

Psychological Services

Treatment Choice Among Veterans With PTSD Symptoms and Substance-Related Problems: Examining the Role of Preparatory Treatments in Trauma-Focused Therapy

Laura D. Wiedeman, Susan M. Hannan, Kelly P. Maieritsch, Cendrine Robinson, and Gregory Bartoszek

Online First Publication, November 26, 2018. <http://dx.doi.org/10.1037/ser0000313>

CITATION

Wiedeman, L. D., Hannan, S. M., Maieritsch, K. P., Robinson, C., & Bartoszek, G. (2018, November 26). Treatment Choice Among Veterans With PTSD Symptoms and Substance-Related Problems: Examining the Role of Preparatory Treatments in Trauma-Focused Therapy. *Psychological Services*. Advance online publication. <http://dx.doi.org/10.1037/ser0000313>

Treatment Choice Among Veterans With PTSD Symptoms and Substance-Related Problems: Examining the Role of Preparatory Treatments in Trauma-Focused Therapy

Laura D. Wiedeman

Edward Hines Jr. Veterans Affairs Hospital, Hines, Illinois, and
Veterans Affairs Northern California Health Care System,
Martinez, California

Susan M. Hannan

Edward Hines Jr. Veterans Affairs Hospital, Hines, Illinois, and
Lafayette College

Kelly P. Maieritsch

Edward Hines Jr. Veterans Affairs Hospital, Hines, Illinois

Cendrine Robinson

Edward Hines Jr. Veterans Affairs Hospital, Hines, Illinois, and
National Cancer Institute, Rockville, Maryland

Gregory Bartoszek

University of Illinois at Chicago

Although common practice in Veterans Affairs (VA) PTSD clinics, it is unclear whether preparatory treatment improves trauma-focused treatment (TFT) completion and outcomes. Furthermore, little is known about whether treatment-seeking veterans in naturalistic settings would choose to prioritize preparatory treatment if given the option of a phase-based approach or direct access to TFT, and how substance-related problems (SRPs) influence this treatment choice. The first aim of this study was to explore how co-occurring SRPs (ranging from *none* to *moderate/severe*) influence PTSD treatment choices in a naturalistic setting where veterans were offered a choice between a phase-based approach (i.e., preparatory treatment) or direct access to TFT. The study also examined whether initial treatment choice and severity of co-occurring SRPs influenced TFT completion and outcomes. The second aim was to investigate whether preparatory treatment led to superior TFT completion or outcomes, irrespective of co-occurring SRPs. Analyses were conducted using archival data from 737 United States veterans referred for outpatient VA PTSD treatment. SRPs did not predict initial treatment choice or the length of preparatory group participation. Neither SRPs nor preparatory group participation predicted TFT completion or outcomes (measured as change in PTSD and depression symptoms from pre- to post-TFT). Preparatory group participation did not predict improved TFT completion or outcomes, irrespective of co-occurring SRPs. These findings suggest that veterans with PTSD symptoms and co-occurring SRPs may make similar treatment choices and benefit from either a phase-based approach or direct TFT initiation, and preparatory treatments may not increase patient readiness for veterans seeking TFT.

Keywords: posttraumatic stress, veterans, substance use, treatment selection, preparatory treatment

Supplemental materials: <http://dx.doi.org/10.1037/ser0000313.supp>

There are a number of barriers that can interfere with starting or completing trauma-focused therapies (such as prolonged exposure [PE] and cognitive processing therapy [CPT]). Patients (especially

military veterans) report distrust of mental health care providers and fear of stigma for seeking mental health treatment (Hoge et al., 2004). In addition, research suggests that individuals with post-

Laura D. Wiedeman, Edward Hines Jr. Veterans Affairs Hospital, Hines, Illinois, and Veterans Affairs Northern California Health Care System, Martinez, California; Susan M. Hannan, Edward Hines Jr. Veterans Affairs Hospital, and Department of Psychology, Lafayette College; Kelly P. Maieritsch, Edward Hines Jr. Veterans Affairs Hospital; Cendrine Robinson, Edward Hines Jr. Veterans Affairs Hospital, and National Cancer Institute, Rockville, Maryland; Gregory Bartoszek, Department of Psychology, University of Illinois at Chicago.

Kelly P. Maieritsch is now at the National Center for PTSD, Executive Division, White River Junction, Vermont. Gregory Bartoszek is now at the Department of Psychology, William Paterson University.

This project is the result of work supported with resources and the use of facilities at the Edward Hines Jr. Veterans Affairs Hospital, Hines, Illinois. The contents of this article do not represent the views of the U.S. Department of Veterans Affairs or the U.S. Government.

Correspondence concerning this article should be addressed to Laura D. Wiedeman, VA Northern California Health Care System, 150 Muir Road (116), Martinez, CA 94553. E-mail: laura.wiedeman@va.gov

traumatic stress disorder (PTSD) who identify as low-income racial minorities are especially likely to face multiple barriers to accessing treatment (Davis, Ressler, Schwartz, Stephens, & Bradley, 2008). Furthermore, providers have emphasized the importance of assessing patient readiness for trauma-focused treatment (TFT); however, a consistent definition of *readiness* is lacking (Cook, Simiola, Hamblen, Bernardy, & Schnurr, 2017; Hamblen et al., 2015; Osei-Bonsu et al., 2017).

Co-occurring substance use has frequently been cited as one reason patients may not be ready for TFT, and surveys of providers have revealed a perception that veterans with PTSD and co-occurring substance use disorders (SUD) are more difficult to treat (Najavits, Norman, Kivlahan, & Kosten, 2010; Osei-Bonsu et al., 2017). In fact, 75% of randomized controlled trials of PTSD treatment used substance-related exclusion criteria (Leeman et al., 2017), creating challenges for generalizing findings to the PTSD/SUD population (Najavits & Hien, 2013). Research has been further limited by the lack of specificity in which SUD and related problems are described, as well as grouping those with SUD into one homogenous category (Kirisici et al., 2006).

Of the 5 million veterans seen within the Department of Veterans Affairs (VA) in 2012, 34% had a diagnosis of PTSD (Bowe & Rosenheck, 2015), and those with PTSD were three times more likely to have a SUD diagnosis compared with the general population (Petrakis, Rosenheck, & Desai, 2011). Furthermore, Pietrzak, Goldstein, Southwick, and Grant (2011) analyzed data from 34,653 U.S. adults and found that the prevalence of co-occurring PTSD and any alcohol or drug use disorder was 46.4%. Until recently, clinical practice guidelines for the treatment of PTSD/SUD were lacking; clinicians were therefore left to determine how to utilize existing PTSD and SUD treatment options to address the needs of this population. Surveys of VA clinicians have highlighted provider concerns about offering TFT to veterans with co-occurring SUD, including whether they can tolerate TFT safely (e.g., without relapse), whether existing TFTs need adaptation to be effective for those with PTSD/SUD, and whether there is a greater need for stabilization prior to TFT initiation (Najavits et al., 2010; Osei-Bonsu et al., 2017).

