

Evaluating a Community-Based Training Program for Evidence-Based Treatments for PTSD Using the RE-AIM Framework

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Community mental health providers increasingly serve veterans with posttraumatic stress disorder (PTSD). However, recent surveys find that less than 20% of community providers are adequately trained to implement evidence-based treatments (EBTs) for PTSD. Since 2017, the STRONG STAR Training Initiative (SSTI) model has adapted traditional learning collaboratives aimed at increasing availability of EBTs for PTSD in community settings. This study reports on STRONG STAR program evaluation using the Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework to assess dissemination and implementation outcomes. Between January 2018 and January 2020, 280 mental health providers from 25 states participated. Providers initiating EBTs for PTSD with 930 patients, reaching 29% who had PTSD among their caseload. Overall, 238 of patients who initiated EBT completed treatment. Patients who completed treatment demonstrated a 32.51-point decrease, $t(237) = 25.27, p < .001$, in PTSD symptom severity and an 8.73-point decrease, $t(231) = 19.95, p < .001$, in depression symptom severity following treatment. High rates of SSTI providers continued implementing EBT for PTSD at 6 months (cognitive processing therapy [CPT]: 95%; prolonged exposure [PE]: 72%) and 1-year (CPT: 87%; PE: 77%) posttraining, similar to outcomes reported by community and Department of Veterans Affairs providers. In reporting on the first evaluation of a National Training Program for community-based mental health providers, we look ahead to continued work in refining scalable models for building provider competence in delivery of EBTs.

Impact Statement

There is need for scalable, resource efficient training models for mental health providers in community settings. Findings presented indicate that not only was STRONG STAR able to reach community providers, but they actively engaged in the training program, gained skills for delivery of evidence-based treatments in their unique settings—demonstrated by substantial symptom improvement among enrolled patients—and were able to sustain use of the therapies over time.

Keywords: evidence-based psychotherapy, PTSD, implementation strategies, RE-AIM, program evaluation

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Close to 3 million American military personnel have deployed since September 11, 2001, in support of operations in and around Iraq and Afghanistan. Posttraumatic stress disorder (PTSD) resulting from a deployment to a combat zone is a significant problem (Peterson et al., 2011; Tanielian & Jaycox, 2008) and is currently the third most common service-connected disability (U.S. Department of Veterans Affairs, 2019). Extensive research efforts have shown that first-line treatments for PTSD, including cognitive processing therapy (CPT) and prolonged exposure (PE), effectively reduce symptoms of combat-related PTSD (Foa et al., 2018; Resick et al., 2015, 2017), and these PTSD treatments are recommended in clinical practice guidelines issued jointly by the U.S. Department of Veterans Affairs and U.S. Department of Defense (VA/DoD, 2017).

The VA has led the field in the dissemination of EBTs for PTSD through robust, long-standing, centralized training programs. Indeed, the VA has trained thousands of mental health providers in EBTs for PTSD (Chard et al., 2012; Eftekhari et al., 2013). Evaluation of this training has revealed that veterans who receive care by trained providers experience significant reductions in PTSD symptoms and depression (Karlin et al., 2010; Rosen et al., 2016). However, many veterans are unable to access VA facilities or prefer to seek care outside of the VA (Finley et al., 2017; National Council for Behavioral Health, 2012). Therefore, civilian community providers and community agencies serve a growing population of veterans.

As community providers increasingly treat veterans with PTSD, there is a strong demand to enhance military-related competencies of this workforce, including the adoption of evidence-based treatments (EBTs) for PTSD. Recent national surveys found that less than 20% of community providers report competency in military culture to adequately implement evidence-informed care (Finley et al., 2016; Tanielian et al., 2014), and few are trained in EBTs for PTSD, including CPT and PE (Finley et al., 2018). Without widespread access to EBT training programs, veterans with PTSD seeking mental health services in their community may be more likely to receive substandard care. Ensuring that community-based providers have access to effective training in EBTs is therefore a critical component of ensuring access to high-quality PTSD care for veterans.

