Journal of Anxiety Disorders 62 (2019) 53–60

Contents lists available at ScienceDirect

Journal of Anxiety Disorders

journal homepage: www.elsevier.com/locate/janxdis

Which patients initiate cognitive processing therapy and prolonged exposure in department of veterans affairs PTSD clinics?

Craig S. Rosen[a,b,*], Nancy C. Bernardy[c,d], Kathleen M. Chard[e,f], Barbara Clothier[g], Joan M. Cook[h,i], Jill Crowley[a], Afsoon Eftekhari[a], Shannon M. Kehle-Forbes[g,j], David C. Mohr[k,l], Siamak Noorbaloochi[g], Robert J. Orazem[g], Josef I. Ruzek[a,b,m], Paula P. Schnurr[c,d], Brandy N. Smith[a], Nina A. Sayer[g,j,n,o]

[a] Dissemination & Training Division, National Center for PTSD, VA Palo Alto Health Care System, 795 Willow Rd. Menlo Park, CA 94025, USA
[b] Department of Psychiatry & Behavioral Sciences, Stanford University School of Medicine, 401 Quarry Road, Stanford, CA 94305, USA
[c] Executive Division, National Center for PTSD, 215N Main St. White River Junction, VT 05009, USA
[d] Department of Psychiatry, Geisel School of Medicine at Dartmouth, 1 Rope Ferry Rd, Hanover, NH 03755, USA
[e] Cincinnati Department of Veterans Affairs (VA) Medical Center, 3200 Vine St, Cincinnati, OH 45220, USA
[f] University of Cincinnati College of Medicine, 3230 Eden Ave, Cincinnati, OH 45267, USA
[g] Center for Chronic Disease Outcomes Research, Minneapolis VA Health Care System, One Veterans Drive, Minneapolis, MN 55417, USA
[h] Evaluation Division, National Center for PTSD, VA Connecticut Health Care System, 950 Campbell Avenue, West Haven, CT 06516, USA
[i] Yale School of Medicine, NEPEC/182, 950 Campbell Avenue, West Haven, CT, USA
[j] Department of Medicine, University of Minnesota, 420 Delaware St SE, Minneapolis, MN 55455, USA
[k] Center for Healthcare Organization and Implementation Research (CHOIR), VA Boston Healthcare System, 150 S Huntington Ave, Boston, MA 02130, USA
[l] Boston University School of Public Health, 715 Albany St, Boston, MA 02118, USA
[m] Palo Alto University, 1791 Arastradero Rd, Palo Alto, CA 94304, USA
[n] Department of Psychiatry, University of Minnesota, 2450 Riverside Ave, Minneapolis, MN 55454, USA
[o] Department of Psychology, University of Minnesota, 75 E River Rd, Minneapolis, MN 55455, USA

ARTICLE INFO

Keywords:
Posttraumatic stress disorder
Psychotherapy
Evidence-based practices
Implementation
Mental health services

ABSTRACT

The United States Department of Veterans Affairs (VA) provides Cognitive Processing Therapy (CPT) and Prolonged Exposure therapy (PE) for PTSD at all of its facilities, but little is known about systematic differences between patients who do and do not initiate these treatments. VA administrative data were analyzed for 6,251 veterans receiving psychotherapy over one year in posttraumatic stress disorder (PTSD) specialty clinics at nine VA medical centers. CPT and PE were initiated by 2,173 (35%) patients. Veterans' probability of initiating either CPT or PE (considered together) was 29% lower (adjusted odds ratio = .61) if they had a psychiatric hospitalization within the same year, and 15% lower (AOR = .78) if they had service-connected disability for PTSD. Veterans' probability of starting CPT or PE was 19% lower (AOR = .74) if they were Hispanic or Latino, 10% lower (AOR = .84), if they were male rather than female, and 9% lower (AOR = .87) if they were divorced, separated or widowed rather than currently married. Probability of receiving CPT or PE was also lower if verans had more co-occurring psychiatric diagnoses (AOR per diagnosis = .88), were older (AOR per every five years = .95), or lived further away from the VA clinic (AOR per every ten miles = .98). Nonetheless, most patients initiating CPT or PE had two or more comorbidities and were service-connected for PTSD. Observed gender, age and ethnic differences in initiation of CPT and PE appear unrelated to clinical suitability and warrant further study.

* Corresponding author at: Dissemination & Training Division, National Center for PTSD, VA Palo Alto Health Care System, 795 Willow Road (334-PTSD), Menlo Park, CA 94025, USA.

E-mail addresses: Craig.Rosen@va.gov (C.S. Rosen), Nancy.Bernardy@va.gov (N.C. Bernardy), Kathleen.Chard@va.gov (K.M. Chard), Barbara.Clothier@va.gov (B. Clothier), joan.cook@yale.edu (J.M. Cook), jill.crowley@comcast.net (J. Crowley), Afsoon.Eftekhari@va.gov (A. Eftekhari), Shannon.Kehle-Forbes@va.gov (S.M. Kehle-Forbes), David.Mohr2@va.gov (D.C. Mohr), Siamak.Noorbaloochi@va.gov (S. Noorbaloochi), Robert.Orazem2@va.gov (R.J. Orazem), joeruzek@gmail.com (J.I. Ruzek), Paula.P.Schnurr@dartmouth.edu (P.P. Schnurr), Brandy.Smith@va.gov (B.N. Smith), Nina.Sayer@va.gov (N.A. Sayer).

https://doi.org/10.1016/j.janxdis.2018.11.003
Received 13 September 2018; Received in revised form 13 November 2018; Accepted 16 November 2018
Available online 20 November 2018

1. Introduction

Clinical practice guidelines recommend trauma-focused psychotherapies (TFPs) as first line treatments for posttraumatic stress disorder (PTSD) (Courtois et al., 2017; Department of Veteran Affairs and Department of Defense (2017)). Yet studies in the United States and other developed countries show that only a minority of patients with PTSD initiate a TFP (Becker, Zayfert, & Anderson, 2004; Finley et al., 2018; Shiner et al., 2013; van Minnen, Hendriks, & Olff, 2010). This is true even in the U.S. Department of Veterans Affairs (VA) health care system which has implemented policy and national clinician training programs to ensure availability of two manualized TFPs, Prolonged Exposure (PE; Foa, Hembree, & Rothbaum, 2007) and Cognitive Processing Therapy (CPT; Resick, Monson, & Chard, 2016), in all its medical centers (Karlin et al., 2010). Meta-analytic reviews have confirmed the effectiveness of PE (Powers, Halpern, Ferenschak, Gillihan, & Foa, 2010) and CPT (Asmundson et al., 2018) in a variety of patient populations.