Historically, there has been a lack of consensus around when to offer phase-based treatment (prioritizing psychoeducation and present-focused stabilization before trauma processing) or TFT as a first-line approach (Cloitre et al., 2011; Hamblen et al., 2015; Raza & Holohan, 2015). A national survey of VA PTSD clinic directors revealed that the vast majority of VA PTSD treatment clinics include mandatory psychoeducational or coping skills groups as a method of preparation for TFT, with the length of preparatory groups ranging from 1 to 12 sessions (Hamblen et al., 2015; Raza & Holohan, 2015). According to Hamblen and colleagues (2015), clinic directors perceive these preparatory groups as improving readiness for TFT. Proponents of a phase-based approach suggest that having a multicomponent therapy model provides greater benefits and a more nuanced, patient-centered approach to treatment, as patients have a range of treatment options to choose from during the treatment planning process (Cloitre, 2015). In addition, given well documented clinician uncertainty and lack of consensus over when to offer TFT to individuals with co-occurring SUD (Najavits et al., 2010; Raza & Holohan, 2015), preparatory treatment options via a phase-based approach may provide a welcomed, readily accessible alternative.

In 2017, the VA and Department of Defense (DoD) released updated clinical practice guidelines for the treatment of PTSD (Department of Veterans Affairs, 2017), in which it is recommended that clinicians offer TFT even in the presence of co-occurring SUD. These updated clinical practice guidelines stem from recent research that has found little evidence to support a particular sequencing of services (i.e., sequential, integrated, concurrent) or a particular treatment type (e.g., present/coping-focused, past-focused, addiction-focused, trauma-focused) for individuals with PTSD/SUD (e.g., Najavits & Hien, 2013; Roberts, Roberts, Jones, & Bisson, 2015; van Dam, Vedel, Ehring, & Emmelkamp, 2012). Simpson, Lehavot, and Petrakis (2017) found that after matching the target PTSD/SUD interventions and comparison condition on time and attention, the exposure-based (i.e., trauma-focused) approach was most effective for treating PTSD/SUD. That said, Simpson and colleagues (2017) also noted that all participants on average showed symptom improvement in all study conditions (addiction-focused, coping-focused, and exposure-based).

Although the use of preparatory treatments to enhance readiness for TFT and increase the likelihood of treatment completion has been common practice, the effectiveness of this phase-based approach is unknown (Hamblen et al., 2015). Research focused on assessing patients' treatment preferences may help illuminate their own perception of readiness (Cook et al., 2017). This may be especially important for veterans presenting with PTSD symptoms and co-occurring substance-related problems (SRPs), given previously mentioned provider concerns about offering TFT to veterans with these co-occurring conditions. Data from naturalistic settings are needed to assess what treatment path veterans with PTSD symptoms and SRPs choose (a phase-based approach by first engaging in preparatory treatments, or direct access to TFT), how the presence of SRPs may influence this decision, and whether preparatory treatment leads to enhanced TFT outcomes.

Therefore, the first aim of this study was to examine the treatment choices of veterans with PTSD symptoms in a naturalistic setting and to better understand how the presence of SRPs may influence PTSD treatment choices and outcomes. This study expands on previous research with the PTSD/SUD population by considering SRPs on a continuum rather than as a dichotomous (yes/no) variable. This research occurred in a VA PTSD clinic prior the 2017 VA/DoD clinical practice guidelines, where veterans were offered the option of selecting either a phase-based approach (by opting for preparatory treatment) or direct access to TFT. On basis of provider concerns about offering TFT to veterans with PTSD and co-occurring SRPs (Najavits et al., 2010; Osei-Bonsu et al., 2017; Raza & Holohan, 2015) and the common use of preparatory treatments to improve coping skills and symptom management prior to TFT (Hamblen et al., 2015), we hypothesized the following: veterans with PTSD symptoms and greater SRPs would be (1) more likely to choose preparatory treatment and (2) more likely to participate in a longer course of preparatory treatment prior to TFT than veterans with fewer SRPs. In addition, we hypothesized that veterans with PTSD symptoms and greater SRPs would be (3) more likely to complete TFT and (4) more likely to have superior TFT outcomes (i.e., greater PTSD and depression symptom reduction from pre- to post-TFT) if they first participated in preparatory treatment than veterans with fewer SRPs.

As preparatory groups are commonly used within VA PTSD clinics to enhance readiness for TFT (Hamblen et al., 2015), the second aim of this study was to assess whether participating in preparatory treatment led to superior TFT outcomes in all treatment seeking veterans with PTSD symptoms (with or without co-occurring SRPs). We predicted that participation in any preparatory treatment would lead to (1) higher rates of TFT completion and (2) superior TFT outcomes compared with veterans who chose direct access to TFT.

Method

Participants

The current study is based on archival data of 737 (92.0% male) U.S. military veterans referred for treatment to a Midwestern United States VA outpatient PTSD specialty clinic. The average age was 50.45 ($SD = 15.89$), and slightly over half self-identified as non-Hispanic White (55.5%). Additionally, 326 (44.2%) veterans reported service during the Vietnam era. Traumatic events were defined in accordance with *Diagnostic and Statistical Manual of Mental Disorders* criteria (4th ed., text rev. [DSM-IV-TR]; American Psychiatric Association, 2000). Index trauma was collected via the electronic consult to the PTSD specialty clinic, which requires identification of the primary trauma for focus of treatment. Of the veterans referred to the PTSD clinic, 78.6% reported combat trauma as their index trauma.

At the time of PTSD specialty clinic referral, 78.0% of veterans met criteria for probable PTSD (i.e., a total score of 50 or higher on the PTSD Checklist, see below for additional details). A comprehensive diagnostic assessment for PTSD was not conducted as part of routine clinical practice. As such, reference to PTSD in this study refers to a spectrum of PTSD symptomology rather than a dichotomous (yes/no) diagnostic category.

Upon completion of orientation in the PTSD specialty clinic, the local SUD/PTSD specialist conducted a comprehensive review of the medical chart and assigned each veteran an *SRP level*, which provided clinicians with a concise summary of the severity of concurrent SRPs. Medical charts were reviewed for all veterans referred to the PTSD clinic from May 2012 through February 2014. The SRP level was determined based on evidence of the current pattern of substance use (gathered from veteran self-report and provider documentation in the medical record), associated consequences or impairments, presence of coping skills and protective factors (e.g., social support, stable housing), and risk status (i.e., suicidality, homicidality, physical withdrawal symptoms). Although not a psychometrically validated scale, the SRP level was developed to improve upon the limitations of SUD diagnoses via the electronic medical chart (e.g., not updated/current) and to highlight additional clinical but nondiagnostic issues (e.g., social support, coping skills). SRP levels ranged in severity from 0 (*no current or historical substance-related problems*) to 4 (*moderate/severe substance-related problems with acute risk factors*). SRP level descriptions are included as supplementary material.

