariate analysis demonstrated no significant correlations for any predictor variables, including age (*r* <.26, *p* >.05), sex (*r* <.21, *p* >.05), race (*r* <.36, *p* >.05), combat theater (*r* <.22, *p* >.05), or disability status (*r* <.13, *p* >.05). **Remission:** NR.
Author, year: Haller et al., 2016	**Number of patients:** 74 **Mean age (*SD*):** 47.26 (11.97)	Phase 1: All participants received CBT twice a week in group session, for a total	**Predictors:** Treatment characteristics: adding a trauma-focused individual treatment	**Retention:** NR. **Response:** Clinical diagnosis, PTSD a semistructured interview.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Study number: NCT00958217 **Region:** United States/ Canada	**Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Recruited from an outpatient dual diagnosis treatment program from October 2009 to October 2012 from the VA San Diego Health Care System. Widowed or separated, 55%; married, 21%; never married, 24%. On average, participants had received 13 years of education (some beyond high school). More participants identified combat as the source of trauma (44%) than sexual (33%) or other (28%) events. Concurrent AUD and SUD (45%), followed by AUD only (42%) or SUD only (14%). **Inclusion criteria:** Outpatient veterans meeting *DSM-IV* (APA, 1994) criteria for alcohol, cannabinol, or stimulant dependence, with use in the last three months and meeting *DSM-IV* criteria for a current major depressive disorder or dysthymia, with at least one lifetime episode occurring while sober (independent of alcohol or drug use) and having been exposed to trauma (with or without a *DSM-IV* diagnosis for PTSD). **Exclusion criteria:** Having a bipolar or psychotic disorder, life-threatening or unstable medical conditions, or memory deficits that could impair recall for assessments; living 50 or miles away; and receiving CPT within the past year.	of 12 weeks. Phase 2: Afterward, participants were randomized to receive 12 sessions of individualized follow-up treatment, either with non-trauma-focused integrated cognitive behavioral therapy (ICBT) or with a trauma-focused CPT modified to include SUD treatment (CPT-M).	(CPT-M) to a group-based ICBT intervention rather than continuing with a non-trauma-focused individual treatment (more ICBT). **Control variables:** Randomization stratified by gender and PTSD diagnosis: • treatment type • time: follow-up assessments not always conducted on exactly the right day, so time variable reflected months elapsed since Phase 1. **Analytic method:** Correlation. Model: linear mixed effect models for trajectories of PTSD symptoms (PCL). Other: maximum likelihood methods.	Self-reporting of PTSD symptoms as measured by the PCL-C. The PCL-C, rather than the PCL-M, was used because it does not restrict the nature of the trauma (e.g., to combat-related settings). A change of ten points is clinically meaningful, and five points counts as a minimum response. Response was defined only loosely as reductions in clinical and self reported scores for PTSD. Participants in both the ICBT versus CPT-M groups experienced similar levels of PTSD symptom reduction. Improvements were maintained one year later. Mean PCL score: CPTM condition: 51.46 (15.48) at the end of Phase 1, 49.62 (14.04) at end of Phase 2, and 48.33 (17.14) at one year. ICBT condition: 49.88 (16.06) at the end of Phase 1 treatment, 46.69 (15.74) at end of Phase 2, and 39.47 (16.46) at one year. PCL scores significantly lower at one-year follow-up for CPT-M versus ICBT: one-way ANOVA ($F(1,71) = 5.58$, $p = 0.023$). Significant results for PTSD symptom trajectory (PCL): Model 1 (base), intercept: 49.349 (2.05) (p <0.001) Model 2 (attendance), intercept: 46.258 (3.9) (p <0.001) Model 3 (PTSD diagnosis), intercept: 36.001 (4.21) (p <0.001) Model 3 (PTSD diagnostic model), PTSD diagnosis: 16.637 (4.71) (p <0.001) **Remission:** NR.
Author, year: Hernandez-	**Number of patients:** 211 **Mean age (*SD*):** 46.5 (14.5)	Participants were drawn from two different RCTs	**Predictors:** Patient characteristics: PTSD severity	**Retention:** Dropout prior to achieving the “minimum dose” of eight sessions.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Tejada et al., 2014 **Region:** United States / Canada	**Gender:** All male. **Race/ethnicity:** Majority white. **Population description:** Veterans. Most had served in OEF/OIF (44.7%), followed by the Persian Gulf War (27.7%) and the Vietnam War (27.7%). Married, 62.8%. Greater than a high school education, 92.1%. Unemployed, 61.5%. Earned more than $20,000 annually, 70.3%. **Inclusion criteria:** Secondary analysis of two RCTs comparing in-person versus telemedicine delivery of exposure therapy for PTSD. **Exclusion criteria:** NR.	comparing in-person treatment versus telemedicine for exposure therapy.	(via the PCL-M); demographics (race, gender, age, marital status, employment, income); war theater (e.g., Vietnam, Persian Gulf); treatment condition. **Control variables:** All of the above, plus treatment condition (telemedicine or in-person). **Analytic method:** Model: Logistic regression.	Regression results: β-value, p-value Race: β = 0.229, p = 0.502 Gender: β = 1.225, p = 0.254 Age: β = –0.053, p = 0.93 Marital status: β = 0.041, p = 0.91 Employment: β = –0.225, p = 0.543 Income: β = –0.011, p = 0.98 Theater: β = –0.019, p = 0.946 BDI: β = –0.023, p = 0.284 PCL: β = –0.001, p = 0.953 Treatment condition: β = –0.228, p = 0.49 Constant: β = 0.951, p = 0.622 **Response:** NR. **Remission:** NR. **Retention:** NR.
Author, year: Hobfoll et al., 2016; Stevens et al., 2017 **Region:** United States / Canada	**Number of patients:** 256 **Mean age (SD):** 34.22 (7.61) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Partnered, 54.07%; some college, 59.33%; employed/student, 79.43%. Combat exposure: None, 35.9%; low, 33.5%, high, 30.6%. Baseline PCL-M score: 40.03; Above clinical cutoff for PTSD: 59.33%. **Inclusion criteria:** At least 18 years of age; spoke and read English; were able to use computers without assistance; had regular access to a cell phone and broadband internet; met criteria for at least mild to moderate distress: ≥24 on the PCL-M) and ≥8 on the Center for Epidemiological Studies Depression Scale—10. **Exclusion criteria:** At risk for suicide, as	Vets Prevail comprises seven individually tailored online CBT lessons, a community message board, and peer chat support, assisting veterans in identifying their problematic patterns of thinking and behaving while prompting them to set specific goals, engage in adaptive coping behaviors, and solve problems (versus "adjustment as usual").	**Predictors:** Patient and treatment characteristics: gender, race, combat exposure; perceived physical health impairment; number of online lessons. **Control variables:** Treatment condition, as listed above. **Analytic method:** Model: Mixed models with interactions (time × condition); mediation models; mixed models with full information maximum likelihood.	**Response:** Change in PTSD as measured by the PCL-M. To estimate clinical levels of PTSD pre- and postintervention, the authors used a cutoff score of 35 or higher, which is suggested for veterans presenting to a primary care clinic or to a DoD screening. Mixed models with interactions revealed no significant gender, race, or combat exposure differences in reductions of PTSD symptoms based on study condition (p >0.05). The effects of treatment condition on PTSD symptoms were significantly mediated by perceived physical health impairment (indirect effect = –0.05, 95% CI [–0.09, –0.01], p <.05, proportion mediated 0.04). **Remission:** Symptom remission to a subclinical level of less than 35 on the PCL-M. Among participants who

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	evidenced by past suicide attempt(s); psychiatric hospitalization during the past five years and/or started or altered the dose of their psychiatric medication within ten days prior to enrolling in study; reporting higher than moderate distress.			reported clinical levels of PTSD at baseline, individuals in the Vets Prevail condition who completed more online lessons (mean = 6.11 sessions) were significantly more likely to experience symptom remission to below clinical levels.
Author, year: Holder, 2018 **Region:** United States / Canada	**Number of patients:** 45 **Mean age (*SD*):** 45.42 **Gender:** Majority female. **Race/ethnicity:** Majority nonwhite. **Population description:** Secondary analysis; 161 participants were enrolled in an RCT comparing the effectiveness of CPT with PCT, and of these, 72 were randomized to receive CPT. Only data from the CPT treatment condition were analyzed here. **Inclusion criteria:** Participants were recruited from a Southwestern VA medical center; the criteria were (1) veterans identified an attempted/ completed sexual assault as their most distressing trauma event (occurred while on active duty); (2) veterans with a diagnosis of PTSD related to military sexual trauma; (3) military sexual trauma occurrence at least three months prior; (4) at least one clear memory of the military sexual trauma; (5) no changes to psychiatric medication in the past six weeks. **Exclusion criteria:** Substance dependence/abuse in the past three months, current psychotic symptoms or unstable bipolar disorder, severe cognitive impairment, concurrent enrollment in psychotherapy targeting PTSD, involvement in a violent intimate partner relationship, and/or significant suicidal/homicidal intent.	Twelve one-hour sessions of CPT either once or twice a week (depending on the participant's schedule).	**Predictors:** Treatment characteristics: fidelity of CPT treatment delivery: sessions were taped and scored for adherence, competence, essential but not unique elements, and additional considerations. These were averaged to generate a fidelity score per the guidelines of the treatment manual. **Control variables:** Age, time. **Analytic method:** Model: Hierarchical linear modeling.	**Retention:** NR. **Response:** Reductions in PTSD symptoms, assessed through the PCL (APA, 2000) Participants treated by a therapist with "good" treatment fidelity experienced significantly greater reductions in PTSD symptoms than patients treated by a therapist with "below average" treatment fidelity: β = 5.66, p = .038. For age, β = –.01, p = .948. **Remission:** NR.
Author, year: Jeffreys et al., 2014	**Number of patients:** 263 **Mean age (*SD*):** CPT patients: 57.1 (9.38); PE patients: 38.2 (13.26)	CPT: 12-session, manualized treatment protocol focusing on modifying cognitions	**Predictors:** Patient characteristics: deployment era: Vietnam War, Operation Desert	**Retention:** Dropout (completing less than two-thirds of the recommended appointments).

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Region: United States / Canada	**Gender:** Majority male. **Race/ethnicity:** Majority nonwhite. **Population description:** Race/Ethnicity for CPT patients: Hispanic, 56.7%; white, 33.1%; African American, 8.4%; Asian, 0%; other, 1.1%; unknown, 0.6%. Ethnicity for PE patients: Hispanic, 54.1%; white, 30.6%; African American, 10.6%; Asian, 2.4%; other, 2.4%; unknown, 0%. **Inclusion criteria:** Retrospective chart review of one specialty PTSD clinic from January 1, 2006, through January 21, 2011. CAPS was used in records reviewed starting January 1, 2006 and was replaced in the latter half of 2010 with the Mini-International Neuropsychiatric Interview for PTSD. **Exclusion criteria:** Excluded if chart had missing data, including treating therapist, specific dates of treatment, prior treatment, concurrent treatment with medications, specific trauma types, service-connected status, or comorbidities.	surrounding five main trauma themes: safety, trust, power and control, esteem, and intimacy; 60 minutes per session for individual therapy and 90 minutes per session for group therapy; offered with (group, individual, or group plus individual) or without (CPT-C) written trauma account. PE: 10–15 weekly 90-minute individual sessions with the following core components: psychoeducation, breathing retraining, in vivo exposures, and imaginal exposures.	Storm, OEF/OIF/OND. **Control variables:** Age group, gender, race/ethnicity. **Analytic method:** Model: Logistic regression.	Being between 30 and 50 years of age (p = 0.03) and over age 50 (p <0.001) were significant compared with having an age under 30, with *OR*s of 0.54 and 0.23, respectively, indicating that older veterans were less likely to drop out. The small number of women (19 in CPT, and 15 in PE in the full data set) produced unstable results and, therefore, the effect of gender was not considered. There were 41 African Americans in CPT treatment and 24 African Americans in PE treatment for the full data set. Although the number of African Americans was small, their numbers were not so small that their racial/ethnic status produced unstable results. Therefore, African Americans were included in the analysis and showed significantly more improvement than other ethnicities in PE only. **Response:** PCL completed by the patient and recorded by the clinician at differing treatment intervals to measure PTSD symptom improvement. Both being an OEF/OIF/OND veteran (p = 0.047) and receiving PE treatment (p <0.001) led to a significantly greater decrease in posttreatment PCL scores. In the overall linear model, with Vietnam status and treatment as a covariate (n = 256, df = 255), receiving PE treatment (p <0.001) was significant. In the overall model with Operation Desert Storm status (n = 256, df = 255), receiving PE treatment (p <0.001) led to a significantly greater decline in post-PCL scores. **Remission:** NR.
Author, year: Johnson et al., 1999; Johnson and	**Number of patients:** 75 **Mean age (*SD*):** 44.1 (2.1) **Gender:** NR.	Removal of medications for most patients to assess baseline clinical state and to participate in a number of neuropsychiatric,	**Predictors:** Treatment characteristics: program treatment environment (mix of veterans with PTSD and	**Retention:** NR. **Response:** Change in Mississippi Scale for PTSD. There was no difference in PTSD