Although VA efforts to promote use of CPT and PE have been underway since 2006, reach of these treatments to veterans with PTSD is limited and varies across sites. Reports of CPT and PE use from different PTSD specialty clinics range from as low as 4% to as high as 52% of all psychotherapy patients (Hundt et al., 2016; Lu, Plagge, Marsiglio, & Dobscha, 2016; Shiner et al., 2013). In fiscal year 2014, VA mandated that clinicians delivering evidence-based psychotherapies use structured note templates to indicate the specify therapy used and what components they delivered in session. Based on these templates, Sripada, Bohnert, Ganoczy, and Pfeiffer, (2018) reported that CPT or PE was initiated within six months by 8% of all VA patients nationwide who had a psychotherapy visit with PTSD as the primary diagnosis (n = 270,277) in fiscal year 2015. This may underestimate true reach of CPT and PE, as clinicians do not always take the effort to complete structured note templates when delivering these treatments.

Maguen et al. (2018) used natural language processing to analyze text of progress notes of all Iraq and Afghanistan veterans (n = 225,968) who had a VA psychotherapy visit with a PTSD diagnosis between October 2001 and August 2015. Patients were followed for a mean of about four years. During that time, 20% initiated CPT or PE. Iraq and Afghanistan veterans constitute a minority of VA patients treated for PTSD; it is unknown whether veterans of other service eras had similar use of CPT and PE.

The reach of a program involves not only the percentage of the relevant population that initiates a treatment, but also the risk characteristics of persons who initiate the treatment (Glasgow, Vogt, & Boles, 1999). The minority of patients who initiate CPT and PE may not be representative of the entire population of patients who could benefit from such treatments. Information on the characteristics of patients who initiate CPT or PE could inform efforts to improve reach of these proven treatments. Certain subgroups of patients may benefit from targeted outreach efforts if they are less likely to initiate CPT or PE. Alternatively, clinicians may need education and training if they have mistaken beliefs about which types of patients can benefit from CPT or PE.

The manuals for PE and CPT indicate only a few potential contraindications for these treatments. PE may not be appropriate for patients at imminent risk of harm to themselves or others, or those with active psychosis, high risk for being assaulted, or insufficient memory of the trauma (Foa et al., 2007). CPT may not be suitable for people who are in imminent danger or who have dissociation or panic attacks severe enough to interfere with treatment (Resick et al., 2016). The CPT manual recommends case-by-case decisions about using CPT with substance users.

Qualitative studies indicate that many providers believe that a substantial portion of their patients are 'not ready' for CPT or PE because they lack motivation or are too psychiatrically unstable (Cook, Dinnen, Simiola, Thompson, & Schnurr, 2014; Osei-Bonsu et al., 2017; Rosen et al., 2016). Clinicians have cited imminent suicidality, comorbid substance misuse, dissociation, paranoia, severe personality disorders, and cognitive impairment as factors that can make patients potentially less suitable for trauma work (Cook et al., 2014; Osei-Bonsu et al., 2017).

Only three studies have quantitatively examined TFP selection factors using medical records. One study found initiation of CPT was predicted by less severe PTSD symptoms (Grubbs et al., 2015). A second study found initiation of CPT and PE was predicted by older age and service-connected disability for PTSD (Mott, Mondragon et al., 2014). A third study found no predictors of initiation of CPT or PE (Kehle-Forbes, Meis, Spoont, & Polusny, 2016). These three studies were limited by small samples, and lacked sufficient statistical power to examine the effects of factors (such as hospitalization) which occur in only a small proportion of patients. Two studies were based only on data from a single site. Selection factors may operate differently in sites with different organizational structures and processes of care. These studies also did not compare selection factors associated with specific TFPs. Thus, we do not know whether the same factors were associated with initiation of CPT as with PE.

Studies based on national samples have examined veteran characteristics associated with receipt of any form of psychotherapy. Initiation of any psychotherapy for PTSD is proportionally more common among female than male veterans (Doran, Pietrzak, Hoff, & Harpaz-Rotem, 2017), less common among Hispanic or Latino than non-Hispanic or non-Latino veterans (Spoont, Sayer, Kehle-Forbes, Meis, & Nelson, 2017), and less common among veterans over age 65 (Smith, Cook, Pietrzak, Hoff, & Harpaz-Rotem, 2016). But little is known about associations of gender, ethnicity or age with the type of psychotherapy that veterans receive. Because female veterans and Hispanic or Latino veterans each constitute fewer than 10% of VA patients, large samples are needed to investigate such effects.

The present study analyzes data from a mixed-methods study of organizational factors differentiating PTSD clinics with higher and lower use of CPT and PE (Sayer et al., 2017). The current analysis examined patient-level factors associated with initiation of CPT or PE among patients who received psychotherapy in PTSD specialty clinics at nine VA sites. Our first aim was to identify clinical and demographics factors associated with initiating either CPT or PE (combined) rather than other psychotherapies for PTSD. Our second aim was to see whether similar or distinct factors were associated with initiating CPT versus PE.

2. Method

2.1. Participants and procedure

The VA Central IRB approved all aspects of this research. Data for this study were drawn from a mixed-method study of organizational and clinic factors that promoted high levels of use of CPT and/or PE in outpatient PTSD teams (Sayer et al., 2017). That prior study used purposive sampling to select 10 PTSD teams from 9 V A Medical Centers that varied in CPT and PE reach to patients with PTSD as determined by psychotherapy note content, with intentional over-sampling of clinics with higher than average use of CPT and PE. For the present analysis, two PTSD teams at the same medical center were combined for a total of 9 sites. The PTSD clinics were in 2 Southern, 2 Northeastern, 3 Midwestern, and 2 Western US VA medical centers. Each clinic provided psychotherapy to 184 to 1,533 (median = 690) patients with PTSD during the 12-month study period.

2.2. Measures

The primary outcome was initiation of either CPT or PE during the 12-month study window (October 1, 2014 through September 30, 2015). Procedure codes and psychotherapy progress notes were

collected from all the PTSD patients who had at least one psychotherapy visit in PTSD teams in our 9 sites during fiscal year 2015. Each psychotherapy visit was classified as CPT, PE, or neither through a combination of health factor data (chart note templates indicating use of a specific EBP) and Natural Language Processing (NLP) of psychotherapy chart notes. Building on prior work (Shiner et al., 2013), a specialized NLP pipeline was created using hand-coded rules in the SAS Enterprise Guide, version 7.1. NLP classification performed well compared against hand-coding of notes by experts (Mohr et al., 2018). The proportion of patients identified as initiating CPT or PE who were true positives (recall) was .91 for CPT and .85 for PE. The proportion of true CPT or PE cases detected using our approach (precision or sensitivity) was .96 for CPT and .95 for PE. Our method, which used both NLP and chart note templates, identified 61% more CPT and PE cases than would have been detected from chart note templates alone.

Clinical variables extracted from the VA Corporate Data Warehouse for fiscal year 2015 included number of co-occurring psychiatric diagnoses (0 to 6), specific comorbid diagnoses, any hospitalization for psychiatric treatment, and any hospitalization for substance use treatment. Demographic variables extracted from the VA Corporate Data Warehouse included patient age, period of military service, sex, race and ethnicity, service-connected disability for PTSD, distance between home and the nearest VA clinic, home residence designation as urban vs. rural and marital status. For our multivariate analyses, the small number (n = 129, 2%) of individuals with marital status unknown were coded together with the married group because they were using CPT or PE at the same rate (35%) and were about the same age.