Of the 737 veterans in this study, 325 had no history of SRPs (SRP Level 0); 213 had a lifetime history of SRPs, but none within the past year (SRP Level 1); 138 reported SRPs within the past year, but minimal functional impairment or risk concerns (SRP Level 2); 53 reported current SRPs with moderate/severe impair-

ments and chronic risk factors, but no acute risk concerns (SRP Level 3); and eight reported current SRPs with moderate/severe impairments, chronic risk factors, and current acute risk concerns (SRP Level 4). For data analysis purposes, we combined SRP Levels 3 and 4 (subsequently referred to as SRP Level 3 within this study), resulting in 61 veterans with current moderate/severe SRPs with chronic and/or acute risk factors. Descriptive statistics for demographic variables for the total sample and grouped by SRP level are presented in Table 1.

Procedure

Veterans with PTSD or subclinical posttraumatic stress symptoms were referred solely by mental health providers via electronic consult to the VA PTSD specialty clinic. Upon referral, veterans attended an orientation class where they were provided psychoeducation about PTSD etiology, symptoms, and recovery-oriented treatment. The orientation class was primarily conducted in a group setting, though individual orientation classes were provided to veterans with a strong preference for an individual format (e.g., a veteran with military sexual trauma requesting an individual format to avoid being around veterans of a specific sex). The clinic was designed with two treatment tracks; trauma-preparatory track (coping-focused groups) or trauma-focused track (individual CPT or PE). At the completion of orientation, veterans self-selected their treatment track and specific treatment choice within that track (e.g., which preparatory group). In the trauma-preparatory track veterans could select from the following coping-focused groups: general coping skills (10 sessions/60 min), anger management (12 sessions/90 min), or emotion management (12 sessions/90 min). These skills-based groups are not trauma-focused, and though not an evidence-based practice, they are typical of treatments offered in this naturalistic setting (Hamblen et al., 2015).

Veterans attended one group at a time, with the option to sequentially attend each available preparatory group. Veterans did not receive concurrent individual therapy within the PTSD clinic while attending preparatory groups. Veterans' specific group choice could be influenced by desire to attend next available cohort versus wait for their first choice, or a modality preference (e.g., group vs. individual). For the purpose of this study, the length of preparatory group participation is defined as the total number of preparatory group sessions attended. After completion of each group veterans could elect to transition to the trauma-focused track. The veteran's interest in CPT (12 sessions/60 min) or PE (10 to 12 sessions/90 min) was discussed with his or her individual therapist, with the final choice directed by the veteran. All therapies were provided weekly. As this was a naturalistic design, there were no specified exclusionary criteria; however, veterans who were actively suicidal, homicidal, or demonstrating acute psychotic symptoms would not have been referred to this level of care and were therefore not included in the sample. Therapists followed manualized protocols for all TFT (e.g., CPT; Resick, Monson, & Chard, 2007; PE: Foa, Hembree, & Rothbaum, 2007); however, fidelity to the models was not directly assessed.

Out of the 737 veterans referred for PTSD specialty treatment, 614 (83.3%) chose to initiate services at the completion of orientation. Of those 614 veterans, 342 (55.7%) chose to initiate TFT at the time of referral, whereas 272 preferred to initiate a coping-focused group via the trauma-preparatory track. Of the 272 who

Table 1
 Characteristics of Total Sample and Grouped by SRP Level

Characteristic	SRP Level									
	Total (<i>N</i> = 737)		0 (<i>n</i> = 325)		1 (<i>n</i> = 213)		2 (<i>n</i> = 138)		3 (<i>n</i> = 61)	
	<i>n</i> or <i>M</i>	% or <i>SD</i>	<i>n</i> or <i>M</i>	% or <i>SD</i>	<i>n</i> or <i>M</i>	% or <i>SD</i>	<i>n</i> or <i>M</i>	% or <i>SD</i>	<i>n</i> or <i>M</i>	% or <i>SD</i>
Age	50.45	15.89	50.99	16.21	54.15	14.64	46.92	15.46	42.61	15.30
Male gender	678	92.0	287	88.3	202	94.8	133	96.4	56	91.8
Race ^a										
Non-Hispanic white	409	55.5	200	61.5	117	54.9	60	43.5	32	52.5
Black	203	27.5	72	22.2	67	31.5	46	33.3	18	29.5
Hispanic/White	88	11.9	33	10.2	24	11.3	23	16.7	7	11.5
Hispanic/Black	11	1.5	6	1.8	0	.0	3	2.2	2	3.3
American Indian/Alaskan native	3	.4	2	.6	0	.0	1	.7	0	.0
Asian	9	1.2	5	1.5	1	.5	1	.7	2	3.3
Other/unknown	13	1.8	6	1.8	3	1.4	4	2.9	0	.0
Education level ^b	13.27	2.07	13.51	2.24	13.04	2.09	13.16	1.77	13.00	1.56
Service era ^c										
Pre-Vietnam	10	.1	6	1.8	0	.0	2	1.4	2	3.3
Vietnam	326	44.2	135	41.5	95	44.6	66	47.8	30	49.2
Post-Vietnam	66	9.0	34	10.5	16	7.5	11	8.0	5	8.2
Persian gulf	64	8.7	31	9.5	22	10.3	7	5.1	4	6.6
OEF/OIF/OND	269	36.5	118	36.3	80	37.6	51	37.0	20	32.8
Index trauma ^d										
Combat	579	78.6	257	79.1	172	80.8	105	76.1	45	73.8
MST	55	7.5	28	8.6	10	4.7	9	6.5	8	13.1
Adult physical assault	16	2.2	7	2.2	6	2.8	2	1.4	1	1.6
Childhood physical assault	8	1.1	4	1.2	1	.5	2	1.4	1	1.6
Childhood sexual abuse	10	1.4	4	1.2	2	.9	3	2.2	1	1.6
Adult sexual assault	1	.1	0	.0	1	.5	0	.0	0	.0
Motor vehicle accident	9	1.2	2	.6	3	1.4	2	1.4	2	3.3
Other	57	7.7	23	7.1	17	8.0	15	7.0	2	3.3
Recent SUD treatment	63	8.5	0	.0	8	3.8	30	21.7	25	41.0
Concurrent SUD treatment	54	7.3	0	.0	4	1.9	26	18.8	24	39.3

Note. SRP = substance-related problems; MST = military sexual trauma; OEF/OIF/OND = Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn; SRP Level 0 = no history of SRP; SRP Level 1 = lifetime history of SRP, none within the past year; SRP Level 2 = SRP within the last year with minimal functional impairment or risk concerns; SRP Level 3 = current moderate/severe SRP with chronic and/or acute risk factors. ^aOne veteran did not provide data on race. ^b10 veterans did not provide data on education level. ^cTwo veterans did not provide data on service era. ^dTwo electronic consults did not provide data on index trauma.

initiated trauma-preparatory treatment, 86 (31.6%) eventually chose to transition to the trauma-focused track. In total, 428 (69.7%) veterans referred for PTSD specialty treatment requested to begin TFT (either at the time of referral or after preparatory groups); 247 (57.7%) of those who requested TFT attended at least one session.