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Lubin, 2002 **Region:** United States / Canada	**Race/ethnicity:** Majority white. **Population description:** Mean 12.8 years of education, 82% white; 45% married, 31% employed; nearly half received service-connected disability payments. **Inclusion criteria:** Veterans who had served in Vietnam (confirmed combat experience); PTSD diagnosis based on *DSM-III-R* (APA, 1987) criteria; outpatient treatment before admission. **Exclusion criteria:** Suicidal ideation in the last 60 days, not sober within the last 90 days, no established living arrangement, no family involvement in program.	psychophysiological, and psychological studies (most were placed back appropriate medications as determined by their physician by end of their treatment period). Three phases aimed at reintegration of the Vietnam veteran back into society: (1) relaxation, sleep, anger management training, and extensive review by staff of life and illness (creative arts therapies); (2) group and individual therapy with cognitive restructuring techniques to address traumas; and (3) engagement with community (volunteer service), family therapy (family meetings), and future planning. An approximately 15-week structured program with about 32 hours per week of mandatory groups and several hours of individual therapy.	dual-diagnosis and general psychiatric patients versus only veterans with PTSD). **Control variables:** Unclear. **Analytic method:** Model: Random regression modeling with missing data for repeated measures.	outcomes during treatment (admission to discharge) or through follow-up (admission through 12-month follow-up) between the two patient mix groups: Heterogeneous treatment program cohorts: 137.20 Admission, 143.09 Discharge, 143.12 12 Months; Homogenous treatment program cohorts: 141.00 Admission, 139.24 Discharge, 142.16 12 Months; Heterogeneous versus homogeneous: n.s. (p >0.05). Entire sample from Admission to follow-up: n.s. (p >0.05). **Remission:** NR.
Author, year: Johnson and Lubin, 2002 **Region:** United States / Canada	**Number of patients:** 90 **Mean age (*SD*):** 49.13 (4.56) **Gender:** NR. **Race/ethnicity:** Majority white. **Population description:** 87% white, 10% African American, 3% Hispanic. **Inclusion criteria:** Veterans with PTSD hospitalized from January 1993 to June 1994 at the West Haven VA Medical Center's SIPU or EBPTU. **Exclusion criteria:** Veterans who had been treated in both a SIPU and an EBPTU.	A brief inpatient treatment program for veterans who were in crisis and required stabilization, and a long-term inpatient program for those who were stabilized and ready for more work on memories.	**Predictors:** Patient and treatment characteristics: homecoming measures (shame, resentment, negative interaction, social withdrawal, total homecoming); long-term versus brief treatment. **Control variables:** Correlation: None; Model: Time. **Analytic method:** Correlation. Model: ANOVA.	**Retention:** NR. **Response:** Mississippi Scale, PCL. All submeasures of homecoming were significantly correlated with Mississippi Scale scores at follow-up: shame (r = .35, p <.01), resentment (r = .58, p <.001), negative interaction (r = .32, p <.05), social withdrawal (r = .42, p <.01), total homecoming (r = .62, p <.001). All submeasures of homecoming except negative interaction were significantly correlated with PCL scores at follow-up: shame (r = .25, p <.05), resentment (r = .56, p <.001), negative interaction (r = .32, p >.05), social withdrawal (r = .35, p <.01), total homecoming (r = .51, p <.001). **Remission:** NR.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Author, year: Korte et al., 2017 **Region:** United States/ Canada	**Number of patients:** 81 **Mean age (*SD*):** 40.4 (10.7) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** 90.1% male; 60.5% white, 37.0% African American, 3.7% Hispanic. 81.0% reported that index trauma was military related (e.g.,combat exposure, accident during the military, military sexual trauma). Average of 13.9 years of education. 63.7% served in OEF/OIF/OND. **Inclusion criteria:** Veteran status; 18–65 years old; meeting *DSM-IV* (APA, 2000) criteria for current PTSD and score of at least 50 on CAPS for the *DSM-IV*; meeting *DSM-IV* criteria for a current SUD (alcohol or substance abuse or dependence disorder); use of alcohol or other substances within the 90 days prior to study enrollment; stabilized on any psychotropic medications for at least four weeks before beginning the study. **Exclusion criteria:** Current suicidal or homicidal ideation and intent, current psychotic or bipolar affective disorders, and eating disorders; already receiving psychosocial treatment for PTSD or SUD.	COPE (Concurrent Treatment of PTSD and Substance Use Disorders Using Prolonged Exposure): integrated CBT for comorbid PTSD and SUD that consists of 12 weekly, individual, 90-minute sessions.	**Predictors:** Patient and treatment characteristics: age, gender, race, baseline PTSD symptoms, baseline substance abuse, first session depressive symptoms, treatment group (COPE or relapse prevention). **Control variables:** All of the above. **Analytic method:** Model: Path model.	**Retention:** NR. **Response:** Change, as measured by the PCL-M (at session 6). Age: coefficient = 0.370 (p <0.01) Gender (0 male, 1 female): coefficient = –0.046 Race (0 White, 1 other): coefficient = –0.208 (*p* <0.05) Baseline PTSD symptoms: coefficient = 0.405 (p <0.01) Baseline substance use: coefficient = –0.056 Session 1, depressive syndrome: coefficient = 0.118 Treatment group: coefficient = 0.236 (*p* <0.05) favoring relapse prevention **Remission:** NR.
Author, year: Kosten et al., 1992 **Region:** United States/ Canada	**Number of patients:** 57 **Mean age (*SD*):** 39 (2.3) **Gender:** All male. **Race/ethnicity:** Majority white. **Population description:** 57% had past SUD; 47% had minor depression. **Inclusion criteria:** Vietnam combat veterans who met *DSM-III* (APA, 1980) criteria for PTSD and completed the Alexithymia Provoked Response Questionnaire. **Exclusion criteria:** Having schizophrenia,	Placebo (*n* = 16), imipramine (*n* = 23), or phenelzine (*n* = 18). The study took eight weeks, with patients receiving psychotherapy, medication monitoring, and symptom assessments weekly.	**Predictors:** Patient characteristics: participation in atrocities; treatment characteristics: psychotherapy plus phenelzine versus psychotherapy plus imipramine versus psychotherapy plus placebo. **Control variables:** Severity of war trauma. **Analytic method:** Correlation.	**Retention:** NR. **Response:** IES score, which includes two subscales with seven items assessing intrusion symptoms such as nightmares, flashbacks, and intrusive recollections, as well as eight items assessing avoidance symptoms such as social withdrawal and emotional numbing. Participation in atrocities was associated with less improvement.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	bipolar disorder, or current (past-month) SUD.			**Remission:** NR.
Author, year: Levi et al., 2017 **Region:** Middle East	**Number of patients:** 135 (85.4%) completed posttreatment assessment, and 116 (73.4%) completed 12-month follow-up. **Mean age (*SD*):** 30.09 (15.06) **Gender:** All male. **Race/ethnicity:** NR/unclear. **Population description:** 92 patients had experienced direct combat in addition to incoming mortar and rocket attacks; 51 had received incoming small arms fire and experienced detonations of improvised explosive devices; ten participated in operations under Molotov cocktail and/or stone throwing attacks; five personally knew someone who had been seriously injured or killed. **Inclusion criteria:** Male, treatment-seeking Israeli Defense Force combat veterans diagnosed with PTSD according to the *DSM-IV-TR* (APA, 2000) using CAPS. **Exclusion criteria:** NR.	Psychodynamic group therapy Therapist interventions included clarification and mirroring, confrontation, and interpretation. Transference, countertransference, and resistance were also processed in the group. Delivered over one year, in 90-minute, once-weekly sessions.	**Predictors:** Patient characteristics: age at baseline, age at the time of the event, years of education, place of birth (immigration), marital status, employment, and military occupation. **Control variables:** All of the above. **Analytic method:** Model: Multilevel modeling analyses.	**Retention:** NR **Response:** CAPS; for CAPS, the cutoff score was 45. To be considered recovered, the posttreatment CAPS score had to be lower than 45 and had to decrease from pre- to posttreatment by at least 15.2 points. To be improved, the CAPS score had to decrease from pre- to posttreatment by at least 15.2 points. Controlling for covariates (age at beginning of treatment, age at the time of the event, years of education, immigration, marital status, employment, and military occupation), the CAPS trajectory was significantly predicted by immigration (β *B* = 8.42, *p* = .034), No other significant effects were found. **Remission:** NR.
Author, year: Acierno et al., 2017; López et al., 2017; Strachan et al., 2012 **Region:** United States / Canada	**Number of patients:** 154 **Mean age (*SD*):** 41.6 (14.0) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** 96% male; age range, 20–75; 4.5% married, 22% never married, 18.8% separated/divorced; 58.4% white, 35.7% African American; 39.6% employed; 39% reported that they were classified as disabled (having a VA-rated service connection). **Inclusion criteria:** Veterans from all service theaters meeting *DSM-IV-TR* (APA, 2000) criteria for PTSD by CAPS assessment. Participants on psychiatric	PE-IP or PE-HBT; all participants consented to receive eight to 12 90-minute sessions of PE.	**Predictors:** Patient and treatment characteristics: sleep problems, age, marital status, employment status, race, CAPS baseline sleep score, baseline PCL score, number of sessions completed, treatment group, Charleston Psychiatric Outpatient Satisfaction Scale (CPOSS) total score (treatment satisfaction). **Control variables:** All of the above. **Analytic method:** Model: Hierarchical multiple linear regression model.	**Retention:** Not completing at least eight therapy sessions. Disability and treatment group were significant predictors of dropout. Age: β = −.01; *SE* = .01; *p* = .69 Race: β = −.56; *SE* = .37; *p* = .13 Combat theater: β = −.23; *SE* = .34; *p* = .49 Disability status: β = −.99; *SE* = .44; *p* = .02 Baseline BDI-II: β = .01; *SE* = .02; *p* = .53 Baseline PCL: β = .001; *SE* = .01; *p* = .96

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	medication had to be stable on their medication for at least three weeks. All study procedures were required for participation (i.e., completed therapy and assessments of satisfaction). **Exclusion criteria:** Alcohol or substance dependence within the past six months, active psychotic disorder, severe suicidal ideation with plan and intent.			DRRI social support: β = −.04; *SE* = .02; *p* = .36 Treatment condition: β = .68; *SE* = .29; *p* = .05 **Response:** Change, as measured by the PCL-M Age: coefficient = 0.12 (*p* = 0.60) Marital status: coefficient = 1.18 (*p* = 0.80) Employment status: coefficient = 0.20 (*p* = 0.97) Race: coefficient = 0.39 (*p* = 0.90) CAPS baseline sleep score: coefficient = 0.98 (*p* = 0.44) Baseline PCL score: coefficient = 0.82 (*p* = 0.002) Number of sessions completed: coefficient = 2.49 (*p* = 0.20) Treatment condition: coefficient = –3.62 (*p* = 0.19) CPOSS total score: coefficient = –0.46 (*p* = 0.08) **Remission:** NR.
Author, year: Hebenstreit et al., 2015; Maguen et al., 2014 **Region:** United States/ Canada	**Number of patients:** 39,690 **Mean age (*SD*):** 30.5, 8.16 **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Veterans who have separated from OEF/OIF/OND military service and who have enrolled in VA health care. 57.3% white, 11.1% black, 11.1% Hispanic, 20.6% other; 89.9% male. 71.0% Army, 5.2% Air Force, 16.9% Marines, 6.9% Navy/Coast Guard. Conducted subanalysis of only females.	Mental health outpatient treatment including integrated care clinic visits with primary and mental health services.	**Predictors:** Patient and treatment characteristics: gender, age, race, marital status, National Guard or Reserve, officer rank, branch of service, multiple deployments. Secondary analysis on retention, including women only: race, age group, number of mental health comorbidities, at least one primary care visit every six months, PTSD class (low, intermediate, or high symptom level), years between end of last deployment and initiation of treatment, miles to closest VA	**Retention:** Analysis included only females. MAC for PTSD was defined as at least one of the following: 12 consecutive weeks of medication use or nine mental health outpatient visits within a 15-week period. In the adjusted regression models: Race/ethnicity: Black and Hispanic race/ethnicity were each associated with decreased likelihood of completing MAC in comparison with white race/ethnicity. Comorbidities: Patients with one or more mental health comorbidities were more likely to complete MAC than

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	Inclusion criteria: OEF/OIF/OND veterans with PTSD diagnosis (*ICD*) during at least two clinical encounters after the end of last deployment and before the end of December 2012; used mental health outpatient care between October 2007 and December 2012; no prior use of VA care; screened for PTSD at start of treatment and on at least one other occasion at least a year later. **Exclusion criteria:** None.		facility, Community-Based Outpatient Clinic nearest VA facility. **Control variables:** See above. **Analytic method:** Model: Multivariate logistic regression.	patients with no comorbidities. Classes of PTSD: Those in the high-symptom PTSD class were more likely to complete MAC than those in the low-symptom class, and those in the intermediate with high emotional numbing class were less likely to complete MAC than those in the intermediate-symptom class. Age: Women ages 18–24 were less likely to complete MAC than veterans in all other age groups. Care utilization: Veterans who utilized primary care at least semiannually were more likely to complete MAC than veterans who utilized primary care less frequently. When the analyses were repeated using the intermediate class as a reference group, a significant unadjusted *OR* suggested that those in the intermediate with high emotional numbing class were less likely than those in the intermediate class to complete MAC.
				Response: Four-item primary care PTSD Screen. Having at least symptoms was interpreted as a positive screen for PTSD at 12 months posttreatment entry. Regression results: Those who waited longer to initiate mental health outpatient treatment were less likely to have a negative screen result (*OR* = 0.96, *p* <0.001). Those who lived 11–25 miles from the closest VA facility were less likely to have a negative screen result compared with those who lived within ten miles

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
				(*OR* = 0.88, *p* <0.001). Those who had a Community-Based Outpatient Clinic as the nearest VA facility, compared with a VA medical center, were less likely to have a negative screen result (*OR* = 0.95, *p* = .03). Others less likely to have negative screen result were women (*OR* = 1.32, *p* <0.001); those of older age at first mental health outpatient visit (*p* = .002, comparing those over 40 and those ages 18–24); those with an officer rank compared with those with an enlisted rank (*OR* = 1.26, *p* <0.001); service members in branches of the military other than the Army (*OR* = 1.11, *p* <001 for the Marines, *OR* = 1.27, *p* <0.001 for the Navy/Coast Guard; *OR* = 1.17, *p* = 0.001 for the Air Force); and those with negative PTSD screen at baseline (*OR* = 2.12, *p* <0.001). Blacks (compared with whites; *OR* = 0.87, *p* <0.001), and those who were married (compared with those who were never married) were less likely to have a negative PTSD screen result (*OR* = 0.87, *p* <0.001). **Remission:** NR.
Author, year: Maieritsch et al., 2016 **Region:** United States / Canada	**Number of patients:** 51 **Mean age (*SD*):** 30.93 (6.05) **Gender:** Majority male. **Race/ethnicity:** NR/unclear. **Population description:** Never married, 34.4%; married/remarried, 38.9%; divorced or separated, 26.7%; 58.9% had served on regular duty (21.1% Reserves, and 20.0% National Guard) in Iraq (75.6%), in Afghanistan (11.1%), or both (13.3%). **Inclusion criteria:** OEF/OIF/OND	Fifty-minute individual sessions of CPT, once or twice weekly, delivered via video teleconference (telemental health) or in-person.	**Predictors:** Treatment characteristics: telemental health versus in-person delivery of CPT. **Control variables:** NR. **Analytic method:** Model: Linear mixed effects model with unstructured correlation structure.	**Retention:** NR. **Response:** Changes in PTSD severity, as measured by total CAPS scores and secondarily by the PCL (over time). A trend was observed of equivalence between telemental and in-person treatment on CAPS (Δ = –0.5, 95% CI [–12.4, 11.4], *p* = 0.094) and on the PCL (OR = 0.92, 95% CI [0.78 1.09], *p* = .079). **Remission:** NR.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	veterans; English-speaking; current diagnosis of PTSD on CAPS ≥45); experienced a military-related traumatic event (i.e., combat, sexual assault, noncombat physical assault); on a stable psychotropic medication regimen for at least one month before baseline assessment, and willing to maintain that regime over the course of the study. **Exclusion criteria:** Already completed a trial of CPT; active diagnosis of psychotic, bipolar, or substance dependence disorders; acute suicidal or homicidal ideation; significant cognitive impairment.			
Author, year: McDowell and Rodriguez, 2013 **Region:** United States / Canada	**Number of patients:** 60 **Mean age (*SD*):** 42.12 (14.58) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** 78.3% white, 15.0% African American, 6.7% Latino; 51.7% served in OEF/OIF, 30.0% in the Vietnam War, 16.7% in the First Persian Gulf War, and 1.7% (one veteran)in the Korean War. About one-third were dually diagnosed with PTSD and SUD. **Inclusion criteria:** Combat veterans admitted for residential PTSD treatment between April 2009 and February 2010 at the Battle Creek, Michigan, VA Medical Center, who agreed to extend their residential treatment in order to participate in CPT. **Exclusion criteria:** Active psychosis or suicidal/homicidal intent.	A short skills-based residential program focusing either on general coping skills or on skills more specific to dual diagnosis before beginning CPT (about 22 days). Veterans with active substance use at the beginning of residential treatment were expected to maintain abstinence by the time they entered CPT (as evidenced by a urinary drug screen). Upon starting CPT, participants continued attending programming that they had participated in during their initial skills-based treatment period, consisting of approximately six hours of scheduled activities each day. CPT took place over six weeks and included a total of 12 sessions, meeting two times per week for 90-minute sessions.	**Predictors:** Patient characteristics: age, SUD. **Control variables:** AUDIT-C score, SUD. **Analytic method:** Stratified results.	**Retention:** NR. **Response:** Difference score as measured by the PCL. The PTSD group was compared with the PTSD + SUD group, further stratified on the AUDIT-C score. There was no significant difference in outcomes between the comorbid and comparison groups (p >0.05) using PCL difference scores. Overall: 14.44 PTSD versus 14.75 PTSD + SUD; AUDIT 4 cutoff: 13.11 PTSD versus 15.30 PTSD + SUD; AUDIT 8 cutoff: 13.19 PTSD versus 16.22 PTSD plus SUD. **Remission:** NR.
Author, year: McLay et al.,	**Number of patients:** 331	One group (14%) received EMDR, while the other (the	**Predictors:** Treatment characteristics: psychotherapy	**Retention:** NR.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
2016 **Region:** United States / Canada	**Mean age (*SD*):** EMDR: 29.7 (7.0); non-EMDR: 29.2 (7.3) **Gender:** Majority male. **Race/ethnicity:** NR/unclear. **Population description:** Among the non-EMDR and EMDR groups, most participants came from the Marines (53% and 75%, respectively), followed by the Navy (37% and 20%) and the Army (9% and 5%); 45% of the EMDR group was married, and 60% of the non-EMDR group was married. **Inclusion criteria:** Active-duty service members who (1) met the criteria for posttraumatic stress according to the PCL-M; (2) had some combat experience (CES >0); (3) had received at least one form of psychotherapy in the last ten weeks; and (4) indicated whether they had undergone EMDR therapy. **Exclusion criteria:** No follow-up assessments, no treatment review, no combat exposure, no EMDR, no form of psychotherapy.	remaining 86%) received other non-EMDR therapies. Both groups received one or more of the following psychotherapies: CBT, CPT, NTFT, exposure therapy, or psychiatric medication.	with or without EMDR. **Control variables:** Age, gender, marital status, treatment sessions, number of types of therapy, number of deployments, baseline PCL-M score, CES, and the presence or absence of psychotropic medications. **Analytic method:** Model: stepwise linear regression model. Other: descriptive statistics.	**Response:** For the regression model, improvement (reduction in) PCL-M scores. For the descriptive statistics, the percentage of service members who had a clinically significant (at least a ten-point decrease in PCL-M scores). The ten-point cutoff was used based on the National Center for PTSD guidelines. Regression Model: With psychotherapy, the presence or absence of CPT or exposure therapy were not significant predictors of reductions in PCL-M scores. With psychotherapy, the use of EMDR significantly predicted a greater improvement in PCL-M scores (mean = 8.7 points, *SE* = 2.4; *p* <.001). With psychotherapy, the use of CBT and NTFT significantly predicted less improvement in PCL-M scores. CBT: (mean = –4.3, *SE* = 1.5; *p* <.01) NTFT: (mean = –5.0, *SE* = 2.1; *p* <.05) Descriptive statistics A greater percentage of patients receiving EMDR (63%) showed a clinically significant improvement of ten points on the PCL-M, compared with patients receiving psychotherapy without EMDR (39%). **Remission:** No longer meeting the “loose” criteria for PTSD according to the PCL-M. Respondent must score as 3 on at least one symptom from the PCL-M’s Criterion B, and three symptoms from the PCL-M’s Criterion C. A greater percentage of patients receiving EMDR (39.1%) no longer met the “loose” criteria for PTSD than