2.3. Data analysis

This is an observational study of a cohort of PTSD patients receiving psychotherapy. By comparing characteristics of these patients who initiated either CPT or PE, versus those who initiated other types of psychotherapy, we initially identified imbalanced covariates indicated by significance at the .05 level using Pearson Chi-square test of independence for categorical variables, and the two-sample equality of the means' z-test for continuous variables. Next, to adjust for possible site clustering effect, each of these imbalanced covariates were included in a series of generalized linear mixed models, each with a single imbalanced covariate as a fixed effect and site as a random effect. Finally, to account for possible intra-confounding within these covariates, all the uniquely informative imbalanced covariates with coefficients significant at the .2 level were simultaneously included in a generalized linear mixed model with site as a random effect. This final model provided the reported adjusted effect of the covariates. To this end, since period of service was significantly related to age ($F(6,6244) = 2856.01$, $p < .001$), we used only age as the uniquely informative predictor in our models. This strategy avoids colinearity when the concept applies. Similarly, we used number of psychiatric diagnoses co-occurring with PTSD rather than entering each specific psychiatric comorbidity that comprised this variable. We also used distance from home to VA clinic rather than urban residence status since they were also significantly related to each other (Kruskal-Wallis chi-square = 1417.09, p < .001). Schwarz's Bayesian Information Criterion (BIC) indicated that the model with patient characteristics in addition was a better fit than the model that included only site as a random effect and the intercept as a fixed effect (BIC = 7277.70 vs. 7418.25, respectively).

We also investigated the possible effect of patient characteristics on initiating CPT, PE, or other psychotherapies, separately as a trinomial model. In these trinomial-based analyses, we excluded the small number of patients ($n = 145$) who initiated both CPT and PE in the same 12-month period. Initially, to check the balance across the three groups (CPT, PE, Other) of the patient characteristics, we used Pearson chi-square test of independence (or equality of distributions) for categorical variables and ANOVA F-test of the equality of the three means for the continuously measurable characteristics. Generalized linear mixed model for multinomial outcomes (3 categories) with site as a random effect was then used to test the adjusted effect of each variable of interest. The covariate inclusion policies were the same as in previous random effect logistic modeling. In the generalized linear mixed model for multinomial outcomes (3 categories), the inclusion of patient characteristics to the model compared to one that included only site as a random effect decreased the BIC from 9603 to 9412. SAS software version 9.4 was used for all computations.

Table 1
Characteristics of Patients Who Initiated CPT or PE Versus Other Psychotherapies.

Variable	Psychotherapy Type				Statistical Test
	CPT or PE (n = 2,173)		Other (n = 4,078)		
	M	*SD*	*M*	*SD*	
Age, years	48.12	14.34	51.58	15.13	$z = 8.75$ ***
Distance from home to VA clinic, miles	34.62	66.02	34.66	72.79	$z = 0.02$
Number of psychiatric diagnoses co-occurring with PTSD	2.33	1.23	2.55	1.31	$z = 6.49$ ***
	n	%	*n*	%	Statistical Test
Gender					$\chi^2(1) = 40.06$***
Male	1679	77.3	3417	83.8	
Female	494	22.7	661	16.2	
Race					$\chi^2(2) = 5.21$
White	1232	56.7	2203	54.0	
Black	701	32.3	1431	35.1	
Other[a]	240	11.0	444	10.9	
Hispanic or Latino ethnicity	219	10.1	619	15.2	$\chi^2(1) = 31.8$***
Marital Status					$\chi^2(2) = 13.03$**
Never Married	466	21.45	744	18.2	
Separated/Divorced/Widowed	599	27.6	1263	31.0	
Married[b]	1108	51.0	2071	50.8	
Urban residence	1683	77.5	3391	83.2	$\chi^2(1) = 30.17$***
Any psychiatric hospitalization	87	4.0	394	9.7	$\chi^2(1) = 63.89$***
Any substance use disorder hospitalization	43	2.0	96	2.4	$\chi^2(1) = 0.92$
VA Service connection for PTSD	1265	58.2	2742	67.2	$\chi^2(1) = 50.2$***
Traumatic brain injury	474	21.8	855	21.0	$\chi^2(1) = 0.61$
Period of Service					$\chi^2(6) = 104.52$***
WWII	1	.05	15	.4	
Korean	3	.1	31	.8	
Vietnam	522	24.0	1437	35.2	
Post-Vietnam	250	11.5	383	9.4	
Persian Gulf	534	24.6	877	21.5	
OEF/OIF/OND	841	38.7	1301	31.9	
Other	22	1.0	34	.8	
Type of psychiatric diagnosis co-occurring with PTSD					
Alcohol Abuse	896	41.2	1892	46.4	$\chi^2(1) = 15.29$***
Drug Abuse	535	24.6	1373	33.7	$\chi^2(1) = 54.73$***
Bipolar	190	8.7	414	10.2	$\chi^2(1) = 3.22$
Anxiety	1457	67.1	2677	65.6	$\chi^2(1) = 1.25$
Depression	1851	85.2	3565	87.4	$\chi^2(1) = 6.14$*
Psychosis	136	6.3	486	11.9	$\chi^2(1) = 50.67$***

Note. VA = Veterans Affairs. PTSD = posttraumatic stress disorder; CPT = cognitive processing therapy; PE = prolonged exposure therapy. WWII = World War II; OEF/OIF/OND = Operation Enduring Freedom, Operation Iraqi Freedom, Operation New Dawn. [a]Other races are American Indian (n = 107), Asian (n = 22), Hawaiian (n = 73), Multi-race (n = 92), and Unknown (n = 390). [b]Married includes the small percentage of veterans (n = 129, 2%) who had marital status unknown.
* $p < .05$. ** $p < .01$. *** $p < .001$.

3. Results

3.1. Initiation of either CPT or PE

A total of 6,251 patients initiated psychotherapy for PTSD through the selected PTSD teams during the 12-month study period. Table 1 presents participant characteristics and differences between those who initiated and did not initiate CPT or PE, without taking into account the clustering within site. Approximately one-third (35%) of the veterans who started psychotherapy for PTSD initiated CPT or PE. Veterans who initiated CPT or PE (n = 2,173) completed a mean of 10.14 (SD = 8.25) sessions of psychotherapy during the study year, of which 6.08 (SD = 4.78) were CPT or PE. Veterans who did not begin CPT or PE (n = 4,078) completed an average of 6.16 (SD = 8.29) sessions of psychotherapy.