Mental health providers in community settings work in diverse organizations, agencies, and private practice, serving differing populations and with different needs and resources on which to draw (U.S. Department of Health & Human Services, Substance Abuse & Mental Health Services Administration, 2019). This diversity can add additional complexity to the task of designing programs in support of EBT implementation. One effort to disseminate EBTs for PTSD to community providers in New England (Charney et al., 2019) found that providers who attended posttraining consultation were significantly more likely to implement EBTs for PTSD and complete treatment with patients 6 months after training. Learning collaboratives, which typically include team-based training, multiple in-person learning sessions, and posttraining consultation, have been shown to be effective in disseminating and sustaining behavioral health interventions (Nadeem et al., 2014). A learning collaborative in North Carolina resulted in sustained practice of CPT 6 months after training among 95% of providers, as well as reductions in symptoms among community providers' patients (LoSavio et al., 2019). Training models with the best evidence to support providers in achieving competency and practice sustainment include posttraining consultation, program

evaluation, and implementation support (Hepner et al., 2019). However, those models are resource intensive and costly both for trainees and the training team (Nadeem et al., 2014).

More research is therefore needed to identify resource-efficient models for training and implementation that produce optimal outcomes in community settings while ensuring that programs are sufficiently scalable to allow for national dissemination of EBTs for PTSD (Rosen, Ruzek, & Karlin, 2017). In this study, we report on the first research evaluation of a National Training Program in EBTs for PTSD for community mental health providers.

Training Program

In 2017, the STRONG STAR Training Initiative (SSTI) launched a training program in EBTs for PTSD for veteran-serving community providers in Texas before scaling nationally in 2018 (Dondanville et al., 2020). The Bob Woodruff Foundation funded the Training Initiative with the overall goals of (a) increasing access to EBTs for PTSD for service members and veterans with PTSD seeking mental health services in community settings and (b) improving quality of life for them and their family members. There are several differences between SSTI, VHA National Program for dissemination of PE and CPT, and Community-Based CPT Learning Collaborative. Structurally, the VA rollouts have been centralized based on VHA policy mandates that all veterans with PTSD have access to CPT or PE (Rosen et al., 2016). The VHA training has successfully trained thousands VHA providers in support of this policy. This is markedly different than the structure of the SSTI which aimed to train *any* veteran-serving provider who applied to and was eligible for the training program during this period of time, regardless of their work setting. Many of the providers in the SSTI are generalist who treat veterans, veteran family members, and civilians. The SSTI here also differs than the learning collaborative model in that it only conducts one in-person learning session and does not require senior leader participation. Differences between SSTI and other training programs also include workshop time, consultation commitment, fidelity monitoring, and agency involvement as specified in Table 1.

The SSTI model included in-person, 2-day training workshops and follow-on weekly clinical case telephone consultation support for 6–12 months. The SSTI model was informed by recommendations for learning collaboratives (Nadeem et al., 2014) but includes multiple adaptations to better meet the needs of diverse provider populations (Wiltsey Stirman et al., 2013) at the national level. First, providers applied to join a training cohort; this helped to ensure that all participating providers were actively engaged. For providers working within a larger clinical agency, the application required confirmation of support from the provider's organization. In contrast to a traditional learning collaborative, and given SSTI's goal of increasing access to EBT training among a broad spectrum of providers, those in private practice are eligible. We also modified the traditional learning collaborative model by relaxing the requirement for participation from a senior leader in each organization. Despite the value of ensuring top-down familiarity with and support for EBT implementation, this requirement would have proven overly restrictive for this population of providers (Aarons et al., 2014). Next, we developed an online Provider Portal to ensure ongoing and easy access to EBT for PTSD implementation resources. The Provider Portal hosted downloadable assessment

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Table 1
Comparison of EBT for PTSD Training Program Models