Patient information (e.g., outcome measures) was collected at multiple time points and data were maintained in a clinical data repository. Collected patient information was primarily used for clinical and administrative purposes, with a secondary purpose of retrospective analysis for research. Approval for this study was provided by the local institutional review board and a waiver of informed consent for access to protected health information was granted.

Measures

All veterans completed a general information form at the PTSD clinic orientation class. This form assessed demographic information such as age, race, gender, and education level. In addition, the general information form assessed information related to military service history (e.g., era of service) and the traumatic experience

for which the veteran was referred to address in treatment. Individual therapy clinicians submitted paperwork at the conclusion of TFT and determined TFT completion status (e.g., completed, dropped out). TFT was completed at session numbers ranging from six to 16 within this study, as determined by the treating clinician. For the purpose of the current study, the authors also reviewed each veteran's medical record to determine participation in a VA SUD treatment program (defined as attendance of at least one session) during the 6 months prior to the PTSD clinic referral date (yes/no) or concurrent treatment in SUD and PTSD clinics (yes/no).

PTSD and depression symptoms were measured at three separate time points (orientation, pre- and post-TFT). Symptoms measured at orientation are considered baseline symptoms for all analyses. PTSD symptoms were measured using the PTSD Checklist-Specific Stressor Version for *DSM-IV-TR* (PCL-S; Weathers, Litz, Huska, & Keane, 1994). This self-report measure has demonstrated good psychometric properties in trauma populations (e.g., Wilkins, Lang, & Norman, 2011) and consists of 17 items answered on a five-point Likert scale. Scores range from 17 to 85, with higher scores indicating greater PTSD severity and a

score of 50 or higher indicating “probable” PTSD (Weathers et al., 1994). The PCL-S had good internal consistencies measured across all time points (α range = .89–.97).

The Beck Depression Inventory II (BDI-II) measures emotional (e.g., loss of pleasure), cognitive (e.g., concentration), and physical (e.g., tiredness) symptoms of depression, including suicidal thoughts. The measure has good psychometric properties (Beck, Steer, & Brown, 1996) and consists of 21 items each answered on a 4-point Likert scale. Scores range from 0 to 63, with higher scores indicating more severe levels of depression. The BDI-II had good internal consistencies measured across all time points (α range = .93–.95).

Data Analysis

A series of preliminary analyses of variances (ANOVAs) and chi-square tests were run to assess baseline PTSD and depression symptom differences among the different SRP levels, as well as to assess demographic differences in initial treatment choice. We ran a logistic regression analysis to test the first hypothesis (i.e., veterans with PTSD symptoms and greater SRPs would be more likely to choose preparatory treatment). Treatment choice was a dichotomous variable coded as 1 = TFT and 2 = trauma-prep. A one-way analysis of covariance (ANCOVA) tested the second hypothesis (i.e., veterans with PTSD symptoms and greater SRPs would be more likely to participate in a longer course of preparatory treatment prior to TFT). We again utilized a logistic regression analysis to test the third hypothesis (i.e., veterans with PTSD symptoms and greater SRPs would be more likely to complete TFT). TFT completion was coded as 1 = completed and 0 = not completed. Finally, we conducted two separate factorial ANOVAs (SRP Level \times Preparatory Group Participation) to test the final hypotheses concerning TFT outcomes. We collapsed race into two groups (non-Hispanic White [coded as 1] and racial minorities [coded as 0]) for all analyses.

Regarding the current study’s second aim, we ran a one-sample *t* test to assess veterans’ initial choice for preparatory treatment or TFT following the orientation class. In addition, we analyzed results from the logistic regression (used to Test Hypothesis 3) and the two factorial ANOVAs (used to Test Hypothesis 4) to assess whether engagement in preparatory treatment increased engagement in and completion of TFT in all treatment seeking veterans.

Furthermore, we assessed whether VA SUD treatment (outpatient or residential) 6 months prior to the PTSD clinic referral or concurrent with PTSD clinic services were related to the current study’s outcome variables. Neither recent nor concurrent SUD treatment were correlated with any outcome variables of interest and were therefore not included as covariates in subsequent analyses. Missing data constituted less than five percent of cases for each study variable and were therefore assumed to be missing at random. All analyses were conducted using SPSS Version 21.0 (IBM Corp, 2012).

Results

All data were normally distributed. At orientation, the average PCL-S score was 59.87 ($SD = 12.55$; $n = 727$) and the average BDI-II score was 28.02 ($SD = 11.60$; $n = 727$). The SRP groups differed in PCL-S score at orientation, $F(3, 726) = 7.45, p < .001$,

$\eta_p^2 = .03$. A Tukey post hoc test revealed that, compared with veterans at SRP Level 0 ($M = 57.71, SD = 13.14$), veterans at SRP Level 3 ($M = 64.53, SD = 11.89$; $p = .001$) and a SRP Level 1 ($M = 61.52, SD = 11.64$; $p = .003$) had higher PCL-S total scores. There were no significant differences in PCL-S score between veterans at SRP Level 0 and SRP Level 2, SRP Level 1 and SRP Level 2, SRP Level 1 and SRP Level 3, or SRP Level 2 and SRP Level 3. The SRP level groups also differed in BDI-II total score at orientation, $F(3, 727) = 7.80, p < .001, \eta_p^2 = .031$. A Tukey post hoc test revealed that BDI-II total scores were significantly higher in veterans at SRP Level 3 ($M = 32.10, SD = 12.16$; $p = .001$) and SRP Level 1 ($M = 29.74, SD = 11.44$; $p = .001$) compared with SRP Level 0 ($M = 25.93$; $SD = 11.09$). There were no significant differences between veterans at SRP Level 0 and SRP Level 2, SRP Level 1 and SRP Level 2, SRP Level 1 and SRP Level 3, or SRP Level 2 and SRP Level 3. Because of significant differences in baseline PTSD and depression symptoms as a function of SRP level, these variables were entered as covariates in all subsequent analyses.