In unadjusted analyses (see Table 1), compared to veterans with PTSD receiving only other types of psychotherapy (n = 4,078), those initiating CPT or PE (n = 2,173) were less likely to have been hospitalized in the past year and were less likely to have service-connected disability for PTSD. Initiators of CPT or PE and had slightly fewer psychiatric comorbidities in addition to PTSD than those not initiating those treatments (mean = 2.33 vs. 2.55). Looking at specific diagnoses, CPT and PE initiators were less likely to be diagnosed with a psychotic disorder (6.3% vs. 11.9%) or drug use disorder (24.6% vs. 33.7%) and slightly less likely to be diagnosed with an alcohol misuse disorder (41.2% vs. 46.4%) or depression (85.2% vs. 87.4%). Initiators of CPT or PE also tended to be younger and were less likely to be Vietnam veterans, less likely to be male, less likely to be Hispanic or Latino, more likely to be never married, and less likely to live in an urban area.

Fig. 1, presents the adjusted odds of receiving CPT or PE by patient characteristics controlling for the effects of clinic site, clustering within site, and other patient characteristics. Veterans' adjusted probability of receiving CPT or PE was 29% lower (AOR = .47 to .80) if they had a psychiatric hospitalization within the same year, and 15% lower if they had service-connected disability for PTSD (AOR = .69 to .88). Probability of receiving CPT or PE was 19% lower (AOR = .61 to .90) among Hispanic or Latino than non-Hispanic veterans,10% lower (AOR = .73 to .98) among male compared to female veterans, and 9% lower (AOR = .76 - .99) among divorced, separated or widowed veterans relative to currently married veterans. Probability of receiving CPT or PE was also lower if verans had more co-occurring psychiatric diagnoses (AOR per diagnosis = .84 to .93), were older (AOR per every five years = .93 to .97), or lived further away from the VA clinic (AOR per every ten miles = .97 to .99). Probability of initiating CPT or PE was not different for people who were never married relative to married, or for those who had a substance use hospitalization vs. those who did not (not shown in Fig. 1).

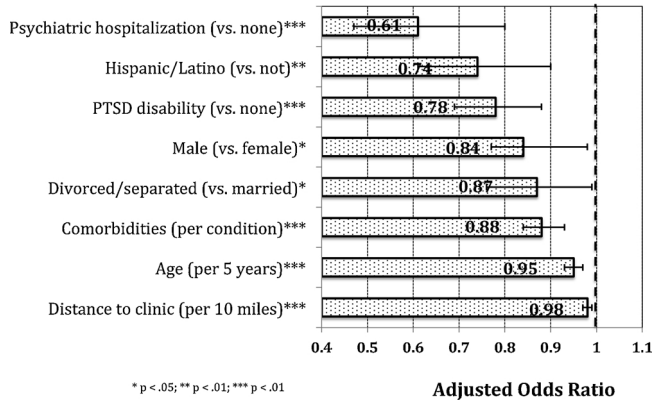

Fig. 1. Multivariate Factors Associated with Initiating Either CPT or PE versus Other Psychotherapies.

3.2. Initiation of CPT vs. PE

A total of 1,295 veterans initiated group or individual CPT, 733 initiated PE, and 145 initiated both CPT and PE. The last group was excluded from analyses predicting which specific therapy patients initiated. Descriptive data on characteristics of veterans who initiated CPT, initiated CPT, and initiated only other psychotherapies are included in Table 2.

Gender had different associations with CPT and PE. Male veterans were 31% less likely than females (AOR = .51 to .72) to initiate CPT, but were 51% more likely than females (AOR = 1.26 to 2.03) to initiate PE (see Table 3). Initiation of CPT and PE were both negatively associated with having more psychiatric diagnoses, service-connected disability for PTSD, older age, and further distance from home to clinic. Probability of initiating CPT was 42% lower (AOR = .38 to .72) among people with psychiatric hospitalization and 24% lower(AOR = .57 to .89) among Hispanic or Latino veterans; these factors were not significantly associated with likelihood of receiving PE.

4. Discussion

The effectiveness of CPT and PE have been well established (Asmundson et al., 2018; Powers et al., 2010). Yet only about one-third of psychotherapy patients with PTSD in our sample initiated CPT or PE. Our study was limited to PTSD specialty clinics and we oversampled clinics with high use of CPT or PE, therefore reach in all VA clinics nationwide is likely lower.

Controlling for covariates, patients who had a psychiatric hospitalization during the study period were 29% less likely than other patients to initiate CPT or PE. To the extent that psychiatric hospitalization is a marker for risk of harming oneself or others, this is consistent with CPT and PE not being recommended for individuals at immediate risk for harm. However exclusion should be based on current risk – someone who was previously suicidal but is now stable should not be precluded from receiving CPT or PE.

The difference in number of co-occurring psychiatric conditions between veterans who did and did not initiate CPT or PE, although statistically significant, was minimal in clinical terms (mean of 2.33 vs. 2.55 comorbidities). Some prior qualitative studies might give the impression that VA clinicians routinely exclude patients with comorbidities from receiving CPT or PE (Cook et al., 2014; Osei-Bonsu et al., 2017). This was not the case – most CPT and PE recipients had two or more psychiatric diagnoses in addition to PTSD. This seems appropriate given research showing that patients with co-occurring disorders can benefit from TFPs (2016, Roberts, Roberts, Jones, & Bisson, 2015; van Minnen et al., 2010). We did observe that veterans with co-occurring psychotic, drug use and alcohol use disorders were less likely to have initiated CPT or PE. Because our diagnostic data do not indicate acuity, we could not determine how well clinicians were differentiating patients with uncontrolled psychosis or substance dependence (which might contraindicate use of CPT or PE) from patients who had more stable psychotic and substance use disorders that would not interfere with these psychotherapies (Roberts et al., 2015; van Minnen et al., 2016).

Like Sripada et al. (2018), we found a negative association between service connected disability for PTSD and initiation of CPT and PE. Even so, most (58%) CPT and PE recipients were service-connected for PTSD. Reasons for the negative association with service-connected disability are unclear. Some clinicians may perceive service-connected veterans as less motivated for treatment (Sayer & Thuras, 2002). Some patients may be concerned that recovery will result in the reduction of their benefits (Meshberg-Cohen, DeViva, & Rosen, 2017), even though such reductions in benefits are uncommon. VA clinicians may be unaware of how their Veterans Benefits Administration regional office makes decisions about disability benefits and thus may miss the opportunity to provide education to their patients on this critical issue

Table 2
Demographic and Clinical Characteristics of Patients Who Initiated CPT, PE, and Other Psychotherpies.