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
				patients receiving other psychotherapy without EMDR (21.4%).
Author, year: Miles et al., 2015 **Study number:** NCT00941629 **Region:** United States/ Canada	**Number of patients:** 89 **Mean age (*SD*):** 30.93 (6.07) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** High school graduates or Graduate Record Examination equivalents, 46.1%; some college, 42.7%; some graduate school, 11.2%. Employed at least part-time, 42.7%. **Inclusion criteria:** Secondary analysis of RCT; at least 18 years old; PTSD diagnosis (score >45 on CAPS); English speaker; service in OEF/OIF/OND; military-related trauma (e.g., combat, military sexual trauma); stable or no psychotropic medication use for one month. **Exclusion criteria:** Completed CPT trial; psychotic or bipolar disorder; substance dependence; cognitive impairment; acute suicidal or homicidal ideation.	Twelve sessions of teleconferencing or in-person CPT (average, 8.31 sessions attended).	**Predictors:** Patient characteristics: fear of losing control over emotions, assessed with the Affect Control Scale (ACS). **Control variables:** Pretreatment CAPS score, pretreatment ACS subscales including anger, positive affect, depression, anxiety, and mismanagement. **Analytic method:** Model: Logistic regression model, linear regression model.	**Retention:** Anyone who completed at least ten sessions. The Wald criterion showed that anxiety was a significant predictor: for every one unit increase in fear of anxiety, veterans were 0.93 times less likely to complete treatment, controlling for the other variables. **Response:** Posttreatment PTSD symptoms, assessed with CAPS, among those who completed the treatment. Anger (β = −.29) and pretreatment CAPS (β = .36) significantly predicted posttreatment symptom severity, controlling for the other variables. **Remission:** NR.
Author, year: Monson et al., 2006 **Region:** United States/ Canada	**Number of patients:** 50 **Mean age (*SD*):** 54.0 (6.3) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Primarily Vietnam veterans. **Inclusion criteria:** Diagnosed with PTSD due to a military-related stressor, scoring at least 45 on CAPS. **Exclusion criteria:** Current uncontrolled psychotic or bipolar disorder; substance dependence (those with substance abuse diagnoses were included); prominent current suicidal or homicidal ideation; significant cognitive impairment.	CPT: a manualized, 12-session, specific form of CBT for PTSD. Therapy sessions were conducted on a twice-weekly basis whenever possible. Eligible participants were randomized to receive the treatment immediately or to wait for ten weeks (a period equivalent to the ideal six weeks of twice-weekly sessions and the one-month follow-up period for those in the CPT condition).	**Predictors:** Treatment characteristics: CPT versus a waiting list control. **Control variables:** Age, gender, race, marital status, PTSD disability, period of service, index trauma (combat, sexual, noncombat physical assault), comorbid diagnoses (mood, anxiety, substance abuse), psychiatric medications (number and type). **Analytic method:** Model: Random regression modeling. Other: effect size estimates based on the least squares means.	**Retention:** NR. **Response:** A decrease in CAPS (*DSM-IV-TR* version; APA, 2000). Clusters within CAPS were also examined—symptoms were considered to be present when they had a frequency rating of at least 1 and a severity rating of at least 2 on CAPS. β scores (95% CI), *p*-value: CAPS total, time: –7.44 (–10.44, –4.44), p <.001 CAPS total, condition × time: 6.31 (1.85, 10.78), p <.01 PCL, time: –5.35 (–7.07, –3.64), p <.001 PCL, condition × time: 3.77 (1.25,

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
				6.29), p <.01 Disability status accounted for only 0.1% of the variance in PTSD outcomes in the random regression analyses. **Remission:** A reduction in CAPS (*DSM-IV-TR* version; APA, 2000) to below the diagnostic threshold of 45; 40% of the treatment and 3% of the waitlisted individuals (p <.001).
Author, year: Morland et al., 2014 **Study number:** NCT00879255 **Region:** United States/ Canada	**Number of patients:** Treatment, VTC, 50; Control, in-person, 46. **Mean age (*SD*):** 55.3 (12.5) **Gender:** All male. **Race/ethnicity:** Majority nonwhite. **Population description:** Race/ethnicity: White, 46.4%; Asian, 15.2%; Pacific Islander, 13.6%; other, 16.0%. Married, 59.2% Military service: 66.4% Vietnam War veteran, 38.4% other Current comorbid depression, anxiety, or SUD, 52.0%; lifetime comorbid disorders, 92.0%. Location: Across Hawaii (the big island), Maui, and Oahu. **Inclusion criteria:** Diagnosis of PTSD using CAPS, with a cutoff score of 65. Also used the "1, 2 rule" on CAPS symptoms: for a symptom to meet the diagnostic threshold it should occur at minimum one to two times in the last month with at least moderate intensity. If taking psychotropics, must be on a stable regime for a minimum of 45 days. **Exclusion criteria:** Current psychotic symptoms/disorder, homicidal/suicidal ideation, substance dependence, significant cognitive impairment or history of organic mental disorder; female.	Participants all received manualized group CPT-C protocol: 90-minute sessions, twice weekly, for six weeks. For the treatment condition (VTC), therapists delivered group sessions remotely. The control condition was in person, with therapists traveling to patients.	**Predictors:** Treatment characteristics: CPT-C provided via office-based VTC versus in person. **Control variables:** Baseline CAPS score, potential cluster effects by clinic site and therapist groups. **Analytic method:** Stratified results. Model: mixed effects and noninferiority, Other: effect sizes via Cohen's *d*.	**Retention:** NR. **Response:** Mean CAPS (*SD*) by group—ITT analysis. In-person treatment versus VTC: Baseline: 68.9 (13.0); 72.0 (14.6) End of treatment: 58.8 (21.0); 55.6 (18.8) Three months posttreatment: 57.6 (19.7); 53.7 (19.0) Six months posttreatment: 57.7 (19.8): 56.2 (18.0) There were no significant differences in effect sizes. **Remission:** NR.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Author, year: Mott, 2014 **Region:** United States / Canada	**Number of patients:** 58 **Mean age (*SD*):** 55.53 (13.67) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Veterans with PTSD; 63.8% had a depressive disorder and 20.7% had an SUD. Two-thirds had greater than high school education and two-thirds were married; 42.9% were employed. **Inclusion criteria:** Treatment-seeking veterans who received at least seven EBP sessions (either CBT or PE). Patients had to have an anxiety disorder diagnosis. Having PTSD was *not* required, although the majority of patients enrolled in the analysis (94.5%) had PTSD. **Exclusion criteria:** NR.	EBP: either CBT or PE.	**Predictors:** Patient and treatment characteristics: age, ethnicity, gender, level of education, employment status, marital status, service era, PTSD service connection, religion, income, psychiatric diagnoses, prior group psychotherapy, prior psychiatric inpatient stay, delayed therapy with EBP (greater than six months between intake and initiation), suicide risk, type of EBP received (CPT, PE). **Control variables:** All of the above. **Analytic method:** Model: Logistic regression.	**Retention:** Patients received at least seven EBP sessions (verified via chart review), and provider indicated that they completed the full EBP protocol. OEF/OIF/OND veterans were less likely to complete EBP treatment than others. Patients with prior psychiatric inpatient treatment stay were less likely to complete EBP; patients who had received prior group psychotherapy and delayed EBP treatment were more likely to complete EBP. Older patients and, those with an education beyond high school were more likely to complete EBP treatment. The were no significant differences in EBP completion for ethnicity, gender, employment status, marital status, religion, income, and other psychiatric/ psychological history (suicide risk, comorbid diagnosis). There were no significant differences in EBP completion for EBP type. **Response:** NR. **Remission:** NR.
Author, year: Murphy et al., 2009 **Region:** United States / Canada	**Number of patients:** 75 **Mean age (*SD*):** 56.22 (6.66) **Gender:** NR. **Race/ethnicity:** Majority nonwhite. **Population description:** Participants were primarily from the Army (68.4%), followed by the Navy (11.4%), the Marines (9.6%), the Air Force (8.8%), and the National Guard (1.8%). The sample consisted primarily of Vietnam veterans. Married, 58%; divorced, 28%; separated, 8%; widowed, 1%; never had been married, 5%. 47% had received compensation for	All patients received CBT. The yearlong program consisted of four phases: (1) orientation/education (PTSD education); (2) coping skills (anger management, stress management, and relationship skills and social support); (3) developmental perspective (life span trauma and developmental review); and (4) consolidation (relapse prevention, wellness, and transition). Patients were randomized to receive either	**Predictors:** Treatment characteristics: PME intervention, which was added to CBT. **Control variables:** None. **Analytic method:** Stratified results.	**Retention:** PTSD treatment program dropout: complete cessation from the treatment groups; the number of months participants attended at least one group before dropping out. Mean (*SD*): PME group, 8.82 months (2.55); PTSD education group, 7.35 months (3.62); $p = 0.01$. More members of the PME group than the control group completed 12 months, but this difference was not statistically significant: PME group, 70%; PTSD education group 2, 55.6%. **Response:** NR. **Remission:** NR.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	disability related to PTSD. **Inclusion criteria:** Primary diagnosis of combat-related PTSD, can participate in psychotherapy, and comorbid conditions (e.g., SUD, psychosis) are in remission. **Exclusion criteria:** Severe psychotic conditions (e.g., hallucinations, delusions), impairments in cognitive ability, or other medical conditions that would prevent participation in the study (e.g., completing questionnaires).	PTSD motivation enhancement (PME) or psychoeducation for four weekly sessions.		
Author, year: Murphy et al., 2015; Murphy et al., 2016 **Region:** Europe	**Number of patients:** 401 completed treatment, 352 completed six-month follow-up, 268 completed 12-month follow-up **Mean age (*SD*):** NR **Gender:** Majority male. **Race/ethnicity:** NR/unclear. **Population description:** 98% male; 25% were older than 35, 33% were 35–44 years old, 42% were older than 45. 59% were deployed to one or two conflict zones, 41% were deployed to three or more conflict zones. **Inclusion criteria:** PTSD diagnosis; veteran status; exposure to at least one military trauma. If on psychotropic medication, stable on the medication and on the same treatment/dose throughout intervention. **Exclusion criteria:** Neurological impairment affecting engagement in therapy, actively psychotic, alcohol dependent, or suicidal.	An intensive treatment program including a mixture of individual trauma-focused CBT and group sessions.	**Predictors:** Patient characteristics: health at admission (PHQ-9, PSS-I), GAD-7 score, AUDIT score, Dimensions of Anger Reactions—5 (DAR-5) score, Work and Social Adjustment Scale score. **Control variables:** Age group, sex, education, relationship status, employment status, financial difficulties. **Analytic method:** Stratified results, Model: Nonlinear growth model and univariate linear regression.	**Retention:** At least five weeks of a six-week program and a minimum of 15 individual trauma-focused CBT sessions. At baseline, completers had a PSS-I score of 36.4 (95% CI [35.5, 37.4]), compared with the noncompleters' score of 35.8 (95% CI [32.7, 38.9]; $p = .41$). Completers had n baseline Impact of Events Scale—Revised score of 56.1 (95% CI [54.2, 58.0]), compared with noncompleters' score of 58.5 (95% CI [50.9, 66.0; $p = .69$). **Response:** PSS-I. When adjusting for age and employment status, higher PHQ-9 scores at six months posttreatment was associated with higher PTSD scores at 12 months ($\beta = 0.79$, $p \leq 0.05$); higher GAD-7 scores at six months posttreatment was associated with higher PTSD scores at 12 months ($\beta = 0.93$, $p \leq 0.05$); higher DAR-5 scores at six months posttreatment was associated with higher PTSD scores at 12 months ($\beta = 0.55$, $p \leq 0.05$); higher AUDIT scores at six months posttreatment was associated with higher PTSD scores at 12 months ($\beta = 0.26$, $p \leq 0.05$); higher Work and Social Adjustment Scale scores at six

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
				months posttreatment was associated with higher PTSD scores at 12 months (β = 0.61, $p \leq 0.05$). **Remission:** NR.
Author, year: Price et al., 2015 **Region:** United States / Canada	**Number of patients:** 116 **Mean age (*SD*):** 34.74 (8.35) **Gender:** Majority male. **Race/ethnicity:** Majority nonwhite. **Population description:** Ages, 23–55. Male, 94.8%. Race/ethnicity: White, 43.1%; black, 47.4%; Hispanic, 6.0%; Asian, .9%; other = 2.6%. Half (50.0%) employed full-time. Active or pending PTSD compensation claim with the VA, 55.5%. **Inclusion criteria:** Met *DSM-IV* criteria (APA, 1994) for PTSD diagnosis, military trauma. **Exclusion criteria:** Lifetime psychosis, bipolar disorder, currently suicidal, current alcohol/drug dependence, pregnant, taking medications that could confound outcomes.	All patients received six-session VRE treatments. Sessions lasted 90 minutes and were conducted by doctoral-level clinicians. Patients were also randomized to receive either placebo, D-cycloserine (50 mg) or alprazolam (25 mg) 30 minutes before each session.	**Predictors:** Patient and treatment characteristics: outcome expectancy (increased expectations for successful treatment). **Control variables:** Random effects were included to control for interparticipant variability at the posttreatment stage, change during treatment, and change during follow-up. **Analytic method:** Model: Two-level piecewise model.	**Retention:** NR. **Response:** Clinician-rated CAPS scores, *DSM-IV* version (APA, 1994). Self-rated PTSD Symptom Scale Outcome expectancy was associated with posttreatment scores on CAPS: (β03 = −1.18, p = .035) and PSS: (β03 = −.85, p = .002). **Remission:** NR.
Author, year: Reger et al., 2016 **Region:** United States / Canada	**Number of patients:** 108 **Mean age (*SD*):** Standard PE: 30.89 (7.09); virtual prolonged exposure (VPE): 29.52 (6.47) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Married: PE, 72.22%; VRE, 62.96% Education: High school: PE, 29.63%; VRE, 37.04%. Some college (no degree): PE, 46.30%; VRE, 50.00%. Two-year degree/ technical certificate: PE, 11.11%; VRE, 9.26%. Four-year degree or higher: PE, 12.96%; VRE, 3.7%. Prior treatment for PTSD: PE, 31.48%; VRE, 27.78%.	Ten 90- to 120-minute treatment sessions were delivered for both active treatments at a frequency of once or twice a week; standard PE versus VPE. VPE followed the PE treatment protocol with two exceptions: the therapist placed the patient in a relevant virtual reality environment, and patients confronted their memories with their eyes open.	**Predictors:** Treatment characteristics: Standard PE versus VRE. **Control variables:** None. **Analytic method:** Model: Kaplan-Meier curve, intention-to-treat linear mixed effects regression models.	**Retention:** Proportion and rate of dropout during the treatment phase. 44.44% of participants in the VRE dropped out compared with 40.74% in PE (d = 0.04, 95% CI [–0.22, 0.15], p = 0.651). Both the PE and VRE groups had substantial attrition over the course of treatment, with most occurring by midtreatment. The Poisson regression coefficient comparing PE to VRE was 0.05 (p = 0.567). **Response:** Change in PTSD symptoms at end of treatment, and at three- and six-month follow-up, using CAPS and secondarily the PCL-C CAPS (week) scores for VRE and PE were 57.07