Initial Treatment Choice

Veterans who initiated PTSD treatment after orientation were compared with those who declined. Initial treatment choice did not differ as a function of SRP level, $\chi^2(3, N = 736) = 7.76, ns$. Veterans who reported greater baseline PTSD and depression symptoms were more likely to initiate treatment than veterans who reported fewer baseline PTSD and depression symptoms (PTSD symptoms: $F[1, 726] = 5.38, p = .021$; depression symptoms: $F[1, 727] = 6.72, p = .010$). When compared on demographic variables, non-Hispanic White veterans were more likely than racial minorities to initiate treatment, $\chi^2(1, N = 735) = 9.29, p = .002$. Additionally, veterans who reported greater years of education were more likely to initiate treatment than veterans with fewer years of education, $F(1, 725) = 17.67, p = .042$.

For the veterans who chose to initiate PTSD treatment after orientation, a one-sample *t* test demonstrated that veterans were more likely to initially choose individual TFT ($n = 342$) than preparatory groups ($n = 272$), $t(613) = 71.92, p < .001$. A logistic regression was used to predict the probability of veterans choosing preparatory groups (vs. TFT) from their SRP level (see Table 2). Race was correlated with choice of treatment ($r = -.09, p = .026$).

Table 2
Logistic Regression of Predictors of Choosing Preparatory Groups vs. Individual Trauma-Focused Therapy

Predictor	<i>B</i>	<i>SE B</i>	Wald	Odds ratio	95% CI
Race					
Non-Hispanic white	.36	.17	4.61	1.44*	[1.03, 2.00]
Baseline PCL-S	-.01	.01	.21	.99	[.98, 1.01]
Baseline BDI-II	-.01	.01	.51	.99	[.97, 1.01]
SRP Level 1	.36	.20	3.12	1.43	[.96, 2.13]
SRP Level 2	.51	.23	5.00	1.67	[1.07, 2.61]
SRP Level 3	.07	.43	.10	.87	[.58, 1.98]

Note. $n = 604$. CI = confidence interval; PCL-S = Posttraumatic Stress Disorder Checklist–Specific Stressor; BDI-II = Beck Depression Inventory–II; SRP = substance-related problem; reference category was SRP level (0). * $p < .008$ (adjusted for Bonferroni).

and therefore was included as a covariate in the analysis. Baseline PTSD and depression symptoms were also included as covariates. SRP level was included as a predictor variable. The omnibus test was significant, $\chi^2(6, N = 604) = 13.47, p = .036$. Baseline PTSD did not predict treatment choice (OR = .99, 95% CI [.98, 1.01]), nor did baseline depression (OR = .99, 95% CI [.97, 1.01]). SRP Level 2 veterans were more likely than SRP Level 0 veterans to choose preparatory groups (OR = 1.67, 95% CI [1.07, 2.61]); however, this finding was no longer significant after adjusting for Bonferroni correction. There was no difference in treatment choice between SRP level 0 and SRP Level 1 (OR = 1.43, 95% CI [.96, 2.13]), SRP Level 0 and SRP Level 3 (OR = 1.07, 95% CI [.58, 1.98]), SRP Level 1 and SRP Level 2 (OR = 1.16, 95% CI [.72, 1.89]), SRP Level 1 and SRP Level 3 (OR = 1.34, 95% CI [.71, 2.53]), or SRP Level 2 and SRP Level 3 (OR = 1.56, 95% CI [.79, 3.05]). In addition, non-Hispanic White veterans were more likely than racial minorities to choose preparatory groups (OR = 1.44, 95% CI [1.03, 2.00]).

Length of Preparatory Group Participation

We utilized an ANCOVA to assess whether veterans with PTSD symptoms and greater SRPs were more likely to participate in a higher number of preparatory group sessions prior to TFT, compared with veterans with PTSD symptoms and fewer SRPs. Age was correlated with the number of preparatory group sessions attended ($r = .22, p < .001$) and therefore was included as a covariate in the analysis, along with baseline PTSD and depression symptoms. Two hundred seventy-two veterans attended at least one preparatory group session; the average number of sessions attended was 8.39 ($SD = 8.76$), with a range of 1 to 38. SRPs did not have a main effect on the length of preparatory group participation, $F(3, 269) = .36, ns$. Additionally, there were no significant main effects of baseline PTSD, $F(1, 269) = .43, ns$, or baseline depression symptoms, $F(1, 269) = .05, ns$, on the length of preparatory group participation. Results demonstrated that older veterans were more likely to participate in a longer course of preparatory groups than younger veterans, $F(1, 269) = 12.12, p = .001, \eta_p^2 = .05$.

Trauma-Focused Therapy Completion

Of the 247 veterans who began TFT (either at the time of PTSD specialty clinic referral or after participating in preparatory groups), 137 (55.5%) completed it. We used a logistic regression to predict the probability of veterans completing TFT from their SRP level and preparatory group participation (see Table 3). Age was correlated with TFT completion ($r = .25, p < .001$) and was included as a covariate in the analysis, along with baseline PTSD and depression symptoms. SRP level and preparatory group participation (yes/no) were included as predictor variables. Finally, we created an interaction term by multiplying our two predictor variables (SRP level and preparatory group participation).

The omnibus test was significant, $\chi^2(10, N = 244) = 21.26, p = .019$. Baseline PTSD symptoms did not predict TFT completion (OR = .99, 95% CI [.96, 1.02]), nor did baseline depression symptoms (OR = 1.01, 95% CI [.98, 1.04]). There was no difference in TFT completion between SRP Level 0 and SRP Level 1 (OR = 1.11, 95% CI [.32, 3.83]), SRP Level 0 and SRP Level 2 (OR = .76, 95% CI [.19, 2.93]), SRP Level 0 and SRP Level 3 (OR = .24, 95% CI [.02, 2.80]), SRP Level 1 and SRP Level 2 (OR = .68, 95% CI [.16, 2.87]), SRP Level 1 and SRP Level 3 (OR = 4.68, 95% CI [.38, 57.68]), or SRP Level 2 and SRP Level 3 (OR = 3.18, 95% CI [.24, 41.67]). Preparatory group participation did not predict TFT completion (OR = .89, 95% CI [.35, 2.24]), nor did the interaction between preparatory group participation and SRP level. However, age was found to predict TFT completion, such that older veterans were more likely to complete TFT than younger veterans (OR = 1.03, 95% CI [1.01, 1.05]). This finding remained significant after adjusting for Bonferroni correction.