Variable	Psychotherapy Type						Statistical Test
	CPT (n = 1,295)		PE (n = 733)		Other (n = 4,078)		
	M	*SD*	*M*	*SD*	*M*	*SD*	
Age, years	47.59_a	14.27	49.43_a	14.49	51.58_b	15.13	F (2,6103) = 37.37 ***
Distance from home to VA clinic, miles	36.25	70.44	31.0	56.43	34.66	72.79	F (2,6103) = 4.04
Number of psychiatric diagnoses co-occurring with PTSD	2.38_a	1.26	2.25_a	1.17	2.55_b	1.31	F (2,6103) = 22.08 ***
	n	%	*n*	%	*n*	%	Statistical Test
Gender							$\chi^2(2) = 70.28$***
Male	957	73.9_a	623	85.0_b	3417	83.8_b	
Female	338	26.1_a	110	15.0_b	661	16.2_b	
Race							$\chi^2(4) = 46.05$***
White	793	61.2_a	352	48.0_b	2203	54.0_b	
Black	353	27.3_a	301	41.1_b	1431	35.1_b	
Other[a]	149	11.5_a	80	10.9_b	444	10.9_b	
Hispanic or Latino ethnicity (Referent: No)	136	10.5_a	72	9.8_a	619	15.2_b	$\chi^2(2) = 28.21$***
Marital Status							$\chi^2(4) = 25.35$***
Never married	299	23.1_a	134	18.3_b	744	18.2_b	
Separated/Divorced/Widowed	375	29.0_a	187	10.3_b	1263	31.0_b	
Married[b]	621	48.0_a	412	13.3_b	2071	50.8_b	
Urban residence	989	76.4_a	589	80.4_{ab}	3391	83.2_b	$\chi^2(2) = 30.42$***
Psychiatric hospitalization	59	4.6_a	26	3.6_a	394	9.7_b	$\chi^2(2) = 56.72$***
Substance use disorder hospitalization	34	2.6_a	8	1.1_a	96	2.4_a	$\chi^{2(}(2) = 5.48$
VA Service connection for PTSD	750	57.9_a	438	59.8_a	2742	67.2_b	$\chi^2(2) = 44.96$***

Note. N = 6,106 excludes the n = 145 who initiated both CPT and PE during the 12-month study period. VA = Veterans Affairs. PTSD = posttraumatic stress disorder; CPT = cognitive processing therapy; PE = prolonged exposure therapy. Three group comparisons assessed using ANOVA (unbalanced) F test for continuous and Pearson chi-square test for categorical variables. Two group comparisons assessed using Student's two sample z-tests for continuous and Pearson chi-square tests for categorical variables. Subscripts indicate that means or percentages differ with Bonferroni correction (p < .05/33 tests (3 groups x 11 variables)). [a]Other races are American Indian (n = 104), Asian (n = 22), Hawaiian (n = 73), Multi-race (n = 90), and Unknown (n = 384). [b]Married includes the small percentage of veterans (n = 129, 2%) who had marital status unknown.
*** p < .001.

Table 3
Adjusted Odds Ratios for Characteristics of Patients with PTSD who Initiated CPT versus Other Therapies, PE versus Other Therapies, and PE versus CPT.

Variable	Psychotherapy Type					
	CPT vs. Other		PE vs. Other		PE vs. CPT	
	Adjusted *OR*	95% CI	Adjusted *OR*	95% CI	Adjusted *OR*	95% CI
Age, years	0.94***	(0.92 – 0.97)	0.96**	(0.93 – 0.99)	1.00	(0.98 – 1.05)
Distance from home to VA clinic, miles	0.98***	(0.97 – 0.99)	0.98*	(0.97 – 1.00)	1.00	(0.98 – 1.01)
Number of psychiatric diagnoses co-occurring with PTSD	0.89***	(0.85- 0.95)	0.84***	(0.78 – 0.90)	0.93	(0.86 – 1.01)
Male (Referent: Female)	0.61***	(0.51 – 0.72)	1.60***	(1.26 – 2.03)	2.70***	(2.08 – 3.50)
Hispanic or Latino ethnicity (Referent: No)	0.71**	(0.57 – 0.89)	0.84	(0.62 – 1.13)	1.10	(0.78 – 1.54)
Marital status (Referent: Married)						
Divorced, separated or widowed	0.96	(0.81 – 1.12)	0.83	(0.68 – 1.02)	0.90	(0.71 – 1.13)
Never married	1.19	(0.99 – 1.43)	1.00	(0.79 – 1.27)	0.85	(0.65 – 1.11)
Psychiatric hospitalization (Referent: No)	0.52***	(0.38 – 0.72)	0.85	(0.55 – 1.30)	1.49	(0.90 – 2.45)
VA service connection for PTSD (Referent: No)	0.79***	(0.69 – 0.90)	0.80**	(0.67 – 0.94)	0.98	(0.81 – 1.19)

Note. N = 6,106 excludes the n = 145 who initiated both CPT and PE during the 12-month study period. Adjusted *OR*s from generalized linear mixed (nominal outcome: 3 level) model with site as a random effect. Variables in the model were significant at p < .20 in simpler generalized linear mixed models with the three-level nominal outcome that included each specific characteristic alone as the fixed effect. CPT = cognitive processing therapy; PE = prolonged exposure therapy; 95% CI = 95% confidence interval; PTSD = Posttraumatic Stress Disorder. Reference group for continuous variables is at the mean. Adjusted *OR*s for age and distance are calculated per 5 years and 10 miles from their means, respectively.
* p < .05. ** p < .01. *** p < .001.

(Meshberg-Cohen et al., 2017). Another possibility is that PTSD service connection may serve as a proxy for PTSD severity, which we did not measure directly, and that PTSD severity was negatively associated with initiating CPT or PE. One prior study found more severe PTSD symptoms predicted lower odds of initiating CPT (Grubbs et al., 2015).

Hispanic or Latino veterans were 19% less likely than non-Hispanics and non-Latinos to initiate CPT or PE. Other recent studies show that Hispanic or Latino veterans were less likely than non-Hispanics and non-Latinos to initiate any type of psychotherapy (not just CPT and PE), and less likely to complete an adequate course of pharmacotherapy (Spoont et al., 2015; Spoont et al., 2017). The reasons for these gaps are not well understood. Duke, Moore, and Ames, (2011) suggest future research needs to differentiate the effects of structural conditions (e.g., economic disadvantage, distance from VA care, and treatment policies), socio-cultural and family norms (regarding gender roles, family, work, and responsibility) and treatment expectancies on treatment-seeking among Hispanic or Latino veterans. This could inform changes to policies, outreach processes, or psychotherapy protocols (Marques et al.,

2016) to better engage Hispanic or Latino individuals.

Older veterans were less likely than younger veterans to initiate CPT or PE. This is consistent with one national study (Sripada et al., 2018), but the opposite of what was observed in a single site study (Mott, Mondragon et al., 2014). Our finding might reflect treatment preference among older veterans – some high utilizers of VA care are older veterans who seek psychotherapy for support and behavioral activation more than for alleviation of symptoms (Hundt et al., 2014). It might also reflect an age-based disparity or provider biases (Smith et al., 2016). VA previously had a performance measure (no longer used) intended to encourage use of CPT and PE to treat Iraq and Afghanistan war veterans. This measure tracked whether Iraq and Afghanistan war veterans – but not other veteran cohorts – initiated at least 8 sessions of any psychotherapy for PTSD. This performance measure might have contributed to younger veterans receiving higher priority for CPT or PE than older veterans. Women were more likely than men to initiate CPT. CPT's explicit focus on reducing guilt and self-blame may be perceived by clinicians as particularly appropriate for survivors of sexual trauma, which is more prevalent among female veterans (Maguen et al., 2012).