Training program	VA PE rollout (Eftekhari et al., 2013; Karlm et al., 2010)	VA CPT rollout (Chard et al., 2012; Karlm et al., 2010)	CPT Learning Collaborative (LoSavio et al., 2019)	STRONG STAR Training Initiative
Population	VA psychologists & social workers	VA psychologists & social workers	Community-based clinicians mostly masters level social workers & counselors	Community-based clinicians mostly masters level social workers & counselors
Preworkshop assignments	Not mentioned	Not mentioned	Completion of online CPT training & online military culture training	Reading treatment manual, 2, 1-hr webinars, online military culture training
EBT workshop	4 days	3 days	Three learning sessions total of 4 days 4 months a part	2 days
Clinical consultation Postworkshop learning	Weekly individual and group calls Not mentioned	Weekly group telephone consultation Not mentioned	Weekly group telephone consultation Monthly clinical affinity calls & multiple learning sessions	Weekly group telephone consultation Monthly advance practice webinars
Fidelity monitoring Senior leader/agency involvement	Audiotape review of all sessions Access to national mentoring for clinic design and care processes	Provider self-report Access to national mentoring for clinic design and care processes	Audiotape review of selected sessions Participation in learning sessions (4 days) & monthly calls	Provider self-report Approval for provider participation and offered meetings as needed

Note. EBT = evidence-based treatment; PTSD = posttraumatic stress disorder; VA = Department of Veteran Affairs; PE = prolonged exposure; CPT = cognitive processing therapy.

measures, psychotherapy note templates, patient-friendly EBT for PTSD information materials, coordination of care email templates, and certificates for patients who completed EBT for PTSD. The Provider Portal also included psychotherapy demonstration videos and advanced training webinars. The portal became available to the provider upon acceptance into a training cohort and remains available in perpetuity.

Providers were required to participate in postworkshop, small group, weekly clinical case consultation until they completed EBT for PTSD treatment with two clients for an estimated duration of 6–12 months. Weekly consultation meetings were led by expert consultants trained by the developers of the respective EBT for PTSD where each provider presented current EBT for PTSD cases for feedback and guidance on treatment adherence. As an adaptation to the learning collaborative model for multiple in-person training sessions, we offered live training webinars prior to the in-person training. Topics included assessment of trauma and PTSD, motivational interviewing skills, engagement of patients shared decision making and in treatment planning, and topics specific to military-related trauma. Monthly live webinars focused on advanced practice topics also are offered after the in-person training. All webinars were recorded and made available on the portal to accommodate providers unable to attend live sessions. We also encouraged the involvement of senior leaders in the agency postworkshop by offering meetings to discuss barriers to adoption on an as-needed basis at any time. Program advertising and a mandatory 1-hr orientation webinar that occurred after provider acceptance into the program described all elements of the SSTI with the goal that providers could plan for maximum engagement.

Military cultural competency development was incorporated at all phases of training. Prior to the workshop, providers were instructed to complete trainings in military culture through the PsychArmor Institute, a nonprofit organization whose mission is to provide online training videos to effectively engage and support military service members, veterans, and their families (<https://psycharmor.org/>). During the workshop, training examples, role-plays, and video demonstrations were focused on military-related trauma in addition to weekly consultation, demonstration videos on the Provider Portal, and the monthly advanced webinars which included topics specific to military trauma. Program evaluation data were collected throughout the entirety of the program and for up to 12 months after participation in the program. We used the term “learning community” to refer to all aspects of the SSTI training model and to refer to individual training cohorts. Based on an evaluation conducted by the RAND Corporation using the training in psychotherapy (TIP) Tool 2.0, the SSTI training model falls under the category of a competency-based training model (Hepner et al., n.d.), aiming not only to build skills but also to support provider competency in implementing the intervention.

Evaluation Framework

The Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework has been used to evaluate the implementation of evidence-based practices in health care for over 20 years (Glasgow et al., 2019) and has been recommended for evaluating community-based projects (Kwan et al., 2019). The RE-AIM framework supports evaluation across multiple levels of participants, including mental health providers trained in the intervention as well as patients receiving EBTs from trained providers.

Guidelines for the use of RE-AIM encourage evaluation of each domain (Kessler et al., 2013) as follows: *Reach* refers to whether the program is reaching the target population; *effectiveness* refers to impact of the intervention on key clinical outcomes; *adoption* assesses the number and representativeness of those who initiate use of the practice; *implementation* refers to whether the intervention is conducted as intended; and *maintenance* refers to what extent the practice becomes part of routine care. We drew upon the RE-AIM framework to evaluate the SSTI national community-based training program for community providers. For the proposed project, RE-AIM dimensions were defined based on RE-AIM guidelines for evaluation and informed by previous research on evaluating training of mental health providers (Rosen, Eftekhari, et al., 2017).