Trauma-Focused Therapy Outcomes

At TFT initiation (pre-TFT), the average PCL-S total score was 59.66 ($SD = 11.99; n = 241$) compared with 45.05 ($SD = 16.06; n = 129$) post-TFT. The number of veterans meeting probable criteria for PTSD decreased from 80.9% at pre-TFT to 40.3% at TFT completion. The average BDI-II total score at pre-TFT was 27.99 ($SD = 11.86; n = 241$) compared with 18.19 ($SD = 12.92; n = 129$) post-TFT. We utilized two separate factorial ANOVAs

Table 3
Logistic Regression of Predictors of Completing Individual Trauma-Focused Therapy

Predictor	B	SE B	Wald	Odds ratio	95% CI
Age	.03	.01	11.54	1.03*	[1.01, 1.05]
Baseline PCL-S	-.01	.02	.63	.99	[.96, 1.02]
Baseline BDI-II	.01	.02	.74	1.01	[.98, 1.05]
SRP Level 1	.12	.63	.03	1.11	[.32, 3.83]
SRP Level 2	-.28	.69	.16	.76	[.20, 2.93]
SRP Level 3	-1.44	1.26	1.31	.24	[.02, 2.80]
Preparatory group participation					
Yes	-.12	.47	.06	.89	[.35, 2.24]
SRP Level \times Preparatory Group Participation			1.38		
Preparatory Group Participation \times SRP Level 1	-.36	.74	.23	.70	[.17, 2.98]
Preparatory Group Participation \times SRP Level 2	.54	.83	.43	1.72	[.34, 8.69]
Preparatory Group Participation \times SRP Level 3	.83	1.43	.33	2.29	[.14, 37.87]

Note. $n = 236$. CI = confidence interval; PCL-S = Posttraumatic Stress Disorder Checklist-Specific Stressor; BDI-II = Beck Depression Inventory-II; SRP = substance-related problem; preparatory group participation was a categorical variable (yes/no); reference category was SRP level (0).

* $p < .001$ (adjusted for Bonferroni).

to predict veterans' change in PTSD and depression symptoms from pre- to post-TFT from their SRP level and preparatory group participation. In the first factorial ANOVA, the dependent variable was change in PCL-S score from pre- to post-TFT. Baseline PTSD and depression symptoms were included as covariates. SRP level and preparatory group participation (yes/no) were included as fixed factors. Baseline PTSD symptoms did not have a main effect on change in PCL-S, $F(1, 131) = .75, ns$; however, baseline depression symptoms did have a main effect on change in PCL-S, $F(1, 133) = 4.84, p = .030, \eta_p^2 = .04$. SRP level did not have a main effect on change in PCL-S, $F(3, 131) = .38, ns$, nor did preparatory group participation, $F(1, 131) = .20, ns$. The interaction of SRP level and preparatory group participation did not have a significant effect on change in PCL-S, $F(3, 131) = .25, ns$.

In the second factorial ANOVA, the dependent variable was change in BDI-II score from pre- to post-TFT. Baseline PTSD symptoms did not have a main effect on change in BDI-II, $F(1, 130) = 1.11, ns$, nor did baseline depression symptoms, $F(1, 130) = 3.47, ns$. SRP level did not have a main effect on change in BDI-II, $F(3, 130) = .20, ns$, nor did preparatory group participation, $F(1, 130) = .35, ns$. The interaction of SRP level and preparatory group participation did not significantly affect change in BDI-II, $F(3, 130) = 1.24, ns$. In sum, veterans with greater SRPs demonstrated similar TFT outcomes as veterans with fewer substance-related problems, regardless of preparatory group participation.

Discussion

The present study represents an initial investigation of PTSD treatment choice and outcomes for veterans with PTSD symptoms and varying degrees of SRPs. Additionally, to the authors' knowledge, this was the first study to assess whether participation in preparatory treatments predicts higher rates of TFT completion and outcomes among all treatment-seeking veterans in a naturalistic setting.

The first aim of this study was to examine the influence of SRPs on treatment choice and outcomes for veterans with PTSD symptoms. Consistent with prior research demonstrating greater symptom severity among individuals with PTSD/SUD (e.g., Schäfer & Najavits, 2007), veterans with greater SRPs reported higher baseline PTSD and depression symptoms and were more likely to initiate PTSD treatment. However, when faced with a choice between a phase-based treatment approach (i.e., starting with preparatory groups) or direct access to TFT, veterans—regardless of baseline PTSD symptoms, depression symptoms, or SRP level—were slightly more likely to choose TFT. This finding suggests that offering TFT to veterans presenting with a continuum of SRPs, as recommended in the 2017 VA/DoD clinical practice guidelines for PTSD, may be well received.

For veterans who selected a phase-based approach, SRPs did not predict the length of participation in preparatory groups prior to initiating TFT. Furthermore, veterans with PTSD symptoms and varying degrees of SRPs completed TFT at similar rates and with similar outcomes as veterans without SRP, irrespective of SRP severity, preparatory group participation, prior or concurrent SUD treatment. Although preliminary, these findings support the VA/DoD clinical practice guidelines that recommend TFT as an ap-

propriate first-line treatment for veterans with PTSD symptoms and co-occurring SRPs.

The second aim of this study was to examine whether participation in preparatory treatments as part of a phase-based approach predicted greater TFT completion rates and enhanced TFT outcomes. Although PTSD programs frequently offer (and may even mandate) preparatory groups as a method of enhancing readiness for TFT (Hamblen et al., 2015; Raza & Holohan, 2015), it is notable that only 31.6% of veterans who started with preparatory groups chose to initiate TFT. Of the 31.6% who initiated TFT after a preparatory group, there was no significant improvement in TFT completion rates or outcomes compared with those who chose direct access to TFT. These findings were consistent for veterans with or without SRPs. These findings highlight the need for future research aimed at measuring the effectiveness of early phase treatments. Mandating preparatory treatments may yield a delay in pursuing TFT, rather than preparation for it. Research aimed at better understanding the veteran's perspective on perceived benefits of preparatory groups may also be useful, including those who elected not to participate in TFT.

Although SRPs and participation in preparatory groups were not found to enhance TFT completion rates or outcomes, the rates of TFT completion and reported outcomes highlight continued room for improvement to existing clinical practices. It is notable that regardless of preparatory group participation or SRP severity, only 55.5% of veterans who initiated TFT completed it, and of those who completed TFT, 40.3% still met criteria for probable PTSD. TFT dropout rates have been routinely noted as an area of concern within TFT (e.g., Kehle-Forbes, Meis, Spont, & Polusny, 2016) and have been found to be marginally greater in routine clinical care settings (Goetter et al., 2015).