The finding that 60% more veterans initiated CPT than PE may be due to VA having trained more providers in CPT than in PE, the option of delivering CPT in groups (PE can only be provided individually), and the fact that individual CPT is delivered in 60 min sessions whereas PE requires 90 min (Rosen et al., 2016). VA scheduling grids make it much easier to schedule 60 min than the 90 min appointments. Moreover, three individual CPT patients can be treated in the time needed to treat two patients with PE. Wider user of CPT may also reflect provider or patient preferences for particular treatments (Hundt et al., 2016; Schumm, Walter, Bartone, & Chard, 2015).

Strengths of this study include use of data from 9 sites across the US and use of progress note content in addition to note templates to improve detection of CPT and PE. On the other hand, this study was based on administrative data which have inherent limitations. We could not determine the fidelity or competence with which CPT and PE were delivered. We examined initiation of CPT and PE but not retention in treatment. We did not assess some important patient factors, including initial symptom severity, patient preferences and initial level of motivation for treatment.

We could not differentiate whether patients did not initiate CPT or PE because they were not offered these treatments, or because they declined them (Keller & Tuerk, 2016). Many VA clinics require patients to complete preparatory treatment before being offered CPT or PE (Hamblen et al., 2015), whereas other clinics successfully start these treatments right away (Schumm et al., 2015). Patients' acceptance of CPT and PE can also be influenced by the way these treatments are presented. In several studies, over 65% of VA PTSD patients who received well-designed education about CPT or PE selected these treatments (Keller & Tuerk, 2016; Mott, Stanley et al., 2014; Watts et al., 2015).

Importantly, we do not know what other types of therapy veterans were initiating. Some sessions marked with psychotherapy billing codes may have been assessment or case management rather than active psychotherapy (Shiner et al., 2013). Some veterans not receiving CPT or PE may have received other evidence-based psychotherapies. This study focused on two TFPs which had the strongest evidence for PTSD in prior guidelines and were commonly available in VA (Karlin et al., 2010; Uniform mental health services in VA medical centers & clinics, 2008). Recent updates of two PTSD practice guidelines (Courtois et al., 2017; The Management of Post-Traumatic Stress Working Group (2010)) have expanded the list of recommended psychotherapies to include Eye Movement Desensitization and Reprocessing (EMDR; Shapiro, 1989), specific cognitive behavioral therapies (Blanchard et al., 2003; Bryant et al., 2008; Ehlers et al., 2003; Kubany et al., 2004; Marks, Lovell, Noshirvani, Livanou, & Thrasher, 1998), Narrative Exposure Therapy (Ertl, Pfeiffer, Schauer, Elbert, & Neuner, 2011) and Brief Eclectic Psychotherapy (Gersons, Carlier, Lamberts, & van der Kolk, 2000). These treatments were generally not in use in our study sites in 2015, but should be included in future studies of trauma focused evidence-based psychotherapies in VA. Some patients who did not initiate CPT or PE may have previously received these treatments from either VA or community mental health providers. Last, our data were limited to VA PTSD specialty clinics with oversampling of clinics with high use of CPT and PE. These may not represent practices in other health care settings.

4.1. Conclusions

Limitations notwithstanding, our data provide useful information about which VA patients are receiving CPT or PE. The most important clinical difference between initiators and non-initiators of CPT and PE recipients was psychiatric hospitalization within the same year. It seems clinically sensible to assess case-by-case whether someone who recently needed hospitalization is now sufficiently stable to benefit from CPT or PE. While decreased co-morbidity and not having service-connected disability were associated with CPT or PE initiation, CPT and PE were not reserved for only the uncomplicated patients with PTSD. Indeed, most CPT and PE recipients, like non-recipients, had two or more psychiatric comorbidities and PTSD service-connection. Nonetheless, there were gender, age and ethnic differences in initiation of CPT and PE which appear unrelated to clinical suitability and reasons for these differences warrant further study. More research is needed on ways to improve reach of these treatments to all veterans with PTSD who want and can engage in them. Potential strategies to expand reach of trauma-focused treatments include improving patient education and shared decision-making (Mott, Stanley et al., 2014; PTSD Treatment Decision Aid, 2018), addressing misperceptions about the effect of treatment on pensions (Meshberg-Cohen et al., 2017), tailoring materials to under-served groups (Marques et al., 2016), engaging family support for treatment (Meis et al., in press), overcoming geographic barriers with in-home psychotherapy via secure video (Morland et al., 2017), and/or making organizational changes to facilitate clinics' delivery of trauma-focused therapies (Hundt, Harik, Thompson, Barrera, & Miles, 2018; Sayer et al., 2017).

Declarations of interest

None.

Funding

This research was supported by a grant from Health Services Research & Development, U.S. Department of Veterans Affairs, CRE-120-021, Promoting Effective, Routine, and Sustained Implementation of Stress Treatments (PERSIST), awarded to the first and last authors. The views expressed here are those of the authors and do not represent the position of the U.S. Department of Veterans Affairs.

References

Asmundson, G. J. G., Thorisdottir, A. S., Roden-Foreman, J. W., Baird, S. O., Witcraft, S. M., Stein, A. T., ... Powers, M. B. (2018). A meta-analytic review of cognitive processing therapy for adults with posttraumatic stress disorder. *Cognitive Behaviour Therapy*. https://doi.org/10.1080/16506073.2018.1522371 Advance online publication, retrieved from.

Becker, C. B., Zayfert, C., & Anderson, E. (2004). A survey of psychologists' attitudes towards and utilization of exposure therapy for PTSD. *Behaviour Research and Therapy, 42*(3), 277–292. https://doi.org/10.1016/S0005-7967(03)00138-4.

Blanchard, E. B., Hickling, E. J., Devineni, T., Veazey, C. H., Galovski, T. E., Mundy, E., ... Buckley, T. C. (2003). A controlled evaluation of cognitive behavioural therapy for posttraumatic stress in motor vehicle accident survivors. *Behaviour Research and Therapy, 41*(1), 79–96.

Bryant, R. A., Moulds, M. L., Guthrie, R. M., Dang, S. T., Mastrodomenico, J., Nixon, R. D. V., ... Creamer, M. (2008). A randomized controlled trial of exposure therapy and cognitive restructuring for posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 76*(4), 695–703. https://doi.org/10.1037/a0012616.