Method

SSTI evaluation data were collected during a 2-year period between January 2018 and January 2020.

Participants

Participants included mental health providers enrolled in an SSTI Learning Community as well as patients with PTSD seen by these trained mental health providers. Detailed demographic information for mental health providers and patients is displayed in Tables 4 and 5, with comparison analyses reported between PE and CPT.

Mental Health Providers

The SSTI recruited veteran-serving mental health providers nationally through professional organization email listservs and professional networks. The SSTI website included an opportunity for individuals to sign up for email information on upcoming events. This listserv consists of over 3,000 individuals who received information about the program. Each learning community was advertised widely. Applications remained open until 2 weeks prior to the training or until the training reached capacity. Providers self-identified as veteran serving either through grant-funded programming or insurance panels. Eligible mental health providers included psychologists, social workers, counselors, and marriage and family therapists. Practice settings were wide ranging and inclusive of private practice, state agencies, and nonprofit organizations. Each learning community cost \$300 per provider. Providers self-selected to enroll in either a CPT or PE learning community. Providers were not allowed to enroll in both learning communities simultaneously due to the significant time commitment required. Detailed information on participating providers is presented in the Results.

Patients

Following participation in the 2-day training workshop, providers were encouraged to screen all patients on their caseloads for PTSD. During preworkshop learning, providers were trained to screen patients for PTSD and given clinical recommendations to identify appropriate patients. Patients were required to have experienced a Criterion A traumatic event according to the *Diagnostic and Statistical Manual of Mental Disorders*, 5th Edition (*DSM-5*; American Psychiatric Association, 2013) and significant PTSD symptoms (PTSD Checklist for *DSM-5* [PCL-5]; see “Measures”) that

warranted treatment. Providers administered the Life Events Checklist for *DSM-5* to screen for Criterion A trauma exposure (Weathers, Blake, et al., 2013). In order for patients to be considered appropriate for an EBT for PTSD, SSTI recommended that they have significant symptoms of PTSD as evidenced by a score of 33 or above on the PCL-5 (Weathers, Litz, et al., 2013). As part of preworkshop learning, providers were taught to discuss all treatment options in patients with PTSD. Patients were enrolled if they agreed to initiate the EBT for PTSD for which the provider was SSTI trained. Enrollment consisted of the provider entering de-identified patient demographics and symptom measurement scores into a password-protected online database within the Provider Portal. Clinical recommendations for exclusion were limited to conditions such as current suicidal or homicidal ideation, uncontrolled mania or psychosis, or substance abuse or dependence warranting a higher level of care or hospitalization. Other comorbidities or use of psychotropic medications were not clinically recommended as exclusion from proceeding with an EBT for PTSD. Providers screened and enrolled both new patients and existing patients. Potential patients were discussed during weekly clinical case consultation with EBT consultants.

Procedure

The University of Texas Health Science Center at San Antonio Institutional Review Board reviewed the SSTI program evaluation plan and determined the project to be exempt from further oversight. The provider application assessed for demographics, workplace information, and training history to determine eligibility. Applicants were accepted if they were licensed mental health providers who provide psychotherapy services to the veteran community through grant-funded programming or insurance panels. Most providers also provided psychotherapy services to civilian patients.

Measures

We analyzed RE-AIM dimensions at the provider and patient levels (see Table 2). Providers’ initial application also included assessments of EBT knowledge and treatment practices at pretraining baseline. For 5 months following the 2-day training workshop, providers received monthly surveys assessing uptake of the EBT for which they had completed the training workshop (CPT or PE). The survey included three questions that asked total patient caseload, education, and initiation. Surveys were repeated at 6 and 12 months posttraining and included broader questions about their use of the treatment and the use of program resources. All provider surveys were conducted through email links via REDCap electronic data capture tool (Harris et al., 2009, 2019). Providers who did not respond received up to two reminder emails to complete the survey. Providers submitted de-identified patient demographics and weekly symptom measurement in the password-protected Provider Portal while patients were engaged in the EBT for PTSD.