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	Inclusion criteria: Active-duty soldiers with a deployment-related trauma that occurred in Iraq or Afghanistan that met *DSM–IV-TR* (APA, 2000) criteria for PTSD based on CAPS; index trauma must be a nonsexual assault trauma, and the trauma must have occurred at least three months before the baseline assessment. **Exclusion criteria:** A change in the type or strength of psychotropic medications in the last 30 days; history of organic mental disorder, schizophrenia, other psychotic disorder, or bipolar disorder; hospitalization in the past six months for suicidal risk or self-harm; ongoing threatening situation (e.g., domestic violence); current drug or alcohol dependence; a history of seizures; prior PE treatment; other ongoing psychotherapy for PTSD; a physical condition interfering with the ability to use a virtual reality head-mounted display or virtual reality peripherals, such as a gaming joystick; or history of a loss of consciousness for a duration of greater than 15 minutes since entering active-duty military service.			(*SD* = 32.32) and 44.28 (*SD* = 33.73) at end of treatment; 56.64 (*SD* = 31.50) and 36.63 (*SD* = 31.80) at 12-week follow-up; and 53.50 (*SD* = 28.07) and 38.33 (*SD* = 28.49) at 26-week follow-up. CAPS (month) scores for VRE and PE were 62.71 (*SD* = 30.51) and 41.74 (*SD* = 32.52) at 12-week follow-up; 59.61 (*SD* = 27.51) and 44.92 (*SD* = 29.34) at 26-week follow-up. PCL-C scores for VRE and PE were 45.57 (*SD* = 15.88) and 40.63 (*SD* = 18.57) at end of treatment; 46.96 (*SD* = 15.95) and 38.41 (*SD* = 17.98) at 12-week follow-up; and 42.88 (*SD* = 15.96) and 40.83 (*SD* = 18.56) at 26-week follow-up. CAPS week scores were higher (worse) for those in VRE compared with PE at posttreatment, but the difference was not significant. Examination of CAPS week and month assessments at the 12- and 26-week follow-ups indicated inferiority of VRE relative to PE in the reduction of PTSD symptoms. There were no significant differences between the two treatment groups on the PCL-C. **Remission:** NR.
Author, year: Resick et al., 2017 **Study numbers:** NCT02173561, NCT01286415 **Region:** United States/ Canada	**Number of patients:** 268 **Mean age (*SD*):** 33.2 (7.4) **Gender:** Majority male. **Race/ethnicity:** Majority nonwhite. **Population description:** Time in service: 10.9 years; number of deployments: 2.3. Baseline symptom severity: PSS-I: 24.3; PCL-S: 55.1; BDI-II 29.4. Suicidal ideation 17.5% (Beck Scale for Suicide Ideation). Education: High school or less, 25.7%; some college, 55.6%; associate's degree, 10.8%; college or graduate degree, 7.8%. Married or cohabiting, 67.9%.	A 12-session, trauma-focused CPT-C treatment.	**Predictors:** Treatment characteristics: group versus individual CPT. **Control variables:** Time. **Analytic method:** Model: General linear mixed regression models; generalized linear proportions model for binary data.	**Retention:** NR. **Response:** PTSD severity, measured by the PCL-S and PSS-I, at end of treatment and six-month follow-up. On the PSS-I (condition × time interaction), individual patients improved about twice as much as group patients at two weeks posttreatment (p = 0.02). Individual CPT participants improved more and did so more rapidly (condition × time interaction, p = .005). No significant intragroup differences in PTSD severity measured by PCL-S or PSS-I were observed at six-month follow-up.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	Index event of worst trauma: combat related, 91.0%; death (noncombat), 3.7%; sexual assault, 2.2%; physical assault, 1.9%; accident, 1.1%. Hazardous drinker (AUDIT, interview version), 16.8%; current postconcussive symptoms, 64.6%; current psychotropic medications, 57.1%; concurrent other therapy: 60.4%. **Inclusion criteria:** PTSD diagnosis after military deployment; a Criterion A traumatic event as defined by the *DSM-IV-TR* (APA, 2000) that occurred during military deployment; stable medication therapy. **Exclusion criteria:** Current suicidal or homicidal risk meriting crisis intervention; active psychosis or mania; severe TBI; or concurrent PTSD treatment.			**Remission:** PTSD diagnosis, measured by the PSS-I, at end of treatment and six-month follow-up. The estimated proportions no longer meeting PSS-I diagnostic criteria for PTSD after treatment did not differ significantly between treatment conditions in individual CPT (49%, *SE* = 5%) and in group CPT (37%, *SE* = 5%).
Author, year: Richardson et al., 2014 **Region:** United States / Canada	**Number of patients:** 117 **Mean age (*SD*):** 40.18 (8.10) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Married, 71.8%; working or attending school, 48.8%; unemployed, 41.9%; completed secondary education, 41.9%; some postsecondary education, 14.5%; finished postsecondary education, 12.8%. **Inclusion criteria:** Veterans who met *DSM-IV* (APA, 1994) criteria for PTSD. **Exclusion criteria:** Individuals referred for psychiatric follow-up only.	Patients received treatment over a period of two years that was tailored to their unique needs, including medications (e.g., SSRIs or SNRIs) and psychotherapy. Patients received psychiatric care—comprising the managing of symptoms and functional impairment and treating comorbid conditions—every two to four weeks until they achieved stabilization. Patients then received psychiatric care every one to three months. Additionally, patients were offered weekly or biweekly individual psychotherapy.	**Predictors:** Patient and treatment characteristics: depressive symptom severity, measured by the BDI-II; chronicity of symptoms, measured by years with PTSD symptoms; and alcohol use, measured by AUDIT. **Control variables:** Baseline PTSD symptom severity score, measured by the PCL-M. **Analytic method:** Correlation.	**Retention:** NR. **Response:** Changes in PTSD symptom severity, measured by the PCL-M. Depressive symptom severity was significantly, positively associated with PTSD severity (note: this relationship was analyzed in both directions, and both were significant). Alcohol use (chronicity and harmful use) was not associated with PTSD treatment trajectory. PTSD symptom severity at baseline was not significantly associated with greater symptom reduction. **Remission:** NR.
Author, year: Rosen, 2013	**Number of patients:** Intervention: 335; Control: NR	Intervention group: standard outpatient aftercare with three months of biweekly	**Predictors:** Treatment characteristics: TAU plus telephone monitoring and support	**Retention:** NR. **Response:** Reduction in score as

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Region: United States / Canada	**Mean age (*SD*):** Telephone: 50.2 (0.62), TAU: 49.9 (0.86) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Veterans with PTSD. OEF/OIF veterans, 27%. Married, 43% Suffering from depression, 81%; diagnosed with SUD, over 50%; service-connected disability, over two-thirds. **Inclusion criteria:** Recruited within two weeks of release from "consecutive admissions to five VA residential PTSD treatment programs." **Exclusion criteria:** If cognitive impairment precluded giving informed consent, discharged from treatment after fewer than 15 days, transferred directly to another inpatient treatment program. Active-duty military personnel.	telephone monitoring and support. Control group: TAU (standard outpatient aftercare only).	versus TAU alone. **Control variables:** Baseline scores, site, and days from discharge to follow-up. **Analytic method:** Model: Cox regression model.	measured by the PCL. There was no difference between intervention and usual care at four or 12 months. Effect size: (Cohen's *d*) = .04 **Remission:** NR.
Author, year: Rosen et al, 2017 **Region:** United States / Canada	**Number of patients:** 213 **Mean age (*SD*):** Telephone care: 47.7, 1.1; Usual Care: 48.4, 1.1 **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** 54% married, 3% re-married, 21% divorced, 6% separated, 1% widowed, and 15% never married. 55% had depression, 30% anxiety, 19% SUD, 5% bipolar disorder. **Inclusion criteria:** Newly entering veterans for outpatient PTSD treatment or veterans starting a new phase of treatment (e.g., transitioning from psychoeducation to psychotherapy). **Exclusion criteria:** Participants who were continuing patients, dropped out of	All participants were able to take on a variety of available treatment plans, including group psychoeducation, psychotherapy, case management, or psychiatric management. Participants were randomly assigned to usual care (the control) or telephone care management (TCM).	**Predictors:** Treatment characteristics: usual care with or without TCM. **Control variables:** None. **Analytic method:** Stratified results.	**Retention:** NR. **Response:** *DSM-IV* version of the PCL. At 12 months, compared with four months, stratified results showed that TCM was associated with improved clinical outcomes (reduction in PCL scores), but the effect size was nearly the same as that for usual care. Regression results showed that changes in PTSD symptom severity between TCM and usual care were not statistically significant. At four months: TCM: mean = 60.89, *SD* = 14.18 Usual care: mean = 62.33, *SD* = 13.66 At 12 months: TCM: mean = 59.27, *SD* = 15.59

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	treatment before completing enrollment, starting residential or inpatient treatment, active duty, or too cognitively impaired to provide consent.			Usual care: mean = 61.98, *SD* = 14.85 **Remission:** NR.
Author, year: Rosenheck and Fontana, 1996; Rosenheck, Fontana, and Cottrol, 1995; Rosenheck, Stolar, and Fontana, 2000 **Region:** United States/ Canada	**Number of patients:** 4,726 **Mean age (*SD*):** Black: 43.83 (4.76); white: 46.29 (8.44) **Gender:** All male. **Race/ethnicity:** Majority white. **Population description:** Veterans seen at 53 sites representing every region of the United States. **Inclusion criteria:** Analysis on race included only non-Hispanic male veterans treated in the VA PTSD Clinical Teams program. **Exclusion criteria:** None; consecutive patients.	The PTSD Clinical Teams program, administered by clinicians at the VA. Also a smaller secondary analysis on compensation work therapy.	**Predictors:** Patient characteristics: race (black versus white). Authors also conducted analysis on employment (*N* = 78; compensation work therapy patients with analytic sample of 542, including matched controls). **Control variables:** Baseline characteristics (age, marital status, combat exposure, PTSD, psychiatric problems, substance abuse, income, service-connected status); clinician characteristics (gender, professional background); veteran status (Vietnam versus other); treatment site. Secondary analysis using hierarchical model adjusted for baseline scores. **Analytic method:** Model: MANCOVA, regression analysis, hierarchical model.	**Retention:** NR. **Response:** PTSD Clinical Interview for *DSM-III-R* (APA, 1987) criteria, clinical improvement since initiation of program-rated on 0–4 scales by clinician at two, four, eight, and 12 months. Secondary analysis defined response based on the Mississippi Scale and the Northeast Program Evaluation Center PTSD scale. After controlling for veteran and clinician characteristics, there was no significant difference in clinical improvement in PTSD symptoms by race (3.4 in blacks versus 3.5 in whites). Random regression analyses with longer time follow-up showed that significant interactions between race and change were not observed for scores on the Mississippi Scale considering change from baseline to four months (0.1 for blacks versus 2.0 for whites) and from four months to 12 months (1.5 for blacks versus 1.0 for whites). Hierarchical modeling using a smaller sample (*n* = 78 on compensation work therapy and 542 matched controls) found that the therapy is associated with a lower score on the Mississippi Scale (β = –.7, *p* = .58), and on the Northeast Program Evaluation Center scale (β = –.7, *p* = .12) at follow-up. **Remission:** NR.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Author, year: Schnurr et al., 2003 **Region:** United States / Canada	**Number of patients:** 253 **Mean age (*SD*):** 50.7 (3.7) **Gender:** All male. **Race/ethnicity:** Majority white. **Population description:** Middle-aged men with education levels higher than high school. More than half were unemployed, and married (although not necessarily simultaneously). At entry, over two-thirds of participants had a comorbid disorder (usually a substance use, mood, or anxiety disorder). **Inclusion criteria:** Male Vietnam veterans with combat-related PTSD (as measured by CAPS) enrolled through outpatient programs at ten VA medical centers. Individuals taking psychoactive medications had to have had a stable regimen for at least two months prior. **Exclusion criteria:** Either current or lifetime *DSM-IV* (APA, 1994) psychotic disorder, mania, or bipolar disorder; current major depression with psychotic features; current alcohol or other drug dependence; unwillingness to refrain from substance abuse at treatment or work; significant cognitive impairment. Severe cardiovascular disorder. Individuals unwilling to terminate other psychotherapeutic treatment for PTSD (except for 12-step programs).	Trauma-focused group therapy versus group PCT; each provided weekly to groups of six members for 30 weeks, followed by five monthly booster sessions for both groups.	**Predictors:** Treatment characteristics: trauma-focused group therapy versus group PCT. **Control variables:** A 12-item version of the GHQ-28; family, legal, drug, and alcohol composite scores from the Addiction Severity Index; mental and physical component scores of the 36-Item Short-Form Health Survey; Quality of Life Inventory; and questions. **Analytic method:** Other: ANOVA.	**Retention:** NR. **Response:** Reduction, as measured by CAPS and the PCL. Analysis of CAPS severity scores at seven, 12, 18, and 24 months showed significant main effects of site ($F_{9,26.7}$ = 3.16; p = .01) and cohort ($F_{2,25.6}$ = 5.07; p = .01), but not for treatment group ($F_{1,25.7}$ = 1.15; p = .29). **Remission:** NR.
Author, year: Rosen, 2013; Schnurr, 2016 **Study number:** NCT00032617 **Region:**	**Number of patients:** 201 **Mean age (*SD*):** PE (treatment group): 44.64 (9.52); PCT (control group): 44.93 (9.39) **Gender:** All female. **Race/ethnicity:** Majority white. **Population description:** 277 veterans and seven Army soldiers.	Either PCT or PE. PE focused on each patient's trauma, whereas PCT focused on current life problems as manifestations of PTSD.	**Predictors:** Patient characteristics: age, education, race, employment, disability / service connection, psychiatric comorbidity, PTSD severity, social functioning, physical health. **Control variables:** NR.	**Retention:** NR. **Response and Remission:** Response = reduction of ten or more points on CAPS. Loss of diagnosis = response plus no longer meeting CAPS "1, 2 rule" symptom criteria and having a severity score <45. Remission = loss of diagnosis plus a severity score <20.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
United States/ Canada	Index trauma: sexual trauma, 68%; physical assault, 14%; combat exposure, 6%. Some education after high school, 89%; not married, 68%; employed, 62%. **Inclusion criteria:** Having PTSD symptoms according to the *DSM-IV* (APA, 1994) according to the "1, 2 rule" on CAPS (frequency greater than weekly and intensity greater than moderate); minimum severity ≥45 on CAPS; having at least three months passing since experiencing trauma; having a clear memory of the trauma that caused PTSD; agreeing not to receive psychotherapy for PTSD during the study. For participants taking psychoactive medication, having a stable regimen for the last two months. **Exclusion criteria:** Having current psychotic symptoms, mania, bipolar disorder, SUD, prominent suicidal or homicidal ideation, involvement in a violent relationship, self-harm within the last six months, or cognitive impairment.		**Analytic method:** PCT and PE groups combined. Comparison of patients with no response, response, loss of diagnosis, and remission.	There were no differences on demographics. The remission group had lowest the mean baseline CAPS score and the lowest percentage with current psychiatric comorbidity. Those who did not respond had worse physical health and social functioning.
Author, year: Spoont et al., 2009 **Region:** United States / Canada	**Number of patients:** 20,284 **Mean age (*SD*):** NR **Gender:** NR. **Race/ethnicity:** NR/unclear. **Population description:** Race: Asian American, <1%; African American, 15%; Hawaiian/Pacific Islander, <1%; Native American, <1%; multiracial, <1%; white, 44%; unknown, 38%. Ethnicity: Hispanic, 5%; non-Hispanic, 56%; unknown, 39%. **Inclusion criteria:** Veterans diagnosed with PTSD at any VA facility between April 1, 2004, and March 31, 2005. **Exclusion criteria:** Veterans with dementia, amnestic or cognitive disorders, or other cerebral pathologies or who, in the year before the PTSD diagnosis, had any mental	Consecutive PTSD patients at VA facilities; 50% received psychotropics, 39% received counseling, and 64% received at least one of these. About half of those who were prescribed medication (54%) received at least four one-month supplies. Many veterans with any counseling had one session (29%; *M* = 5.7, *SD* = 7.3; *Mdn* = 3). Only 33% of the entire sample received a minimal treatment trial.	**Predictors:** Patient characteristics: race/ethnicity. **Control variables:** Gender, age, and marital status; period of service (pre-Vietnam, Vietnam, post-Vietnam) and prisoner of war (POW) status (POW, non-POW, unknown POW status); Charlson Comorbidity Index; and percentage of service connection (no service connection, service connection 20% or more). **Analytic method:** Model: Logistic or negative binomial regression with generalized estimating equations.	**Retention:** Of veterans (1) receiving any psychotropics, the proportion receiving at least four 1-month supplies; (2) receiving any antidepressants, the proportion who received at least four one-month supplies, and (3) receiving any counseling, at least eight counseling sessions: African American: *OR* = 1.33 (p <0.01); multiracial: *OR* = 2.30 (p <0.05). At least four one-month supplies of psychiatric medications: African American, *OR* = 0.62 (p <0.01); Hawaiian/Pacific Islander, *OR* = 0.61 (p <0.01); multiracial, *OR* = 2.11 (p <0.05). At least four one-month supplies of antidepressants: African American, *OR* = 0.72 (p <0.01); multiracial, *OR* = 2.09