Cook, J. M., Dinnen, S., Simiola, V., Thompson, R., & Schnurr, P. P. (2014). VA residential provider perceptions of dissuading factors to the use of two evidence-based PTSD

treatments. *Professional Psychology Research and Practice, 45*, 136–142.
Courtois, C. A., Sonis, J., Brown, L. S., Cook, J., Fairbank, J. A., Friedman, M. J., ... Schulz, P. (2017). *Clinical practice guideline for the treatment of PTSD in adults.* Retrieved fromAmerican Psychological Associationhttp://www.apa.org/ptsd-guideline/ptsd.pdf.
Department of Veteran Affairs and Department of Defense (2017). *VA/DOD clinical practice guideline for the management of posttraumatic stress disorder and acute stress disorder.* Retrieved from:Washington DC: Author. https://www.healthquality.va.gov/guidelines/MH/ptsd/.
Doran, J. M., Pietrzak, R. H., Hoff, R., & Harpaz-Rotem, I. (2017). Psychotherapy utilization and retention in a national sample of veterans with PTSD. *Journal of Clinical Psychology, 73*, 1259–1279. https://doi.org/10.1002/jclp.22445.
Duke, M. R., Moore, R. S., & Ames, G. M. (2011). PTSD treatment-seeking among rural Latino combat veterans: A review of the literature. *Journal of Rural Social Sciences, 26*, 157–180.
Ehlers, A., Clark, D. M., Hackmann, A., McManus, F., Fennell, M., Herbert, C., ... Mayou, R. (2003). A randomized controlled trial of cognitive therapy, a self-help booklet, and repeated assessments as early interventions for posttraumatic stress disorder. *Archives of General Psychiatry, 60*(10), 1024–1032. https://doi.org/10.1001/archpsyc.60.10.1024.
Ertl, V., Pfeiffer, A., Schauer, E., Elbert, T., & Neuner, F. (2011). Community-implemented trauma therapy for former child soldiers in Northern Uganda: A randomized controlled trial. *JAMA, 306*(5), 503–512. https://doi.org/10.1001/jama.2011.1060.
Finley, E. P., Mader, M., Haro, E. K., Noël, P. H., Bernardy, N., Rosen, C. S., ... Pugh, M. J. V. (2018). Use of guideline-recommended treatments for PTSD among community-based providers in Texas and Vermont: Implications for the veterans choice program. epub ahead of print *Journal of Behavioral Health Services Research*. https://doi.org/10.1007/s11414-018-9613-z.
Foa, E. B., Hembree, E. A., & Rothbaum, B. O. (2007). *Prolonged exposure therapy for PTSD: Therapist guide: Emotional processing of traumatic experiences.* New York; Oxford: Oxford University Press.
Gersons, B. P., Carlier, I. V., Lamberts, R. D., & van der Kolk, B. A. (2000). Randomized clinical trial of brief eclectic psychotherapy for police officers with Posttraumatic Stress Disorder. *Journal of Traumatic Stress, 13*, 333–347.
Glasgow, R. E., Vogt, T. M., & Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *American Journal of Public Health, 89*(9), 1322–1327.
Grubbs, K. M., Fortney, J. C., Pyne, J. M., Hudson, T., Moore, W. M., Custer, P., ... Schnurr, P. P. (2015). Predictors of initiation and engagement of cognitive processing therapy among veterans with PTSD enrolled in collaborative care. *Journal of Traumatic Stress, 28*(6), 580–584. https://doi.org/10.1002/jts.22049.
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.
Hundt, N. E., Barrera, T. L., Mott, J. M., Mignogna, J., Yu, H.-J., Sansgiry, S., ... Cully, J. A. (2014). Predisposing, enabling, and need factors as predictors of low and high psychotherapy utilization in veterans. *Psychological Services, 11*(3), 281–289. https://doi.org/10.1037/a0036907.
Hundt, N. E., Harik, J. M., Barrera, T. L., Cully, J. A., Stanley, M. A., Mignogna, J., ... Sansgiry, S. (2016). Treatment decision-making for posttraumatic stress disorder: The impact of patient and therapist characteristics. *Psychological Trauma: Theory, Research, Practice, and Policy, 8*, 728–735. https://doi.org/10.1037/tra0000102.
Hundt, N. E., Harik, J. M., Thompson, K. E., Barrera, T. L., & Miles, S. R. (2018). Increased utilization of prolonged exposure and cognitive processing therapy over time: A case example from a large Veterans Affairs posttraumatic stress disorder clinic. *Psychological Services, 15*, 429–436. https://doi.org/10.1037/ser0000138.
Karlin, B. E., Ruzek, J. I., Chard, K. M., Eftekhari, A., Monson, C. M., Hembree, E. A., ... Foa, E. B. (2010). Dissemination of evidence-based psychological treatments for posttraumatic stress disorder in the Veterans Health Administration. *Journal of Traumatic Stress, 23*(6), 663–673. https://doi.org/10.1002/jts.20588.
Kehle-Forbes, S. M., Meis, L. A., Spoont, 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*(1), 107–114. https://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*(1), 42–48. https://doi.org/10.1037/ser0000064.
Kubany, E. S., Hill, E. E., Owens, J. A., Iannce-Spencer, C., McCaig, M. A., Tremayne, K. J., ... Williams, P. L. (2004). Cognitive trauma therapy for battered women with PTSD (CTT-BW). *Journal of Consulting and Clinical Psychology, 72*(1), 3–18. https://doi.org/10.1037/0022-006X.72.1.3.
Lu, M. W., Plagge, J. M., Marsiglio, M. C., & Dobscha, S. K. (2016). Clinician documentation on receipt of trauma-focused evidence-based psychotherapies in a VA PTSD clinic. *The Journal of Behavioral Health Services & Research, 43*(1), 71–87. https://doi.org/10.1007/s11414-013-9372-9.
Maguen, S., Cohen, B., Ren, L., Bosch, J., Kimerling, R., & Seal, K. (2012). Gender differences in military sexual trauma and mental health diagnoses among Iraq and Afghanistan veterans with posttraumatic stress disorder. *Women's Health Issues: Official Publication of the Jacobs Institute of Women's Health, 22*(1), e61–66. https://doi.org/10.1016/j.whi.2011.07.010.
Maguen, S., Madden, E., Patterson, O. V., DuVall, S. L., Goldstein, L. A., Burkman, K., ... Shiner, B. (2018). Measuring use of evidence based psychotherapy for posttraumatic stress disorder in a large national healthcare system. *Administration and Policy in Mental Health and Mental Health Services Research*. https://doi.org/10.1007/s10488-018-0850-5.
Marks, I., Lovell, K., Noshirvani, H., Livanou, M., & Thrasher, S. (1998). Treatment of posttraumatic stress disorder by exposure and/or cognitive restructuring: A controlled study. *Archives of General Psychiatry, 55*, 317–325.
Marques, L., Eustis, E. H., Dixon, L., Valentine, S. E., Borba, C. P. C., Simon, N., ... Wiltsey-Stirman, S. (2016). Delivering cognitive processing therapy in a community health setting: The influence of Latino culture and community violence on posttraumatic cognitions. *Psychological Trauma: Theory, Research, Practice and Policy, 8*(1), 98–106. https://doi.org/10.1037/tra0000044.