Posttraumatic Stress Symptoms

PTSD symptoms were measured by the PCL-5 (Weathers, Litz, et al., 2013). The PCL-5 is a 20-item, self-report measure with total scores ranging from 0 to 80, with higher scores indicating greater PTSD symptom severity. The SSTI instructed providers to administer the PCL-5 prior to treatment to establish baseline PTSD

Table 2
RE-AIM Dimensions, Program Component, and Measurement

RE-AIM dimension	Level	Data source	Measure
Reach	Provider	Application	<ul style="list-style-type: none"> • Number of states and cities with trained providers • Proportion of patients with PTSD educated about EBTs for PTSD • Proportion of patients with PTSD who initiated EBTs for PTSD
	Patient	Provider survey Months 1–5	
Effectiveness	Provider	Training evaluation & provider 6-month survey	<ul style="list-style-type: none"> • Postworkshop learning objectives evaluation • Consultation usage and helpfulness • Online resources “Provider Portal” usage and helpfulness • Change in PTSD symptoms measured by the PCL-5 • Change in depression symptoms measured by the PHQ-9
	Patient	Provider portal	
Adoption	Provider	Application	<ul style="list-style-type: none"> • Number and characteristics of providers who participated in training • Number and characteristics of patients who initiated EBT for PTSD
	Patient	Provider portal	
Implementation	Provider/patient	Provider portal	<ul style="list-style-type: none"> • Number of EBT for PTSD sessions completed • Percentage of patients who completed treatment
Maintenance	Provider	Provider 6- and 12-month survey	<ul style="list-style-type: none"> • Number of providers continuing to implement EBTs for PTSD at 6- and 12-months posttraining

Note. RE-AIM = Reach, Effectiveness, Adoption, Implementation, and Maintenance; *reach* refers to whether the program is reaching the target population; *effectiveness* refers to impact of the intervention on key clinical outcomes; *adoption* assesses the number and representativeness of those who initiate use of the practice; *implementation* refers to whether the intervention is conducted as intended; *maintenance* refers to what extent the practice becomes part of routine care; EBT = evidence-based treatment; PTSD = posttraumatic stress disorder; PCL-5 = Posttraumatic Stress Disorder Checklist for the DMS-5; PHQ-9 = Patient Health Questionnaire-9.

symptoms and then weekly during treatment to monitor treatment progression and change over time. The PCL-5 has demonstrated excellent psychometrics properties (Weathers, Litz, et al., 2013).

Depression Symptoms

The Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001) is a 9-item, self-report measure with total scores ranging from 0 to 27, with higher scores indicating greater depression severity. The SSTI instructed providers to administer the PHQ-9 prior to treatment to establish baseline depression symptoms and then weekly during treatment to monitor treatment progression. The PHQ-9 has demonstrated excellent psychometrics properties (Kroenke et al., 2001).

Treatment Completion

Wherever possible, completion was defined as (a) provider report of treatment completion. In cases where provider did not report treatment status, completion was defined as either (b) completion of the protocol-recommended number of sessions for CPT (12) or PE (10); or (c) early completion defined as a 19 or below on the PCL-5, which is considered good end-state functioning in studies of EBTs for PTSD (Wachen et al., 2019).

Statistical Analyses

Analyses to evaluate the RE-AIM components of the SSTI Learning Community were predominantly descriptive in nature.

Across each of the RE-AIM components, we evaluated frequency (%) and *M (SD)* descriptives at the provider and patient levels, as appropriate. We also employed dependent sample *t* tests to evaluate PTSD and depression symptom severity reductions from pretreatment to posttreatment to examine effectiveness at the patient level. Symptom severity within-group analyses were completed with the intent-to-treat sample, with the completer sample, and among patients who dropped out of treatment. Cohen’s *d* effect sizes were calculated to describe the magnitude of symptom severity reductions. Cohen’s *d* effect sizes equal to 0.20, 0.50, and 0.80 can be interpreted as small, medium, and large effects, respectively (Cohen, 1988). All analyses were completed using SPSS Version 26.