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	health–related visits except for substance abuse.			(p <0.05). Adjusted for Hispanic ethnicity, significant differences for the multiracial group (n = 56) were diminished (at least four months of antidepressants, OR = 0.5, 95% CI [0.31, 0.8]), those for Asian Americans increased (at least four months of psychiatric medications, OR = 0.53, 95% CI [0.32, 0.89]). Hispanic ethnicity remained noncontributory. At least four one-month supplies of psychiatric medications: Hispanic aOR = 0.82 (p <0.05). **Response:** NR. **Remission:** NR.
Author, year: Spoont et al., 2015 **Region:** United States / Canada	**Number of patients:** 6,778 **Mean age (*SD*):** NR **Gender:** Mixed **Race/ethnicity:** Majority nonwhite. **Population description:** To maximize representativeness, the authors sampled all women, all Latino men, and all men of any non–African American minority race. Whites, African Americans, and men of unknown race were randomly sampled with rates of 0.1, 0.19, and 0.51, respectively. **Inclusion criteria:** Veterans diagnosed with PTSD during an outpatient visit at any VA facility from June 2008 to July 2009, at "the beginning of a possible episode of mental health care." **Exclusion criteria:** Severe psychiatric comorbidities: moderate to severe cognitive disorders, schizophrenia, schizoaffective, or schizophreniform disorders. No mailing address. Veterans already receiving treatment (antidepressants, antipsychotics), with any prior diagnoses (except chemical	All groups had the potential to receive one or both of the following: guideline-recommended medications (SSRIs and SNRIs) and/or psychotherapy sessions.	**Predictors:** Patient characteristics: race, age, gender, income, disability status; anticipated access barriers (distance from facility, cost, reliability of transportation, lack of knowledge about how to obtain treatment, appointment times); OEF/OIF status (considered an access facilitator); beliefs about psychotherapy, antidepressants, and medications more generally, based on the 11-item abridged version of the Beliefs About Medicines Questionnaire, the Beliefs About Psychotherapy Scale, and the Patient Attitudes Toward and Ratings of Care for Depression scale; perceived need for care, based on one question from the Mental Health Quality of Life Questionnaire. Need for care: PTSD symptom severity was assessed by the PCL-M (α = .94), and the Mental Health Quality of Life Questionnaire was assessed by the SF-12. **Control variables:** All variables	**Retention:** Completion of either minimum therapy and/or minimum medication usage: Minimum trial of psychotherapy: at least eight therapy sessions (individual or group, all appointment lengths included). Minimum trial of pharmacotherapy: at least 120 days of antidepressants In the 180-day post-PTSD diagnosis sampling period. 18% received at least four months of SSRI/SNRIs, 8% had at least eight psychotherapy sessions and n = 1,626 (24%) were retained in at least one of these treatments. Compared to white veterans, African American veterans had reduced odds of being retained in treatment of any kind (OR = 0.76, 95% CI [0.63, 0.90]; p <.001). This reduced treatment retention rate was mainly due to lower rates of retention in pharmacotherapy (OR = 0.68, 95% CI [0.56, 0.83]; p <.001); retention in psychotherapy did not significantly differ between groups. Compared to white veterans, Latino

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	dependency), or a mental health appointment in the last year.		listed above. **Analytic method:** Stratified results. Model: linear regression model. *Note:* Adjusted for nonresponse bias using propensity models.	veterans were less likely to be retained in pharmacotherapy (*OR* = 0.76, 95% CI [0.62, 0.94]; *p* <.01). Anticipated access barriers adversely affected the odds of retention in psychotherapy, but not pharmacotherapy (psychotherapy: *OR* = 0.55, 95% CI [0.50, 0.80]; *p* <.001; pharmacotherapy: *OR* = 0.92, 95% CI [0.78, 1.10]; *p* >.05), and contributed to reduced retention in either modality (*OR* = 0.79, 95% CI [0.67, 0.92]; *p* <.01). Controlling for access factors did not significantly affect the odds of pharmacotherapy retention for African American and Latino veterans. Controlling for treatment belief variables decreased the magnitude of the reduced odds of pharmacotherapy retention for Latinos, no longer significant (Latino: *OR* = 0.85, 95% CI [0.68, 1.05]; *p* >.050), but only barely for African American veterans (*OR* = 0.76, 95% CI [0.62, 0.95]; *p* <.01). **Response:** NR. **Remission:** NR.
Author, year: Sripada et al., 2013 **Region:** United States / Canada	**Number of patients:** 51 **Mean age (*SD*):** 49.3 (NR) **Gender:** NR. **Race/ethnicity:** Majority white. **Population description:** Veterans who began PE treatment between October 24, 2005, and June 7, 2011 and completed the PCL in accordance with the therapy protocol. **Inclusion criteria:** Patients diagnosed with PTSD, treated with PE. **Exclusion criteria:** None.	PE with four components: (1) psychoeducation regarding common reactions to trauma, rationale for treatment and self-assessment; (2) repeated in vivo exposure to situation avoided due to trauma-related distress; (3) repeated, prolonged imaginal exposure to traumatic memories; and (4) emotional processing of the exposures. PE was usually delivered in eight to 15 weekly, 90-minute sessions.	**Predictors:** Patient characteristics: mTBI. **Control variables:** Number of weeks in treatment. **Analytic method:** Model: Hierarchical linear model.	**Retention:** NR. **Response:** PCL-S. Number of weeks in treatment predicted PCL outcomes (*p* <0.001). TBI status did not significantly predict PCL scores (*t*(49) = −0.94, *p* = .35) or the slope of scores over time (*t*(49) = −0.39, *p* = .70). **Remission:** NR.
Author, year: Gallegos et al., 2015;	**Number of patients:** 284 **Mean age (*SD*):** 29.25 (NR).	Treatment group: access to usual services, plus one intervention session: within	**Predictors:** Treatment characteristics: whether or not the patient was provided a single	**Retention:** NR. **Response:** Reduction in PTSD (PCL)

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Stecker et al., 2014; Stecker et al., 2016 **Region:** United States / Canada	**Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** NR. **Inclusion criteria:** Service members who screened positive for PTSD (with the Mini-International Neuropsychiatric Interview) after deployment in Iraq and/or Afghanistan who had not initiated PTSD treatment. **Exclusion criteria:** NR.	a week of the baseline assessment, the session was administered by telephone and lasted approximately 45–60 minutes. The sessions were based on CBT. Control group: access to usual services.	telephonic intervention session. **Control variables:** Gender, race, and age; health insurance; travel time to doctor; beliefs about PTSD treatment (Perceptions About Services Scale); baseline PTSD symptoms (PCL-M); depression (Physicians Health Questionnaire). **Analytic method:** Model: Piecewise regression and logistic regression models. Other: ACOVA.	at six months. The intervention group decreased mean PCL from 59.2 to 49.8 at six months. The control group mean PCL of 59.7 decreased to 48.9 at six months. Regression coefficient = 4.69, p = .004. PCL change scores (baseline to six months) were 12.75 (SD = 20.7) in black participants and 9.68 (SD 13.7) in white participants assigned to the intervention condition; 10.47 (SD = 13.9) in black participants and 11.21 (SD = 15.1) in white participants assigned to the control condition. Significant group by gender effects were found over time for PTSD (p = 0.0083). **Remission:** NR.
Author, year: Steindl et al., 2003 **Region:** Australia/ New Zealand	**Number of patients:** 608 **Mean age (*SD*):** 51.4 (4.5) **Gender:** All male. **Race/ethnicity:** NR/unclear. **Population description:** Australian Defense Forces: Army (88%), Navy (8%), or Air Force (4%). The Army subgroup comprised national service soldiers (conscripts, 44%) and regular soldiers (56%). The mean length of service was 7.8 years (SD = 8.2 years). 30% required inpatient detox prior to PTSD treatment. **Inclusion criteria:** PTSD patients in the Australian Center for Posttraumatic Mental Health. **Exclusion criteria:** Women; clients having incomplete data.	Group CBT that was cohort based, usually comprising six to eight participants. Participants also received weekly individual therapy. Treatment targeting alcohol misuse included education regarding safe levels of drinking, motivational enhancement, goal setting, social skills training, and relapse prevention.	**Predictors:** Patient characteristics: patient drinking status (low risk versus hazardous based on cutoff of 8 on AUDIT). **Control variables:** Time. **Analytic method:** Model: MANOVA.	**Retention:** NR. **Response:** PCL. CAPS drinking status at intake was not significantly associated with PTSD symptoms at intake ($F_{(4,603)}$ <1) or PTSD symptoms at nine-month follow-up (F(4,603) = 1.23, p >.05). However, drinking status at follow-up was significantly associated with PTSD symptoms at nine-month follow-up ($F_{(4,603)}$ = 4.86, p <.01). **Remission:** NR.
Author, year: Szafranski et al., 2014 **Region:**	**Number of patients:** 213 **Mean age (*SD*):** 29.7 (5.2) **Gender:** All male. **Race/ethnicity:** Majority white.	Participants received evidence-based treatment at the inpatient setting: ROVER, a 25-day program providing patients combined	**Predictors:** Patient characteristics: service connection total; service connection for mental health; distance from the VA facility;	**Retention:** Length of stay in days. The following variables were significant predictors of shorter length of stay: • less improvement (rate of

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
United States / Canada	**Population description:** 62% unemployed, 52% single, 67% Army, 83% did not graduate college, 83% were service connected/disabled; over half of service-connected participants (57%) were so connected for mental health reasons. The substances used among participants included cannabis (40%), benzodiazepines (29%), opioids (12%), methadone (3%), ethanol (1.5%), barbiturates (1.5%), amphetamine (1.5%), and cocaine (1.5%). **Inclusion criteria:** Veterans who provided informed consent to participate in research. Other inclusion criteria were not provided, although all participants in this study were male veterans who served in OEF/OIF/OND, and all participants were screened for illicit drug and alcohol use upon enrollment. **Exclusion criteria:** NR.	group and individual CPT as well as psychoeducation.	military rank; number of deployments; overall functioning (Global Assessment of Functioning Change score); rate of improvement during treatment; DSM Axis I and II diagnoses (e.g., mood disorders, substance use); substance use (urinary drug screen); depression (BDI-II), PTSD symptom severity (PCL-M); suicidal ideation (Beck Scale for Suicide Ideation); demographic variables (age, race, education level); total comorbid diagnoses. **Control variables:** All of the above. **Analytic method:** Model: Linear regression analysis.	improvement during treatment) • less improvement in overall functioning (from baseline admission to discharge) • higher concurrent substance use. **Response:** NR. **Remission:** NR.
Author, year: Tiet et al., 2015 **Region:** United States /Canada	**Number of patients:** 574 **Mean age (*SD*):** 50.07 (12.45) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Patients entering treatment at one of seven VA PTSD specialty intensive treatment programs at five sites across the United States: three domiciliary, one residential rehabilitation, one day-hospital treatment, and two women's treatment rehabilitation programs. Male (*n* = 726) and female (*n* = 111); white (*n* = 519). **Inclusion criteria:** Patients in VA PTSD specialty treatment programs. **Exclusion criteria:** Treated for less than 15 days; cognitive impairment; active-duty military. Discharged to other inpatient/ residential program.	All patients received individual CPT, group CPT, PE therapy, and EMDR.	**Predictors:** Patient and treatment characteristics: gender, MSA status, demographic variables (age, race, marital status), baseline PTSD severity, hostile fire, treatment length of stay, length of stay in intensive treatment. **Control variables:** All of the above. **Analytic method:** Model: Multilevel multivariate regression.	**Retention:** NR. **Response:** PTSD symptoms in the past 30 days (17-item PCL-C), depressive symptoms (PCL-C), gender (coefficient = 2.58, *t* = 1.39), and MSA (coefficient = 3.66, *t* = 1.98) did not predict any outcomes at follow-up. Non-Hispanic white individuals had worse PTSD symptoms at follow-up assessment. Post hoc mediation analyses showed MSA predicted outcomes through length of stay as a mediator (p <.001). MSA predicted longer length of stay, which in turn predicted lower PTSD (p <.001). MSA and the outcomes did not have significant association when mediation effect was parceled out. **Remission:** NR.
Author, year:	**Number of patients:** 43	PE involving weekly 90-	**Predictors:** Patient	**Retention:** Treatment completion.

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
Tuerk et al., 2011 **Region:** United States / Canada	**Mean age (*SD*):** 31.77 (8.19) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Army, 66%; Marines 22%; National Guard, 8%; Navy, 3%; Air Force, 2%. The majority of participants had a service-connected disability rating for PTSD or were applying for disability compensation while in treatment. **Inclusion criteria:** Veterans with PTSD who received treatment for PTSD via PE therapy, whose treatment was recorded in an archive in an urban VA medical center, and for whom pre- and posttreatment data were collected. **Exclusion criteria:** None.	minute sessions composed of psychoeducation, self-assessment for anxiety, repeated exposure to situations the patient avoids (due to trauma), and imaginary exposure to traumatic memories.	characteristics: age, gender, race/ethnicity, disability rating, baseline PCL-M and BDI-II severity scores. **Control variables:** Time in treatment. **Analytic method:** Model: Hierarchical linear model.	"Patient characteristics, i.e., age, gender, race/ethnicity, disability rating, and baseline PCL-M and BDI-II severity scores were not predictors of treatment completion"; statistical analysis is not described. **Response:** PTSD severity was measured via the PCL-M. Age, gender, race, and service-connected disability were not significant predictors PTSD severity posttreatment. **Remission:** NR.
Author, year: Walter et al., 2014 **Region:** United States/ Canada	**Number of patients:** 992 **Mean age (*SD*):** Outpatient: 43.48 (14.59); residential treatment: 47.87 (10.96) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Veterans admitted to either the outpatient or residential PTSD programs at a Midwestern VA medical center between 2007 and 2011. Outpatient: 81.8% white, 15.2% African American, 53.1% married, 43.0% employed. Residential: 63.4% white, 34.3% African American, 28.1% married, 12.6% employed. **Inclusion criteria:** People with PTSD based on the *DSM-IV-TR* (APA, 2000) and CAPS who attended between one and 15 sessions of CPT at the VA	Outpatient treatment: 15 or fewer individual 60-minute CPT sessions (mean = 8.29 sessions). Residential treatment: combined individual sessions (60-minute cases) and group CPT; group met twice per week for no more than 15 sessions (mean = 11.79 sessions).	**Predictors:** Treatment characteristics: outpatient versus residential CPT. **Control variables:** Age, sex, and ethnicity; education; employment status; marital status; service connection (applying, having and increasing); time, program, and interaction between time and program. **Analytic method:** Model: Hierarchical modeling.	**Retention:** NR. **Response:** CAPS, PCL-S. CAPS trajectory was significantly predicted by age (β = –.10, p <.05), sex (β = 3.34, p <.05), and application for an increased service connection rating (β = –7.15, p <.001). The PCL-S outcome was significantly predicted by ethnicity (β = 2.06, p <.05), age (β = .08, p <.05), education (β = –.34, p <.05), having service connection (β = –2.33, p <.05), and application for an increased service connection rating (β = –5.30, p <.001). Program was a significant predictor of CAPS change (β = –12.89, p <.001, CI [–16.03, –9.75]), with residential patients reporting higher CAPS scores at both pre- and posttreatment. The time by program interaction was significant