Meis, L. A., Noorbaloochi, S., Hagel Campbell, E. M., Erbes, C. R., Polusny, M. A., Velasquez, T. L., ... Spoont, M. R. (2018). Sticking it out in trauma-focused treatment for PTSD: It takes a village (In press) *Journal of Consulting and Clinical Psychology*.
Meshberg-Cohen, S., DeViva, J. C., & Rosen, M. I. (2017). Counseling veterans applying for service connection status for mental health conditions. *Psychiatric Services, 68*, 396–399 Wash. DC.
Mohr, D. C., Rosen, C. S., Schnurr, P. P., Orazem, R. J., Noorbaloochi, S., Clothier, B. A., ... Sayer, N. A. (2018). The influence of team functioning and workload on sustainability of trauma-focused evidence-based psychotherapies. *Psychiatric Services*. https://doi.org/10.1176/appi.ps.201700432 (epub ahead of print).
Morland, L. A., Greene, C. J., Rosen, C. S., Kuhn, E., Hoffman, J., & Sloan, D. M. (2017). Telehealth and eHealth interventions for posttraumatic stress disorder. *Current Opinion in Psychology, 14*, 102–108. https://doi.org/10.1016/j.copsyc.2016.12.003.
Mott, J. M., Mondragon, S., Hundt, N. E., Beason-Smith, M., Grady, R. H., & Teng, E. J. (2014). Characteristics of U.S. veterans who begin and complete prolonged exposure and cognitive processing therapy for PTSD: Veterans in evidence-based therapy for PTSD. *Journal of Traumatic Stress, 27*(3), 265–273. https://doi.org/10.1002/jts.21927.
Mott, J. M., Stanley, M. A., Street, R. L., Jr, Grady, R. H., & Teng, E. J. (2014). Increasing engagement in evidence-based PTSD treatment through shared decision-making: A pilot study. *Military Medicine, 179*, 143–149.
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*(2), 213–223. https://doi.org/10.1007/s11414-015-9489-0.
Powers, M. B., Halpern, J. M., Ferenschak, M. P., Gillihan, S. J., & Foa, E. B. (2010). A meta-analytic review of prolonged exposure for posttraumatic stress disorder. *Clinical Psychology Review, 30*, 635–641. https://doi.org/10.1016/j.cpr.2010.04.007 Epub 2010 May 2.
PTSD Treatment Decision Aid (2018). Retrieved from https://www.ptsd.va.gov/apps/decisionaid.
Resick, P. A., Monson, C. M., & Chard, K. M. (2016). *Cognitive processing therapy for PTSD: A comprehensive manual*.
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. https://doi.org/10.1016/j.cpr.2015.02.007.
Rosen, C. S., Matthieu, M. M., Cook, J. M., Wiltsey-Stirman, S., Landes, S. J., Bernardy, N. C., ... Watts, B. V. (2016). A review of studies on the system-wide implementation of evidence-based psychotherapies for posttraumatic stress disorder in the Veterans Health Administration. *Administration and Policy in Mental Health and Mental Health Services Research, 43*, 957–977. https://doi.org/10.1007/s10488-016-0755-0.
Sayer, N. A., Rosen, C. S., Bernardy, N. C., Cook, J. M., Orazem, R. J., Chard, K. M., et al. (2017). Context matters: Team and organizational factors associated with reach of Evidence-Based Psychotherapies for PTSD in the Veterans Health Administration. *Administration and Policy in Mental Health, 44*, 904–918. https://doi.org/10.1007/s10488-017-0809-y.
Sayer, N. A., & Thuras, P. (2002). The influence of patients' compensation-seeking status on the perceptions of veterans affairs clinicians. *Psychiatric Services, 53*(2), 210–212. https://doi.org/10.1176/appi.ps.53.2.210.
Schumm, J. A., Walter, K. H., Bartone, A. S., & Chard, K. M. (2015). Veteran satisfaction and treatment preferences in response to a posttraumatic stress disorder specialty clinic orientation group. *Behaviour Research and Therapy, 69*, 75–82. https://doi.org/10.1016/j.brat.2015.04.006.
Shapiro, F. (1989). Eye movement desensitization: A new treatment for post-traumatic stress disorder. *Journal of Behavior Therapy and Experimental Psychiatry, 20*(3), 211–217.
Shiner, B., D'Avolio, L. W., Nguyen, T. M., Zayed, M. H., Young-Xu, Y., Desai, R. A., ... Watts, B. V. (2013). Measuring use of evidence based psychotherapy for posttraumatic stress disorder. *Administration and Policy in Mental Health, 40*(4), 311–318. https://doi.org/10.1007/s10488-012-0421-0.
Smith, N. B., Cook, J. M., Pietrzak, R., Hoff, R., & Harpaz-Rotem, I. (2016). Mental health treatment for older veterans newly diagnosed with PTSD: A national investigation. *American Journal of Geriatric Psychiatry, 24*, 201–212.
Spoont, M. R., Nelson, D. B., Murdoch, M., Sayer, N. A., Nugent, S., Rector, T., ... Westermeyer, J. (2015). Are there racial/ethnic disparities in VA PTSD treatment retention? *Depression and Anxiety, 32*(6), 415–425. https://doi.org/10.1002/da.22295.
Spoont, M. R., Sayer, N. A., Kehle-Forbes, S. M., Meis, L. A., & Nelson, D. B. (2017). A prospective study of racial and ethnic variation in VA psychotherapy services for PTSD. *Psychiatric Services, 68*, 231–237.
Sripada, R. K., Bohnert, K. M., Ganoczy, D., & Pfeiffer, P. N. (2018). Documentation of evidence-based psychotherapy and care quality for PTSD in the department of veterans affairs. *Administration & Policy in Mental Health and Mental Health Services Research, 45*, 353–361.
The Management of Post-Traumatic Stress Working Group (2010). *VA/DoD clinical practice guideline for management of post-traumatic stress. Version 2.0.* Washington, DC: U.S. Department of Veterans Affairs & U.S. Department of Defense.

Uniform mental health services in VA medical centers and clinics (2008). *VHA handbook 1160.01*. Washington, DC: U.S. Department of Veterans Affairs.

van Minnen, A., Hendriks, L., & Olff, M. (2010). When do trauma experts choose exposure therapy for PTSD patients? A controlled study of therapist and patient factors. *Behaviour Research and Therapy, 48*(4), 312–320. https://doi.org/10.1016/j.brat.2009.12.003.

van Minnen, A., van der Vleugel, B. M., van den Berg, D. P. G., de Bont, P.a. J. M., de Roos, C., van der Gaag, M., ... de Jongh, A. (2016). Effectiveness of trauma-focused treatment for patients with psychosis with and without the dissociative subtype of post-traumatic stress disorder. *The British Journal of Psychiatry: The Journal of Mental Science, 209*(4), 347–348. https://doi.org/10.1192/bjp.bp.116.185579.

Watts, B. V., Schnurr, P. P., Zayed, M., Young-Xu, Y., Stender, P., & Llewlley-Thomas, H. (2015). A randomized controlled clinical trial of a patient decision aid for posttraumatic stress disorder. *Psychiatric Services, 66*, 149–154. https://doi.org/10.1176/appi.ps.201400062.