Although not a primary aim of this study, certain demographic variables were found to be associated with treatment choice and outcomes. Non-Hispanic White veterans and those with higher education levels were more likely to initiate any treatment; additionally, non-Hispanic White veterans were more likely to choose preparatory groups. Previous literature has noted barriers to treatment engagement for racial minorities, with one possible explanation being the stigma of having a mental illness and mistrust of health professionals (e.g., Roberts, Gilman, Breslau, Breslau, & Koenen, 2011). In addition, age was associated with treatment outcomes, consistent with prior research demonstrating older veterans were more likely to initiate and complete PTSD treatment (e.g., Kehle-Forbes et al., 2016; Keller & Tuerk, 2016; Lamp, Maieritch, Winer, Hessinger, & Klenk, 2014). Future research efforts may focus on how cultural diversity, including ethnicity, age, and military culture (e.g., service era), influences PTSD treatment choice and outcomes in a naturalistic setting.

The present study is not without methodological limitations. First, the study occurred in a naturalistic setting in which veterans were asked to choose between an initial treatment approach of phase-based, preparatory groups versus individual TFT due to clinic design. Treatment choice may have been influenced by unassessed factors such as modality preference (individual vs. group) or logistics (e.g., scheduling). Therefore, actual treatment preferences may not have been well assessed in this model. However, this study illustrates the type of treatment choices patients may routinely face in naturalistic settings, as the treatment offerings in this study are consistent with many VA PTSD clinics

(Hamblen et al., 2015), with the exception that preparatory treatment in this study was optional (in contrast to other VA PTSD clinics where it may be mandatory).

Second, the SRP level system is not a psychometrically validated scale and is limited by the data available at the time of PTSD clinic referral. Third, though this study was novel in its effort to view SRP on a continuum, information about specific substance use diagnoses or substances of choice were unavailable. Furthermore, the low rates of veterans with moderate/severe SRPs in this sample limits the generalizability of our findings to more severe SUD populations. As this is a naturalistic sample of veterans referred for PTSD treatment, the small number of veterans with moderate/severe SRPs suggests a lower rate of referral for PTSD treatment, which may be reflective of the sentiment at the time of this study that veterans with greater SRPs were not good candidates for PTSD treatment. Fourth, this study also lacked information about the specific nature of prior or concurrent substance treatment. Additional details regarding the available SUD treatment offerings may enhance understanding of veteran treatment choices or why those with higher SRP levels were poorly represented in this naturalistic sample.

Fifth, findings regarding the influence of preparatory groups on TFT completion and outcome are limited by evaluating preparatory groups as one broad category, despite differences in group length and focus. The study focuses solely on selection and length of preparatory groups rather than specific group characteristics (e.g., content area). Thus, findings on the impact of preparatory treatments on TFT completion and outcomes are limited in their generalizability. Sixth, the study lacks information about prior treatment episodes, including prior TFT, which may have influenced subsequent treatment choice or outcomes. Future research may take a broader perspective on PTSD treatment by incorporating the influence of multiple episodes of care.

Seventh, generalizability is further limited by homogenous patient demographics. The sample consisted predominately of male, non-Hispanic White veterans with combat trauma and therefore may not generalize to female or racial minority veterans, or civilian populations with noncombat traumas. Finally, treatment outcome was based solely on self-report questionnaires, which may be subject to social desirability and recall biases (e.g., Del Boca & Noll, 2000). Future research should consider utilizing multiple methods for assessing treatment outcomes.

Despite these limitations, this study offers a meaningful step toward understanding the role of SRPs and preparatory treatment in TFT completion rates and outcomes. This study is novel in its analysis of PTSD treatment choice for a phase-based approach or direct access to TFT in a naturalistic setting, and by viewing SRPs on a continuum rather than as a dichotomous (yes/no) categorization. This perspective on SRPs allowed for a more nuanced consideration of the real world characteristics that factor into clinical decision making (e.g., functional impairments, coping skills, protective and risk factors). This study found that veterans with PTSD symptoms and varying degrees of SRPs made similar treatment choices, participated in a similar length of preparatory treatment (if a phase-based approach was selected), were just as likely to complete TFT and have similar TFT outcomes as veterans without SRPs. These findings, though preliminary, suggest that SRPs may not represent as much of a barrier to TFT completion or outcomes as once was thought. When considering the role of preparatory

treatment for all veterans, irrespective of SRPs, participation in preparatory groups was not found to predict greater TFT completion rates or outcomes. Further research on phase-based approaches to PTSD treatment is warranted, including when preparatory treatments are indicated and how to measure their effectiveness.

References

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck Depression Inventory II manual*. San Antonio, TX: Psychological Corporation.
- Bowe, A., & Rosenheck, R. (2015). PTSD and substance use disorder among veterans: Characteristics, service utilization and pharmacotherapy. *Journal of Dual Diagnosis, 11*, 22–32. <http://dx.doi.org/10.1080/15504263.2014.989653>
- Cloitre, M. (2015). The “one size fits all” approach to trauma treatment: Should we be satisfied? *European Journal of Psychotraumatology, 6*, 27344. <http://dx.doi.org/10.3402/ejpt.v6.27344>
- Cloitre, M., Courtois, C. A., Charuvastra, A., Carapezza, R., Stolbach, B. C., & Green, B. L. (2011). Treatment of complex PTSD: Results of the ISTSS expert clinician survey on best practices. *Journal of Traumatic Stress, 24*, 615–627. <http://dx.doi.org/10.1002/jts.20697>
- Cook, J. M., Simiola, V., Hamblen, J. L., Bernardy, N., & Schnurr, P. P. (2017). The influence of patient readiness on implementation of evidence-based PTSD treatments in Veterans Affairs residential programs. *Psychological Trauma: Theory, Research, Practice, and Policy, 9*(Suppl. 1), 51–58. <http://dx.doi.org/10.1037/tra0000162>
- Davis, R. G., Ressler, K. J., Schwartz, A. C., Stephens, K. J., & Bradley, R. G. (2008). Treatment barriers for low-income, urban African Americans with undiagnosed posttraumatic stress disorder. *Journal of Traumatic Stress, 21*, 218–222. <http://dx.doi.org/10.1002/jts.20313>
- Del Boca, F. K., & Noll, J. A. (2000). Truth or consequences: The validity of self-report data in health services research on addictions. *Addiction, 95*(Suppl. 3), S347–S360. <http://dx.doi.org/10.1046/j.1360-0443.95.11s3.5.x>
- Department of Veterans Affairs. (2017). *Management of post-traumatic stress: VA/DoD clinical practice guidelines*. Retrieved from <https://www.healthquality.va.gov/guidelines/MH/ptsd/>
- Foa, E., Hembree, E., & Rothbaum, B. (2007). *Prolonged exposure therapy for PTSD: Emotional processing of traumatic experiences, therapist guide*. New York, NY: Oxford University Press. <http://dx.doi.org/10.1093/med/psych/9780195308501.001.0001>
- Goetter, E. M., Bui, E., Ojserkis, R. A., Zakarian, R. J., Brendel, R. W., & Simon, N. M. (2015). A systematic review of dropout from psychotherapy for posttraumatic stress disorder among Iraq and Afghanistan combat veterans. *Journal of Traumatic Stress, 28*, 401–409. <http://dx.doi.org/10.1002/jts.22038>
- Hamblen, J. L., Bernardy, N. C., Sherrieb, K., Norris, F. H., Cook, J. M., Louis, C. A., & Schnurr, P. P. (2015). VA PTSD clinic director perspectives: How perceptions of readiness influence delivery of evidence-based PTSD treatment. *Professional Psychology, Research and Practice, 46*, 90–96. <http://dx.doi.org/10.1037/a0038535>
- Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *The New England Journal of Medicine, 351*, 13–22. <http://dx.doi.org/10.1056/NEJMoa040603>
- IBM Corp. (2012). *IBM SPSS Statistics for Windows, Version 21.0*. Armonk, NY: Author.
- Kehle-Forbes, S. M., Meis, L. A., Spont, M. R., & Polusny, M. A. (2016). Treatment initiation and dropout from prolonged exposure and cognitive processing therapy in a VA outpatient clinic. *Psychological Trauma:*