Results

Reach

Provider Level

In total, 280 mental health providers were enrolled in an SSTI Learning Community, inclusive of 189 (67%) in CPT and 91 (33%) in PE. The SSTI hosted in-person trainings in 6 states and trained providers residing in 25 states and 110 cities. States with trained providers included Alaska (1), Arizona (1), Arkansas (1), California (4), Colorado (12), Connecticut (4), Delaware (1), Florida (11), Illinois (22), Indiana (1), Kentucky (1), Louisiana (1), Massachusetts (2), Michigan (2), Montana (3), New Jersey (7), New Mexico (2), New York (11), North Carolina (6), South Carolina (2), Texas (171), Utah (1), Virginia (2), Washington (8), and Wisconsin (2).

Texas had the highest number of trained providers, with 171 providers (60%) serving 31 cities.

Patient Level

A total of 568 patients (with 215 identified as military-affiliated, inclusive of veteran, active duty, and guard/reservist) completed a baseline assessment and initiated at least one EBT treatment session, according to Provider Portal data. Providers completed monthly surveys for 5 months following the workshops, and survey response rates to the three-item uptake survey ranged between 25% and 57% across follow-up time points. Providers reported facilitating any type of individual psychotherapy to a total of 3,215 patients over the age of 14 years with PTSD. Among the total patients with PTSD, providers reported educating a total of 2,152 adult patients on EBTs for PTSD, reaching 67% of patients with PTSD on their respective caseloads. Providers reported initiating EBTs for PTSD with a total of 930 patients, reaching 29% of patients with PTSD among their total reported caseloads.

Effectiveness

Provider Level

Overall, 150 of the 280 providers who attended a workshop completed the 6-month postworkshop survey (54% response rate). Approximately 91% ($n = 138$) of providers who completed the survey reported attending at least one consultation call and attended an average of 13 consultation calls (range: 4–25) over this time period. Almost all providers who attended consultation (96%) rated the consultation as very or extremely helpful. Most providers reported using the Provider Portal on a weekly (38%) or more than weekly (29%) basis, with 17% reporting monthly use and 12% reporting use approximately every 3 months; only 3% ($n = 2$) reported never using the Provider Portal. The Provider Portal contained 124 resource documents (e.g., assessment measures, psychotherapy note templates), 81 psychotherapy demonstration training videos ranging from 3 min to 20 min, and 36 1-hr advanced practice webinars. More than 99% of all providers rated the assessment, treatment, video, and advanced webinar resources on the Provider Portal as helpful in developing competency to implement EBTs for PTSD. Providers viewed content 3,918 times totaling 680 hr of provider time watching the content.

Patient Level

As seen in Table 3, patients enrolled in EBTs for PTSD demonstrated significant reductions in severity of PTSD, $t(567) = 22.00$, $p < .001$, and depression, $t(552) = 17.37$, $p < .001$, following treatment. Further, 55% ($n = 310$) had PCL-5 scores below the cutoff (<33) suggestive of a probable PTSD diagnosis following treatment. Overall, 42% ($n = 238$) of patients who initiated EBT completed treatment. On average, patients who completed treatment demonstrated a 32.51-point decrease, $t(237) = 25.27$, $p < .001$, in PTSD symptom severity and an 8.73-point decrease, $t(231) = 19.95$, $p < .001$, in depression symptom severity following treatment (Table 3). Among completers, 79% ($n = 187$) had a PCL-5 score below the probable PTSD diagnosis cutoff.

Adoption

Provider Level

Mental health providers participating in the SSTI were predominantly female (83%) and master’s level counselors (43%) or social workers (35%) working in private sector organizations (76%), which were predominantly group-based practices (76%). Providers were mostly White (74%) with almost one third identifying as Hispanic/Latino (29%). Almost half of the providers reported a personal military connection (45%), defined as personal military service, having a military/veteran partner, or growing up as a military child. As seen in Table 4, gender was the only demographic variable related to EBT type ($p = .03$). Women were more likely ($OR = 2.29$) to enroll in a CPT training compared to men who were more likely to enroll in PE. Detailed provider demographic information is presented in Table 4.