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
	medical center. **Exclusion criteria:** Substance abuse/dependence, current psychosis, interfering medical condition, or suicidal/homicidal intent.			(β = 5.12, p <.01, CI [1.90, 8.34]), indicating that outpatients had greater decreases in their CAPS scores compared with residential patients. **Remission:** NR.
Author, year: Wilkinson, Stefanovics, and Rosenheck, 2015 **Region:** United States / Canada	**Number of patients:** 2,276 **Mean age (*SD*):** 51.7 (8.6) **Gender:** Majority male. **Race/ethnicity:** Majority white. **Population description:** Married, 40.7%; separated/divorced, 40.7%; widowed, 40.7%. Mean education level, 12.9 years. History: incarceration, 51.4%; affective disorder, 28.4%; anxiety disorder, 12.2%; personality disorder, 8.2%; bipolar disorder, 4.3%; psychosis (not schizophrenia), 1.9%; schizophrenia, 0.8%; prescribed psychotropic medications in the past 30 days, 86.2%; entered program from waiting list, 63.6%. Mean length of stay, 42.5 days. **Inclusion criteria:** Veterans with a *DSM-III* or *DSM-IV* diagnosis of PTSD from 1992 to 2011 (APA, 1980; APA, 1994). **Exclusion criteria:** Problematic alcohol use (more than two drinks on one occasion); any drug use other than marijuana (cocaine, amphetamines, crack cocaine, heroin, "downers," or hallucinogens) in the 30 days prior to admission; transferred from an inpatient or residential program that would have restricted access to alcohol or drugs.	VA specialized intensive PTSD programs.	**Predictors:** Marijuana use: those who have never used, those who have stopped using, continuing users, and starters. **Control variables:** Marital status, age, race, history of incarceration, waiting list status, psychosis, chronic medical problems, war zone service, length of stay, expulsion from treatment, and baseline measures of violence, PTSD, drug and alcohol abuse, and employment. **Analytic method:** Model: ANCOVA; linear multiple regression analysis.	**Retention:** NR. **Response:** PTSD symptom severity as measured by the short form of the Mississippi Scale at four-month follow-up. Compared with those who had never used it, starting marijuana had an effect size on PTSD symptoms at follow-up of 0.34, and stopping marijuana had an effect size of –0.18, adjusting for covariates. Additional multivariate regression analysis yielded a significant association between change in days of marijuana use and change in PTSD symptoms (p <0.0001). **Remission:** NR.
Author, year: Wolf, 2016 **Region:** United States	**Number of patients:** 284 **Mean age (*SD*):** 44.79 (9.44) **Gender:** All female.	Ten weekly 90-minute sessions of PCT or PE.	**Predictors:** Patient characteristics: baseline severity of PTSD based on the *DSM-IV* (APA, 1994); dissociation,	**Retention:** NR. **Response:** Changes in PTSD severity scores over time, measured using CAPS

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
/ Canada	**Race/ethnicity:** Majority white. **Population description:** 93% had experienced sexual assault. **Inclusion criteria:** NR. **Exclusion criteria:** NR.		measured using four self-report derealization and depersonalization items from the dissociation scale of the Trauma Symptom Inventory. **Categories:** moderate PTSD, high PTSD, high PTSD and dissociation. **Control variables:** Treatment condition. **Analytic method:** Model: Latent growth curve model.	Among patients assigned to PCT, the mean CAPS scores were 51.25 (*SD* = 19.69) for those with moderate PTSD, 64.26 (*SD* = 25.27) for those with high PTSD, and 70.62 (*SD* = 23.53) for those with high PTSD and dissociation at end of treatment; 47.59 (*SD* = 20.61) for moderate PTSD, 62.33 (*SD* = 27.38) for high PTSD, and 65.25 (*SD* = 25.62) for high PTSD and dissociation at three months; and 45.63 (*SD* = 23.01) for moderate PTSD, 61.06 (*SD* = 27.53) for high PTSD, and 65.00 (*SD* = 30.13) for high PTSD and dissociation at six months. Among patients assigned to PE, the mean CAPS scores were 36.72 (*SD* = 25.16) for those with moderate PTSD, 67.93 (*SD* = 27.26) for those with high PTSD, and 66.83 (*SD* = 27.72) for those with high PTSD and dissociation at end of treatment; 37.00 (*SD* = 23.03) for moderate PTSD, 60.90 (*SD* = 27.70) for high PTSD, and 65.69 (*SD* = 26.47) for high PTSD and dissociation at three months; and 36.91 (*SD* = 22.88) for moderate PTSD, 63.57 (*SD* = 28.11) for high PTSD, and 64.40 (*SD* = 29.49) for high PTSD and dissociation at six months. **Remission:** Percentage no longer met *DSM-5*) diagnostic criteria for PTSD at any posttreatment assessment. The percentage no longer meeting criteria for PTSD was 43.88% for those with moderate PTSD (*n* = 98), 18.75% for those with high PTSD (*n* = 64), and 17.81% for those with high PTSD and dissociation (*n* = 73) at end of treatment; 45.92% for those with moderate PTSD (*n* = 98), 24.19% for those with high PTSD (*n* = 62), and 20.83% for those with high PTSD and dissociation (*n* = 72) at three months; and 50.53% for those with moderate PTSD (*n* = 95),

Study Details	Participants	Interventions and Treatment	Predictors and Methods	Outcome Measure (Definition) and Results
				26.15% for those with high PTSD (*n* = 65), and 26.09% for those with high PTSD and dissociation (*n* = 69) at six months. At all assessments, there were significantly higher percentages of subjects in the moderate PTSD group that no longer met the criteria for PTSD compared with those in the high PTSD or high PTSD and dissociation groups; the differences were not significant between the high PTSD and high PTSD and dissociation groups.

References

Acierno, R., R. Knapp, P. Tuerk, A. K. Gilmore, C. Lejuez, K. Ruggiero, W. Muzzy, L. Egede, M. A. Hernandez-Tejada, and E. B. Foa, "A Non-Inferiority Trial of Prolonged Exposure for Posttraumatic Stress Disorder: In Person Versus Home-Based Telehealth," *Behavior Research and Therapy*, Vol. 89, February 2017, pp. 57–65. PMID: 27894058.

Agha, Z., "Veterans Telemedicine Outreach for PTSD Services (VTOPS)," ClinicalTrials.gov, 2008. As of March 29, 2020: https://clinicaltrials.gov/ct2/show/NCT00645047

American Psychiatric Association, *The Diagnostic and Statistical Manual of Mental Disorders*, 3rd ed.: *DSM-III*, Washington, D.C.: American Psychiatric Publishing, 1980.

———, *The Diagnostic and Statistical Manual of Mental Disorders*, 3rd ed., revised: *DSM-III-R*, Washington, D.C.: American Psychiatric Publishing, 1987.

———, *The Diagnostic and Statistical Manual of Mental Disorders*, 4th ed.: *DSM-IV*, Washington, D.C.: American Psychiatric Publishing, 1994.

———, *The Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., text revision: *DSM-IV-TR*, Washington, D.C.: American Psychiatric Publishing, 2000.

———, *The Diagnostic and Statistical Manual of Mental Disorders*, 5th ed.: *DSM-5*, Washington, D.C.: American Psychiatric Publishing, 2013.

APA—*See* American Psychiatric Association.

Badour, C. L., D. M. Blonigen, M. T. Boden, M. T. Feldner, and M. O. Bonn-Miller, "A Longitudinal Test of the Bi-Directional Relations Between Avoidance Coping and PTSD Severity During and After PTSD Treatment," *Behavior Research and Therapy*, Vol. 50, No. 10, 2012, pp. 610–616.

Balshem, H., M. Helfand, H. J. Schunemann, A. D. Oxman, R. Kunz, J. Brozek, G. E. Vist, Y. Falck-Ytter, J. Meerpohl, S. Norris, and G. H. Guyatt, "GRADE Guidelines: 3. Rating the Quality of Evidence," *Journal of Clinical Epidemiology*, Vol. 64, No. 4, April 2011, pp. 401–406. PMID: 21208779.

Banducci, A. N., M. O. Bonn-Miller, C. Timko, and C. S. Rosen, "Associations Between Residential Treatment Length, PTSD, and Outpatient Healthcare Utilization Among Veterans," *Psychological Services*, Vol. 15, No. 4, November 2018, pp. 529–535. PMID: 29265844.

Belsher, B. E., Q. Q. Tiet, D. W. Garvert, and C. S. Rosen, "Compensation and Treatment: Disability Benefits and Outcomes of U.S. Veterans Receiving Residential PTSD Treatment," *Journal of Traumatic Stress*, Vol. 25, No. 5, 2012, pp. 494–502.

Boden, M. T., M. O. Bonn-Miller, A. A. Vujanovic, and K. D. Drescher, "A Prospective Investigation of Changes in Avoidant and Active Coping and Posttraumatic Stress Disorder Symptoms Among Military Veteran," *Journal of Psychopathology and Behavioral Assessment*, Vol. 34, No. 4, 2012, pp. 433–439.

Boden, M. Tyler, S. Westermann, K. McRae, J. Kuo, J. Alvarez, M. R. Kulkarni, J. J. Gross, and M. O. Bonn-Miller, "Emotion Regulation and Posttraumatic Stress Disorder: A Prospective Investigation," *Journal of Social and Clinical Psychology*, Vol. 32, No. 3, 2013, pp. 296–314.

Bonn-Miller, M. O., M. T. Boden, A. A. Vujanovic, and K. D. Drescher, "Prospective Investigation of the Impact of Cannabis use Disorders on Posttraumatic Stress Disorder Symptoms Among Veterans in Residential Treatment," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 5, No. 2, 2013, pp. 193–200. PMID: 964169807.

Brady, F., E. Warnock-Parkes, C. Barker, and A. Ehlers, "Early In-Session Predictors of Response to Trauma-Focused Cognitive Therapy for Posttraumatic Stress Disorder," *Behavior Research and Therapy*, Vol. 75, December 2015, pp. 40–47. PMID: 26523887.

Bray, R. M., C. C. Engel, J. Williams, L. H. Jaycox, M. E. Lane, J. K. Morgan, and J. Unutzer, "Posttraumatic Stress Disorder in U.S. Military Primary Care: Trajectories and Predictors of One-Year Prognosis," *Journal of Traumatic Stress*, Vol. 29, No. 4, August 2016, pp. 340–348. PMID: 27447948.

Bryant, R. A., M. L. Moulds, R. M. Guthrie, S. T. Dang, J. Mastrodomenico, R. D. Nixon, K. L. Felmingham, S. Hopwood, and M. Creamer, "A Randomized Controlled Trial of Exposure Therapy and Cognitive Restructuring for Posttraumatic Stress Disorder," *Journal of Consulting and Clinical Psychology*, Vol. 76, No. 4, August 2008, pp. 695–703. PMID: 18665697.

Cook, J. M., R. Thompson, G. C. Harb, and R. J. Ross, "Cognitive-Behavioral Treatment for Posttraumatic Nightmares: An Investigation of Predictors of Dropout and Outcome," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 5, No. 6, 2013, pp. 545–553.

Creamer, M. C., D. Forbes, D. Biddle, and P. Elliott, "Inpatient Versus Day Hospital Treatment for Chronic, Combat-Related Posttraumatic Stress Disorder: A Naturalistic Comparison," *Journal of Nervous and Mental Disease*, Vol. 190, No. 3, 2002, pp. 183–189. PMID: 42422093.

Creamer, M. C., P. L. P. Morris, D. Biddle, and P. Elliott, "Treatment Outcome in Australian Veterans with Combat-Related Posttraumatic Stress Disorder: A Cause for Cautious Optimism?" *Journal of Traumatic Stress*, Vol. 12, No. 4, 1999, pp. 545–558. PMID: 42404019.

Currier, J. M., J. M. Holland, and K. D. Drescher, "Residential Treatment for Combat-Related Posttraumatic Stress Disorder: Identifying Trajectories of Change and Predictors of Treatment Response," *PLoS One*, Vol. 9, No. 7, 2014. PMID: 1560152506.

Davidson, J., D. J. Stein, B. O. Rothbaum, R. Pedersen, A. Szumski, and D. S. Baldwin, "Resilience as a Predictor of Treatment Response in Patients with Posttraumatic Stress Disorder Treated with Venlafaxine Extended Release or Placebo," *Journal of Psychopharmacology*, Vol. 26, No. 6, June 2012, pp. 778–783. PMID: 21926426.

Debell, F., N. T. Fear, M. Head, S. Batt-Rawden, N. Greenberg, S. Wessely, and L. Goodwin, "A Systematic Review of the Comorbidity Between PTSD and Alcohol Misuse," *Social Psychiatry and Psychiatric Epidemiology*, Vol. 49, No. 9, September 2014, pp. 1401–1425. PMID: 24643298.

DeViva, J. C., G. A. Bassett, G. M. Santoro, and L. Fenton, "Effects of a Brief Education and Treatment-Planning Group on Evidence-Based PTSD Treatment Utilization and Completion Among Veterans," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 9, Suppl. 1, 2017, pp. 35–41.

Dewar, M., Paradis, A., & Fortin, C. A., "Identifying Trajectories and Predictors of Response to Psychotherapy for Post-Traumatic Stress Disorder in Adults: A Systematic Review of Literature," *Canadian Journal of Psychiatry*, Vol. 65, No. 2, 2020, pp. 71– 86.

Elliott, P., D. Biddle, G. Hawthorne, D. Forbes, and M. C. Creamer, "Patterns of Treatment Response in Chronic Posttraumatic Stress Disorder: An Application of latent growth mixture modeling," *Journal of Traumatic Stress*, Vol. 18, No. 4, 2005, pp. 303–311. PMID: 42414495.

Engel, C. C., B. Litz, K. M. Magruder, E. Harper, K. Gore, N. Stein, D. Yeager, X. Liu, and T. R. Coe, "Delivery of Self Training and Education for Stressful Situations (DESTRESS-PC): A Randomized Trial of Nurse Assisted Online Self-Management for PTSD in Primary Care," *General Hospital Psychiatry*, Vol. 37, No. 4, July–August 2015, pp. 323–328. PMID: 25929985.

Evans, L., S. Cowlishaw, D. Forbes, R. Parslow, and V. Lewis, "Longitudinal Analyses of Family Functioning in Veterans and Their Partners Across Treatment," *Journal of Consulting and Clinical Psychology*, Vol. 78, No. 5, 2010, pp. 611–622.

Evans, L., S. Cowlishaw, and M. Hopwood, "Family Functioning Predicts Outcomes for Veterans in Treatment for Chronic Posttraumatic Stress Disorder," *Journal of Family Psychology*, Vol. 23, No. 4, 2009, pp. 531–539.

Fisher, R. A., "Frequency Distribution of the Values of the Correlation Coefficient in Samples of an Indefinitely Large Population," *Biometrika*, Vol. 10, No. 4, 1915, pp. 507–521.

Foa, E. B., C. P. McLean, Y. Zang, D. Rosenfield, E. Yadin, J. S. Yarvis, J. Mintz, S. Young-McCaughan, E. V. Borah, K. A. Dondanville, B. A. Fina, B. N. Hall-Clark, T. Lichner, B. T. Litz, J. Roache, E. C. Wright, and A. L. Peterson, "Effect of Prolonged Exposure Therapy Delivered Over 2 Weeks vs 8 Weeks vs Present-Centered Therapy on PTSD Symptom Severity in Military Personnel: A Randomized Clinical Trial," *JAMA*, Vol. 319, No. 4, January 23, 2018, pp. 354–364. PMID: 29362795.

Fontana, A., J. D. Ford, and R. Rosenheck, "A Multivariate Model of Patients' Satisfaction with Treatment for Posttraumatic Stress Disorder," *Journal of Traumatic Stress*, Vol. 16, No. 1, 2003, pp. 93–106.

Fontana, A., and R. A. Rosenheck, "Effectiveness and Cost of the Inpatient Treatment of Posttraumatic Stress Disorder: Comparison of Three Models of Treatment," *American Journal of Psychiatry*, Vol. 154, No. 6, 1997, pp. 758–765. PMID: 42391818.

———, "Effects of Compensation-Seeking On Treatment Outcomes Among Veterans with Posttraumatic Stress Disorder," *Journal of Nervous and Mental Disease*, Vol. 186, No. 4, 1998, pp. 223–230. PMID: 42399338.

Forbes, D., N. Bennett, D. Biddle, D. Crompton, T. McHugh, P. Elliott, and M. Creamer, "Clinical Presentations and Treatment Outcomes of Peacekeeper Veterans with PTSD: Preliminary Findings," *American Journal of Psychiatry*, Vol. 162, No. 11, November 2005, pp. 2188–2190. PMID: 16263866.