- Theory, Research, Practice, and Policy*, 8, 107–114. <http://dx.doi.org/10.1037/tra0000065>
- Keller, S. M., & Tuerk, P. W. (2016). Evidence-based psychotherapy (EBP) non-initiation among veterans offered an EBP for posttraumatic stress disorder. *Psychological Services*, 13, 42–48. <http://dx.doi.org/10.1037/ser0000064>
- Kirisci, L., Tarter, R. E., Vanyukov, M., Martin, C., Mezzich, A., & Brown, S. (2006). Application of item response theory to quantify substance use disorder severity. *Addictive Behaviors*, 31, 1035–1049. <http://dx.doi.org/10.1016/j.addbeh.2006.03.033>
- Lamp, K., Maierlich, K. P., Winer, E. S., Hessinger, J. D., & Klenk, M. (2014). Predictors of treatment interest and treatment initiation in a VA outpatient trauma services program providing evidence-based care. *Journal of Traumatic Stress*, 27, 695–702. <http://dx.doi.org/10.1002/jts.21975>
- Leeman, R. F., Hefner, K., Frohe, T., Murray, A., Rosenheck, R. A., Watts, B. V., & Sofuoglu, M. (2017). Exclusion of participants based on substance use status: Findings from randomized controlled trials of treatments for PTSD. *Behaviour Research and Therapy*, 89, 33–40. <http://dx.doi.org/10.1016/j.brat.2016.10.006>
- Najavits, L. M., & Hien, D. (2013). Helping vulnerable populations: A comprehensive review of the treatment outcome literature on substance use disorder and PTSD. *Journal of Clinical Psychology*, 69, 433–479. <http://dx.doi.org/10.1002/jclp.21980>
- Najavits, L. M., Norman, S. B., Kivlahan, D., & Kosten, T. R. (2010). Improving PTSD/substance abuse treatment in the VA: A survey of providers. *The American Journal on Addictions*, 19, 257–263. <http://dx.doi.org/10.1111/j.1521-0391.2010.00039.x>
- Osei-Bonsu, P. E., Bolton, R. E., Wiltsey Stirman, S., Eisen, S. V., Herz, L., & Pellowe, M. E. (2017). Mental health providers' decision-making around the implementation of evidence-based treatment for PTSD. *The Journal of Behavioral Health Services & Research*, 44, 213–223. <http://dx.doi.org/10.1007/s11414-015-9489-0>
- Petrakis, I. L., Rosenheck, R., & Desai, R. (2011). Substance use comorbidity among veterans with posttraumatic stress disorder and other psychiatric illness. *The American Journal on Addictions*, 20, 185–189. <http://dx.doi.org/10.1111/j.1521-0391.2011.00126.x>
- Pietrzak, R. H., Goldstein, R. B., Southwick, S. M., & Grant, B. F. (2011). Prevalence and Axis I comorbidity of full and partial posttraumatic stress disorder in the United States: Results from Wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Anxiety Disorders*, 25, 456–465. <http://dx.doi.org/10.1016/j.janxdis.2010.11.010>
- Raza, G. T., & Holohan, D. R. (2015). Clinical treatment selection for posttraumatic stress disorder: Suggestions for researchers and clinical trainers. *Psychological Trauma: Theory, Research, Practice, and Policy*, 7, 547–554. <http://dx.doi.org/10.1037/tra0000059>
- Resick, P. A., Monson, C. M., & Chard, K. M. (2007). *Cognitive processing therapy: Veteran/military version: Therapist and patient materials manual*. Washington, DC: U.S. Department of Veterans Affairs.
- Roberts, A. L., Gilman, S. E., Breslau, J., Breslau, N., & Koenen, K. C. (2011). Race/ethnic differences in exposure to traumatic events, development of post-traumatic stress disorder, and treatment-seeking for post-traumatic stress disorder in the United States. *Psychological Medicine*, 41, 71–83. <http://dx.doi.org/10.1017/S0033291710000401>
- Roberts, N. P., Roberts, P. A., Jones, N., & Bisson, J. I. (2015). Psychological interventions for post-traumatic stress disorder and comorbid substance use disorder: A systematic review and meta-analysis. *Clinical Psychology Review*, 38, 25–38. <http://dx.doi.org/10.1016/j.cpr.2015.02.007>
- Schäfer, I., & Najavits, L. M. (2007). Clinical challenges in the treatment of patients with posttraumatic stress disorder and substance abuse. *Current Opinion in Psychiatry*, 20, 614–618. <http://dx.doi.org/10.1097/YCO.0b013e3282f0ffd9>
- Simpson, T. L., Lehavot, K., & Petrakis, I. L. (2017). 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*, 41, 681–702. <http://dx.doi.org/10.1111/acer.13325>
- van Dam, D., Vedel, E., Ehring, T., & Emmelkamp, P. M. (2012). Psychological treatments for concurrent posttraumatic stress disorder and substance use disorder: A systematic review. *Clinical Psychology Review*, 32, 202–214. <http://dx.doi.org/10.1016/j.cpr.2012.01.004>
- Weathers, F., Litz, B., Huska, J., & Keane, T. (1994). *PTSD checklist-specific version*. Boston, MA: National Center for PTSD.
- Wilkins, K. C., Lang, A. J., & Norman, S. B. (2011). Synthesis of the psychometric properties of the PTSD checklist (PCL) military, civilian, and specific versions. *Depression and Anxiety*, 28, 596–606. <http://dx.doi.org/10.1002/da.20837>

Received March 23, 2018

Revision received September 4, 2018

Accepted September 9, 2018 ■