Forbes, D., M. C. Creamer, N. B. Allen, P. E., A. F. McHugh, P. Debenham, and M. J. Hopwood, "MMPI-2 Based Subgroups of Veterans with Combat-Related PTSD: Differential Patterns of Symptom Change After Treatment," *Journal of Nervous and Mental Disease*, Vol. 191, No. 8, 2003, pp. 531–537. PMID: 42426270.

Forbes, D., V. Lewis, R. A. Parslow, G. Hawthorne, and M. C. Creamer, "Naturalistic Comparison of Models of Programmatic Interventions for Combat-Related Post-Traumatic Stress Disorder," *Australian and New Zealand Journal of Psychiatry*, Vol. 42, No. 12, 2008, pp. 1051–1059. PMID: 42437381.

Forbes, D., R. A. Parslow, S. Fletcher, A. F. McHugh, and M. C. Creamer, "Attachment Style in the Prediction of Recovery Following Group Treatment of Combat Veterans with Post-Traumatic Stress Disorder," *Journal of Nervous and Mental Disease*, Vol. 198, No. 12, 2010, pp. 881–884. PMID: 831097991.

Ford, J. D., P. A. Fisher, and L. Larson, "Object Relations as a Predictor of Treatment Outcome with Chronic Posttraumatic Stress Disorder," *Journal of Consulting and Clinical Psychology*, Vol. 65, No. 4, 1997, pp. 547–559. PMID: 42410106.

Fortney, J. C., J. M. Pyne, T. A. Kimbrell, T. J. Hudson, D. E. Robinson, R. Schneider, W. M. Moore, P. J. Custer, K. M. Grubbs, and P. P. Schnurr, "Telemedicine-Based Collaborative Care for Posttraumatic Stress Disorder: A Randomized Clinical Trial," *JAMA Psychiatry*, Vol. 72, No. 1, January 2015, pp. 58–67. PMID: 25409287.

Friedman, M. J., C. R. Marmar, D. G. Baker, C. R. Sikes, and Gail M. Farfel, "Randomized, Double-Blind Comparison of Sertraline and Placebo for Posttraumatic Stress Disorder in a Department of Veterans Affairs Setting," *Journal of Clinical Psychiatry*, Vol. 68, No. 5, 2007, pp. 711–720.

Fulton, J. J., P. S. Calhoun, H. R. Wagner, A. R. Schry, L. P. Hair, N. Feeling, E. Elbogen, and J. C. Beckham, "The Prevalence of Posttraumatic Stress Disorder in Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) Veterans: A Meta-Analysis," *Journal of Anxiety Disorders*, Vol. 31, April 2015, pp. 98–107. PMID: 25768399.

Gallegos, A. M., N. A. Streltzov, and T. Stecker, "Improving Treatment Engagement for Returning Operation Enduring Freedom and Operation Iraqi Freedom Veterans with Posttraumatic Stress Disorder, Depression, and Suicidal Ideation," *Journal of Nervous and Mental Disease*, Vol. 204, No. 5, 2016, pp. 339–343. PMID: 1807271062.

Gallegos, A. M., K. B. Wolff, N. A. Streltzov, L. B. Adams, E. Carpenter-Song, J. Nicholson, and T. Stecker, "Gender Differences in Service Utilization Among OEF/OIF Veterans with Posttraumatic Stress Disorder After a Brief Cognitive-Behavioral Intervention to Increase Treatment Engagement: A Mixed Methods Study," *Women's Health Issues*, Vol. 25, No. 5, September–October 2015, pp. 542–547. PMID: 26051022.

Garcia, H. A., L. P. Kelley, T. O. Rentz, and S. Lee, "Pretreatment Predictors of Dropout from Cognitive Behavioral Therapy for PTSD in Iraq and Afghanistan War Veterans," *Psychological Services*, Vol. 8, No. 1, 2011, pp. 1–11.

Gilman, R., J. A. Schumm, and K. M. Chard, "Hope as a Change Mechanism in the Treatment of Posttraumatic Stress Disorder," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 4, No. 3, 2012, pp. 270–277. PMID: 964169133.

Goodson, J., A. Helstrom, J. M. Halpern, M. P. Ferenschak, S. J. Gillihan, and M. B. Powers, "Treatment of Posttraumatic Stress Disorder in U.S. Combat Veterans: A Meta-Analytic Review," *Psychological Reports*, Vol. 109, No. 2, October 2011, pp. 573–599. PMID: 22238857.

Graca, J. J., G. A. Palmer, and K. E. Occhietti, "Psychotherapeutic Interventions for Symptom Reduction in Veterans with PTSD: An Observational Study in a Residential Clinical Setting," *Journal of Loss and Trauma*, Vol. 19, No. 6, 2014, pp. 558–567.

Gros, D. F., N. P. Allan, C. L. Lancaster, D. D. Szafranski, and R. Acierno, "Predictors of Treatment Discontinuation During Prolonged Exposure for PTSD," *Behavioural and Cognitive Psychotherapy*, Vol. 46, No. 1, 2018, pp. 35–49.

Gros, D. F., M. Price, E. K. Yuen, and R. Acierno, "Predictors of Completion of Exposure Therapy in OEF/OIF Veterans with Posttraumatic Stress Disorder," *Depression and Anxiety*, Vol. 30, No. 11, November 2013, pp. 1107–1113. PMID: 24151141.

Gros, D. F., M. Strachan, K. J. Ruggiero, R. G. Knapp, B. C. Frueh, L. E. Egede, C. W. Lejuez, P. W. Tuerk, and R. Acierno, "Innovative Service Delivery for Secondary Prevention of PTSD in At-Risk OIF-OEF Service Men and Women," *Contemporary Clinical Trials*, Vol. 32, No. 1, January 2011, pp. 122–128. PMID: 20951235.

Gros, D. F., M. Yoder, P. W. Tuerk, B. E. Lozano, and R. Acierno, "Exposure Therapy for PTSD Delivered to Veterans via Telehealth: predictors of Treatment Completion and Outcome and Comparison to Treatment Delivered in Person," *Behavior Therapy*, Vol. 42, No. 2, 2011.

Guyatt, G. H., A. D. Oxman, V. Montori, G. Vist, R. Kunz, J. Brozek, P. Alonso-Coello, B. Djulbegovic, D. Atkins, Y. Falck-Ytter, J. W. Williams, Jr., J. Meerpohl, S. L. Norris, E. A. Akl, and H. J. Schunemann, "GRADE Guidelines: 5. Rating the Quality of Evidence—Publication Bias," *Journal of Clinical Epidemiology*, Vol. 64, No. 12, December 2011, pp. 1277–1282. PMID: 21802904.

Haller, M., S. B. Norman, K. Cummins, R. S. Trim, X. Xu, R. Cui, C. B. Allard, S. A. Brown, and S. R. Tate, "Integrated Cognitive Behavioral Therapy Versus Cognitive Processing Therapy for Adults with Depression, Substance Use Disorder, and Trauma," *Journal of Substance Abuse Treatment*, Vol. 62, 2016, pp. 38–48.

Hayden, J. A., D. A. van der Windt, J. L. Cartwright, P. Cote, and C. Bombardier, "Assessing Bias in Studies of Prognostic Factors," *Annals of Internal Medicine*, Vol. 158, No. 4, February 19, 2013, pp. 280–286. PMID: 23420236.

Hebenstreit, C. L., E. Madden, K. H. Koo, and S. Maguen, "Minimally Adequate Mental Health Care and Latent Classes of PTSD Symptoms in Female Iraq and Afghanistan Veterans," *Psychiatry Research*, Vol. 230, No. 1, 2015, pp. 90–95.

Hernandez-Tejada, M. A., J. S. Zoller, K. J. Ruggiero, A. Swanson Kazley, and R. Acierno, "Early Treatment Withdrawal from Evidence-Based Psychotherapy for PTSD: Telemedicine and In-Person Parameters," *International Journal of Psychiatry in Medicine*, Vol. 48, No. 1, 2014, pp. 33–55.

Hetrick, S. E., R. Purcell, B. Garner, and R. Parslow, "Combined Pharmacotherapy and Psychological Therapies for Post Traumatic Stress Disorder (PTSD)," *Cochrane Database of Systematic Reviews*, No. 7, July 7, 2010, pp. 1–34, CD007316. PMID: 20614457.

Higgins, J., and S. Green, *Cochrane Handbook for Systematic Reviews of Interventions, Version 5.1.0*, London: Cochrane Collaboration, 2011.

Higgins, J. P., S. G. Thompson, J. J. Deeks, and D. G. Altman, "Measuring Inconsistency in Meta-Analyses," *BMJ*, Vol. 327, No. 7414, September 6, 2003, pp. 557–560. PMID: 12958120.

Hines, L. A., J. Sundin, R. J. Rona, S. Wessely, and N. T. Fear, "Posttraumatic Stress Disorder post Iraq and Afghanistan: Prevalence Among Military Subgroups," *Canadian Journal of Psychiatry*, Vol. 59, No. 9, September 2014, pp. 468–479. PMID: 25569079.

Hobfoll, S. E., R. K. Blais, N. R. Stevens, L. Walt, and R. Gengler, "Vets Prevail Online Intervention Reduces PTSD and Depression in Veterans with Mild-to-Moderate Symptoms," *Journal of Consulting and Clinical Psychology*, Vol. 84, No. 1, January 2016, pp. 31–42. PMID: 26322788.

Holder, N., R. Holliday, R. Williams, K. Mullen, and A. Surís, "A Preliminary Examination of the Role of Psychotherapist Fidelity on Outcomes of Cognitive Processing Therapy During an RCT for Military Sexual Trauma–Related PTSD," *Cognitive Behaviour Therapy*, Vol. 47, No. 1, 2018, pp. 76–89.

Imel, Z. E., K. Laska, M. Jakupcak, and T. L. Simpson, "Meta-Analysis of Dropout in Treatments for Posttraumatic Stress Disorder," *Journal of Consulting and Clinical Psychology*, Vol. 81, No. 3, June 2013, pp. 394–404. PMID: 23339535.

Iorio, A., F. A. Spencer, M. Falavigna, C. Alba, E. Lang, B. Burnand, T. McGinn, J. Hayden, K. Williams, B. Shea, R. Wolff, T. Kujpers, P. Perel, P. O. Vandvik, P. Glasziou, H. Schunemann, and G. Guyatt, "Use of GRADE for Assessment of Evidence About Prognosis: Rating Confidence in Estimates of Event Rates in Broad Categories Of Patients," *BMJ*, Vol. 350, March 16, 2015, pp. 1–8, h870. PMID: 25775931.

Jeffreys, Matthew D., Courtney Reinfeld, Prakash V. Nair, Hector A. Garcia, Emma Mata-Galan, and Timothy O. Rentz, "Evaluating Treatment of Posttraumatic Stress Disorder with Cognitive Processing Therapy and Prolonged Exposure Therapy in a VHA Specialty Clinic," *Journal of Anxiety Disorders*, Vol. 28, No. 1, 2014, pp. 108–114.

Johnson, D. R., and H. Lubin, "Effect of Brief Versus Long-Term Inpatient Treatment on Homecoming Stress in Combat-Related Posttraumatic Stress Disorder: Three-Year Follow-Up," *Journal of Nervous and Mental Disease*, Vol. 190, No. 1, 2002, pp. 47–51.

Johnson, D. R., H. Lubin, R. A. Rosenheck, A. Fontana, D. S. Charney, and S. M. Southwick, "Comparison of Outcome Between Homogeneous and Heterogeneous Treatment Environments in Combat-Related Posttraumatic Stress Disorder," *Journal of Nervous and Mental Disease*, Vol. 187, No. 2, 1999, pp. 88–95. PMID: 42418742.

Khoo, A., M. T. Dent, and T. P. S. Oei, "Group Cognitive Behaviour Therapy for Military Service-Related Post-Traumatic Stress Disorder: Effectiveness, Sustainability and Repeatability," *Australian and New Zealand Journal of Psychiatry*, Vol. 45, No. 8, 2011, pp. 663–672. PMID: 1011532546.

Korte, K. J., K. E. Bountress, R. L. Tomko, T. K. Killeen, M. M. Moran–Santa Maria, and S. E. Back, "Integrated Treatment of PTSD and Substance Use Disorders: The Mediating Role of PTSD Improvement in the Reduction of Depression," *Journal of Clinical Medicine*, Vol. 6, No. 1, 2017. PMID: 1893513830.

Kosten, T. R., J. H. Krystal, E. L. Giller, J. Frank, and E. Dan, "Alexithymia as a Predictor of Treatment Response in Post-Traumatic Stress Disorder," *Journal of Traumatic Stress*, Vol. 5, No. 4, 1992, pp. 563–573.

Levi, O., Y. Shoval-Zuckerman, E. Fruchter, A. Bibi, Y. Bar-Haim, and I. Wald, "Benefits of a Psychodynamic Group Therapy (PGT) Model for Treating Veterans with PTSD," *Journal of Clinical Psychology*, Vol. 73, No. 10, 2017, pp. 1247–1258.

López, C. M., C. Luethcke Lancaster, Da. F. Gros, and R. Acierno, "Residual Sleep Problems Predict Reduced Response to Prolonged Exposure Among Veterans with PTSD," *Journal of Psychopathology and Behavioral Assessment*, Vol. 39, No. 4, 2017, pp. 755–763. PMID: 1935254450.

Maguen, S., E. Madden, T. C. Neylan, B. E. Cohen, D. Bertenthal, and K. H. Seal, "Timing of Mental Health Treatment and PTSD Symptom Improvement Among Iraq and Afghanistan Veterans," *Psychiatric Services*, Vol. 65, No. 12, 2014, pp. 1414–1419.

Maieritsch, K. P., T. L. Smith, J. D. Hessinger, E. P. Ahearn, J. C. Eickhoff, and Q. Zhao, "Randomized Controlled Equivalence Trial Comparing Videoconference and In Person Delivery of Cognitive Processing Therapy for PTSD," *Journal of Telemedicine and Telecare*, Vol. 22, No. 4, June 2016, pp. 238–243. PMID: 26231819.

Management of Posttraumatic Stress Working Group, *VA/DoD Clinical Practice Guideline for the Management of Posttraumatic Stress Disorder and Acute Stress Disorder*, Washington, D.C.: U.S. Department of Veterans Affairs / U.S. Department of Defense, 2017.

Markowitz, J. C., T. H. Choo, and Y. Neria, "Do Acute Benefits of Interpersonal Psychotherapy for Posttraumatic Stress Disorder Endure?" *Canadian Journal of Psychiatry*, Vol. 63, No. 1, January 2018, pp. 37–43. PMID: 28743198.

McDowell, J., and J. Rodriguez, "Does Substance Abuse Affect Outcomes for Trauma-Focused Treatment of Combat-Related PTSD?" *Addiction Research and Theory*, Vol. 21, No. 5, 2013, pp. 357–364.

McLay, R. N., J. A. Webb-Murphy, S. F. Fesperman, E. M. Delaney, S. K. Gerard, S. C. Roesch, B. J. Nebeker, I. Pandzic, E. A. Vishnyak, and S. L. Johnston, "Outcomes from Eye Movement Desensitization and Reprocessing in Active-Duty Service Members with Posttraumatic Stress Disorder," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 8, No. 6, 2016, pp. 702–708.

Miles, S. R., T. L. Smith, K. P. Maieritsch, and E. P. Ahearn, "Fear of Losing Emotional Control Is Associated with Cognitive Processing Therapy Outcomes in U.S. Veterans of Afghanistan and Iraq," *Journal of Traumatic Stress*, Vol. 28, No. 5, October 2015, pp. 475–479. PMID: 26397721.

Monson, C. M., P. P. Schnurr, P. A. Resick, M. J. Friedman, Y. Young-Xu, and S. P. Stevens, "Cognitive Processing Therapy for Veterans with Military-Related Posttraumatic Stress Disorder," *Journal of Consulting and Clinical Psychology*, Vol. 74, No. 5, October 2006, pp. 898–907. PMID: 17032094.

Morina, N., J. M. Wicherts, J. Lobbrecht, and S. Priebe, "Remission from Post-Traumatic Stress Disorder in Adults: A Systematic Review and Meta-Analysis of Long Term Outcome Studies," *Clinical Psychology Review*, Vol. 34, No. 3, April 2014, pp. 249–255. PMID: 24681171.

Morland, L. A., M. A. Mackintosh, C. J. Greene, C. S. Rosen, K. M. Chard, P. Resick, and B. C. Frueh, "Cognitive Processing Therapy for Posttraumatic Stress Disorder Delivered to Rural Veterans via Telemental Health: A Randomized Noninferiority Clinical Trial," *Journal of Clinical Psychiatry*, Vol. 75, No. 5, May 2014, pp. 470–476. PMID: 24922484.

Mott, J. M., S. Mondragon, N. E. Hundt, M. Beason-Smith, R. H. Grady, and E. J. Teng, "Characteristics of U.S. Veterans Who Begin and Complete Prolonged Exposure and Cognitive Processing Therapy for PTSD," *Journal of Traumatic Stress*, Vol. 27, No. 3, 2014, pp. 265–273.

Mott, J. M., M. A. Stanley, R. L. Street, Jr., R. H. Grady, and E. J. Teng, "Increasing Engagement in Evidence-Based PTSD Treatment Through Shared Decision-Making: A Pilot Study," *Military Medicine*, Vol. 179, No. 2, February 2014, pp. 143–149. PMID: 24491609.

Murphy, D., G. Hodgman, C. Carson, L. Spencer-Harper, M. Hinton, S. Wessely, and W. Busuttil, "Mental Health and Functional Impairment Outcomes Following a 6-Week Intensive Treatment Programme for UK Military Veterans with Post-Traumatic Stress Disorder (PTSD): A Naturalistic Study to Explore Dropout and Health Outcomes at Follow-Up," *BMJ Open*, Vol. 5, No. 3, 2015. PMID: 1676084377.

Murphy, D., L. Spencer-Harper, C. Carson, E. Palmer, K. Hill, N. Sorfleet, S. Wessely, and W. Busuttil, "Long-Term Responses to Treatment in UK Veterans with Military-Related PTSD: An Observational Study," *BMJ Open*, Vol. 6, No. 9, 2016. PMID: 1893513787.

Murphy, R. T., K. E. Thompson, M. Murray, Q. Rainey, and M. M. Uddo, "Effect of a Motivation Enhancement Intervention on Veterans' Engagement in PTSD Treatment," *Psychological Services*, Vol. 6, No. 4, 2009, pp. 264–278.

Price, M., J. L. Maples, T. Jovanovic, S. Davin Norrholm, M. H. Heekin, and B. Olasov Rothbaum, "An Investigation of Outcome Expectancies as a Predictor of Treatment Response for Combat Veterans with PTSD: Comparison of Clinician, Self-Report, and Biological Measures," *Depression and Anxiety*, Vol. 32, No. 6, 2015, pp. 392–399. PMID: 1692006806.

Reger, G. M., P. Koenen-Woods, K. Zetocha, D. J. Smolenski, K. M. Holloway, B. O. Rothbaum, J. Difede, A. A. Rizzo, A. Edwards-Stewart, N. A. Skopp, M. Mishkind, M. A. Reger, and G. A. Gahm, "Randomized Controlled Trial of Prolonged Exposure Using Imaginal Exposure vs. Virtual Reality Exposure in Active Duty Soldiers with Deployment-Related Posttraumatic Stress Disorder (PTSD)," *Journal of Consulting and Clinical Psychology*, Vol. 84, No. 11, November 2016, pp. 946–959. PMID: 27606699.

Resick, P. A., J. S. Wachen, K. A. Dondanville, K. E. Pruiksma, J. S. Yarvis, A. L. Peterson, J. Mintz, E. V. Borah, A. Brundige, E. A. Hembree, B. T. Litz, J. D. Roache, and S. Young-McCaughan, "Effect of Group vs Individual Cognitive Processing Therapy in Active-Duty Military Seeking Treatment for Posttraumatic Stress Disorder: A Randomized Clinical Trial," *JAMA Psychiatry*, Vol. 74, No. 1, January 1, 2017, pp. 28–36. PMID: 27893032.

Reynolds, K., R. H. Pietrzak, C. S. Mackenzie, K. L. Chou, and J. Sareen, "Post-Traumatic Stress Disorder Across the Adult Lifespan: Findings From a Nationally Representative Survey," *American Journal of Geriatric Psychiatry*, Vol. 24, No. 1, January 2016, pp. 81–93. PMID: 26706912.

Richardson, J. D., A. A. Contractor, C. Armour, K. St. Cyr, J. D. Elhai, and J. Sareen, "Predictors of Long-Term Treatment Outcome in Combat and Peacekeeping Veterans with Military-Related PTSD," *Journal of Clinical Psychiatry*, Vol. 75, No. 11, 2014, pp. e1299–e1305.

Rief, W., and J. Anna Glombiewski, "The Role of Expectations in Mental Disorders and Their Treatment," *World Psychiatry*, Vol. 16, No. 2, June 2017, pp. 210–211. PMID: 28498580.

Rosen, C. S., K. J. Azevedo, Q. Q. Tiet, C. J. Greene, A. E. Wood, P. Calhoun, T. Bowe, B. P. Capehart, E. F. Crawford, M. A. Greenbaum, A. H. S. Harris, M. Hertzberg, S. E. Lindley, B. N. Smith, and P. P. Schnurr, "An RCT of Effects of Telephone Care Management on Treatment Adherence and Clinical Outcomes Among Veterans with PTSD," *Psychiatric Services*, Vol. 68, No. 2, 2017, pp. 151–158.

Rosen, C. S., M. A. Greenbaum, P. P. Schnurr, T. H. Holmes, P. L. Brennan, and M. J. Friedman, "Do Benzodiazepines Reduce the Effectiveness of Exposure Therapy for Posttraumatic Stress Disorder?" *Journal of Clinical Psychiatry*, Vol. 74, No. 12, December 2013, pp. 1241–1248. PMID: 24434093.

Rosen, C. S., Q. Q. Tiet, A. H. Harris, T. F. Julian, J. R. McKay, W. M. Moore, R. R. Owen, S. Rogers, O. Rosito, D. E. Smith, M. W. Smith, and P. P. Schnurr, "Telephone Monitoring and Support After Discharge from Residential PTSD Treatment: A Randomized Controlled Trial," *Psychiatric Services*, Vol. 64, No. 1, January 2013, pp. 13–20. PMID: 23117443.

Rosenheck, R. A., and A. Fontana, "Race and Outcome of Treatment for Veterans Suffering from PTSD," *Journal of Traumatic Stress*, Vol. 9, No. 2, 1996, pp. 343–351. PMID: 42406547.

Rosenheck, R. A., A. Fontana, and C. Cottrol, "Effect of Clinician-Veteran Racial Pairing in the Treatment of Posttraumatic Stress Disorder," *American Journal of Psychiatry*, Vol. 152, No. 4, 1995, pp. 555–563. PMID: 42393376.

Rosenheck, R. A., M. Stolar, and A. Fontana, "Outcomes Monitoring and the Testing of New Psychiatric Treatments: Work Therapy in the Treatment of Chronic Post-Traumatic Stress Disorder," *Heath Services Research*, Vol. 35, No. 1, Pt. 1, 2000, pp. 133–151. PMID: 42417556.

Rubin, M., E. Shvil, S. Papini, B. T. Chhetry, L. Helpman, J. C. Markowitz, J. J. Mann, and Y. Neria, "Greater Hippocampal Volume Is Associated with PTSD Treatment Response," *Psychiatry Research: Neuroimaging*, Vol. 252, June 30, 2016, pp. 36–39. PMID: 27179314.

Schnurr, P. P., Executive Director, National Center for PTSD, US Veterans Administration, email, White River Junction, VT, September, 26, 2019.

Schnurr, P. P., M. J. Friedman, C. C. Engel, E. B. Foa, M. T. Shea, B. K. Chow, P. A. Resick, V. Thurston, S. M. Orsillo, R. Haug, C. Turner, and N. Bernardy, "Cognitive Behavioral Therapy for Posttraumatic Stress Disorder in Women: A Randomized Controlled Trial," *JAMA*, Vol. 297, No. 8, February 28, 2007, pp. 820–830. PMID: 17327524.

Schnurr, P. P., M. J. Friedman, D. W. Foy, M. T. Shea, F. Y. Hsieh, P. W. Lavori, S. M. Glynn, M. Wattenberg, and N. C. Bernardy, "Randomized Trial of Trauma-Focused Group Therapy for Posttraumatic Stress Disorder: Results from a Department of Veterans Affairs Cooperative Study," *Archives of General Psychiatry*, Vol. 60, No. 5, May 2003, pp. 481–489. PMID: 12742869.

Schnurr, P. P., and C. A. Lunney, "Symptom Benchmarks of Improved Quality of Life in PTSD," *Depression and Anxiety*, Vol. 33, No. 3, March 2016, pp. 247–255. PMID: 26882293.

Schnurr, P. P., C. A. Lunney, M. J. Bovin, and B. P. Marx, "Posttraumatic Stress Disorder and Quality of Life: Extension of Findings to Veterans of the Wars in Iraq and Afghanistan," *Clinical Psychology Review*, Vol. 29, No. 8, December 2009, pp. 727–735. PMID: 19744758.

Spoont, M. R., J. Hodges, M. Murdoch, and S. Nugent, "Race and Ethnicity as Factors in Mental Health Service Use Among Veterans with PTSD," *Journal of Traumatic Stress*, Vol. 22, No. 6, 2009, pp. 648–653.

Spoont, M. R., M. Murdoch, J. Hodges, and S. Nugent, "Treatment Receipt by Veterans After a PTSD Diagnosis in PTSD, Mental Health, or General Medical Clinics," *Psychiatric Services*, Vol. 61, No. 1, 2010, pp. 58–63.

Spoont, M. R., D. B. Nelson, M. Murdoch, N. A. Sayer, S. Nugent, T. Rector, and J. Westermeyer, "Are There Racial/Ethnic Disparities in VA PTSD Treatment Retention?" *Depression and Anxiety*, Vol. 32, No. 6, 2015, pp. 415–425.

Sripada, R. K., F. C. Blow, S. A. M. Rauch, D. Ganoczy, R. Hoff, I. Harpaz-Rotem, and K. M. Bohnert, "Examining the Nonresponse Phenomenon: Factors Associated with Treatment Response in a National Sample of Veterans Undergoing Residential PTSD Treatment," *Journal of Anxiety Disorders*, Vol. 63, April 2019, pp. 18–25. PMID: 30785007.

Sripada, R. K., S. A. M. Rauch, P. W. Tuerk, E. Smith, A. M. Defever, R. A. Mayer, M. Messina, and M. Venners, "Mild Traumatic Brain Injury and Treatment Response in Prolonged Exposure for PTSD," *Journal of Traumatic Stress*, Vol. 26, No. 3, 2013, pp. 369–375.

Stecker, T., L. Adams, E. Carpenter-Song, J. Nicholson, N. Streltzov, and H. Xie, "Intervention Efficacy in Engaging Black and White Veterans with Post-Traumatic Stress Disorder into Treatment," *Social Work in Public Health*, Vol. 31, No. 6, October 2016, pp. 481–489. PMID: 27210830.

Stecker, T., G. McHugo, H. Xie, K. Whyman, and M. Jones, "RCT of a Brief Phone-Based CBT Intervention to Improve PTSD Treatment Utilization by Returning Service Members," *Psychiatric Services*, Vol. 65, No. 10, October 2014, pp. 1232–1237. PMID: 24933496.

Steindl, S. R., R. McD. Young, M. C. Creamer, and D. Crompton, "Hazardous Alcohol Use and Treatment Outcome in Male Combat Veterans with Posttraumatic Stress Disorder," *Journal of Traumatic Stress*, Vol. 16, No. 1, 2003, pp. 27–34. PMID: 42376651.

Stevens, N. R., L. Holmgreen, L. Walt, R. Gengler, and S. E. Hobfoll, "Web-Based Trauma Intervention for Veterans Has Physical Health Payoff in Randomized Trial," *Psychological Trauma: Theory, Research, Practice, and Policy*, Vol. 9, Suppl. 1, 2017, pp. 42–50.

Strachan, M., D. F. Gros, E. Yuen, K. J. Ruggiero, E. B. Foa, and R. Acierno, "Home-Based Telehealth to Deliver Evidence-Based Psychotherapy in Veterans with PTSD," *Contemporary Clinical Trials*, Vol. 33, No. 2, March 2012, pp. 402–409. PMID: 22101225.

Szafranski, D. D., D. F. Gros, D. S. Menefee, J. L. Wanner, and P. J. Norton, "Predictors of Length of Stay Among OEF/OIF/OND Veteran Inpatient PTSD Treatment Noncompleters," *Psychiatry*, Vol. 77, No. 3, Fall 2014, pp. 263–274. PMID: 25162134.

Taft, C. T., A. E. Street, A. D. Marshall, D. J. Dowdall, and D. S. Riggs, "Posttraumatic Stress Disorder, Anger, and Partner Abuse Among Vietnam Combat Veterans," *Journal of Family Psychology*, Vol. 21, No. 2, June 2007, pp. 270–277. PMID: 17605549.

Thorp, S. R., J. Fidler, L. Moreno, E. Floto, and Z. Agha, "Lessons Learned from Studies of Psychotherapy for Posttraumatic Stress Disorder via Video Teleconferencing," *Psychological Services*, Vol. 9, No. 2, May 2012, pp. 197–199. PMID: 22662733.

Tiet, Q. Q., Y. E. Leyva, K. Blau, J. A. Turchik, and C. S. Rosen, "Military Sexual Assault, Gender, and PTSD Treatment Outcomes of U.S. Veterans," *Journal of Traumatic Stress*, Vol. 28, No. 2, 2015, pp. 92–101.

Tuerk, P.W., M. Yoder, A. Grubaugh, H. Myrick, M. Hamner, and R. Acierno, "Prolonged Exposure Therapy for Combat-Related Posttraumatic Stress Disorder: An Examination of Treatment Effectiveness for Veterans of The Wars in Afghanistan and Iraq," *Journal of Anxiety Disorders*, Vol. 25, No. 3, 2011, pp. 397–403.

Van Rooij, S. J. H., M. Kennis, M. Vink, and E. Geuze, "Predicting Treatment Outcome in PTSD: A Longitudinal Functional MRI Study on Trauma-Unrelated Emotional Processing," *Neuropsychopharmacology*, Vol. 41, No. 4, 2016, pp. 1156–1165.

Wade, D., T. Varker, D. Kartal, S. Hetrick, M. O'Donnell, and D. Forbes, "Gender Difference in Outcomes Following Trauma-Focused Interventions for Posttraumatic Stress Disorder: Systematic Review and Meta-Analysis," *Psychological Trauma*, Vol. 8, No. 3, May 2016, pp. 356–364. PMID: 26854354.

Walter, K. H., R. Luba Varkovitzky, G. P. Owens, J. Lewis, and K. M. Chard, "Cognitive Processing Therapy for Veterans with Posttraumatic Stress Disorder: A Comparison Between Outpatient and Residential Treatment," *Journal of Consulting and Clinical Psychology*, Vol. 82, No. 4, 2014, pp. 551–561. PMID: 1560152505.

Weathers, F. W., T. M. Keane, and J. R. Davidson, "Clinician-Administered PTSD Scale: A Review of the First Ten Years of Research," *Depression and Anxiety*, Vol. 13, No. 3, 2001, pp. 132–156. PMID: 11387733.

West, J., "Therapeutic Alliance in the Treatment of Combat PTSD," in Elspeth Cameron Ritchie, ed., *Posttraumatic Stress Disorder and Related Diseases in Combat Veterans*, Cham, Switzerland: Springer, 2015, pp. 27–34.

Wilkinson, Samuel T., Elina Stefanovics, and Robert A. Rosenheck, "Marijuana Use Is Associated with Worse Outcomes in Symptom Severity and Violent Behavior in Patients with Posttraumatic Stress Disorder," *Journal of Clinical Psychiatry*, Vol. 76, No. 9, September 2015, pp. 1174–1180. PMID: 26455669.

Wolf, E. J., C. A. Lunney, and P. P. Schnurr, "The Influence of the Dissociative Subtype of Posttraumatic Stress Disorder on Treatment Efficacy in Female Veterans and Active Duty Service Members," *Journal of Consulting and Clinical Psychology*, Vol. 84, No. 1, January 2016, pp. 95–100. PMID: 26167946.

Young, G., "PTSD in Court III: Malingering, Assessment, and the Law," *International Journal of Law and Psychiatry*, Vol. 52, May–June 2017, pp. 81–102. PMID: 28366496.