Patient Level

During this evaluation period, providers initiated either CPT or PE with a total of 568 patients, 215 of which identified as military affiliated, inclusive of being veteran, active duty, and National Guard/reservist. During this evaluation period, providers initiated either CPT or PE with a total of 568 patients, 215 of which identified as military-affiliated, inclusive of being veteran, active duty, and National Guard/reservist. As seen in Table 5, patients were predominantly married (42%), non-Hispanic/Latino (70%), and White (73%), between 30 and 49 years old (46%), and with some college

Table 3
Effectiveness: PTSD and Depression Severity Reductions

Symptom outcomes	Intent to treat ($N = 568$) <i>M (SD/d)</i>	Completers ($n = 238$) <i>M (SD/d)</i>	Dropout ($n = 320$) <i>M (SD/d)</i>
BL PCL-5	50.90 (14.97)	53.30 (14.16)	49.17 (15.32)
Post PCL-5	31.25 (20.32)	20.79 (18.13)	38.79 (18.40)
PCL-5 change score	19.66 (0.92*)	32.51 (1.68*)	10.38 (0.60*)
BL PHQ-9	15.41 (6.27)	15.79 (5.70)	15.13 (6.66)
Post PHQ-9	10.19 (6.71)	7.06 (5.67)	12.47 (6.51)
PHQ-9 change score	5.22 (0.73*)	8.73 (1.31*)	2.66 (0.43*)

Note. PTSD = posttraumatic stress disorder; BL = baseline; Post = posttreatment; PCL-5 = PTSD Checklist for DSM-5; PHQ-9 = Patient Health Questionnaire; *d* = Cohen’s *d* within-group effect size; *SD* is provided in the parentheses for the BL and Post scores, while Cohen’s *d* is reported in parentheses for the change scores.

* indicates the estimate in parentheses is *d* effect size, otherwise the estimate is the *SD*.

Table 4

Adoption: Provider Demographic Characteristics and Comparisons Between Providers Trained in CPT Versus PE

Demographic variable	N = 280	Total proportion	χ^2
Age (years)			5.42
20–30	50	17.9	
31–40	103	36.8	
41–50	66	23.6	
51–60	34	12.1	
61–70	24	8.6	
70+	3	1.1	
Gender			4.59*
Female	233	83.2	
Male	47	16.8	
Race			4.25
White	206	73.6	
Black	28	10.0	
Other	46	16.4	
Ethnicity			0.63
Hispanic/Latino	82	29.3	
Non-Hispanic/Latino	193	68.9	
Discipline			3.99
Counseling	120	42.9	
Social work	98	35.0	
Psychology	44	15.7	
Marriage & family therapist	8	2.9	
Other: chaplain or nurse	9	3.2	
Practice setting			0.59
Private practice	66	23.6	
Group clinic/agency	214	76.4	
Organization type			0.07
Public sector (government/non-VA/non-DoD)	68	24.3	
Private sector (nonprofit/for-profit)	212	75.7	

Note. CPT = cognitive processing therapy; PE = prolonged exposure; VA = U.S. Department of Veterans Affairs; DoD = U.S. Department of Defense. Proportion and frequency statistics differ for individual demographic variables due to missing data.

education (42%). Civilian patients were predominantly female (75%), and military-affiliated patients were predominantly male (72%). Military-affiliated patients were predominately post-9/11 U.S. Army veterans. Most of the patients received in-person (98%) therapy in an outpatient setting (84%). Consistent with more providers being trained in CPT, most patients initiated CPT (84%) compared with PE. Detailed patient demographic information is presented in Table 5.

Implementation

Provider and Patient Level

Providers reported EBT for PTSD implementation barriers at the 6-month follow-up. Half ($n = 24$) of the CPT respondents reported challenges and 44% ($n = 19$) of PE respondents reported challenges in implementing the respective EBT for PTSD after training. The most frequent reported challenge was receiving referrals for clients needing PTSD treatment (CPT, $n = 11$; PE, $n = 12$). Patient disinterest in treatment type was the second highest rated challenge (CPT, $n = 10$; PE, $n = 10$). Additional challenges included low provider confidence in using respective EBT for PTSD (CPT, $n = 5$; PE, $n = 2$), not having enough time

away from regular work to attend consultation (CPT, $n = 4$; PE, $n = 3$), lack of patients on caseload needing PTSD treatment (CPT, $n = 4$; PE, $n = 3$), lack of leadership support for use of new treatment (CPT, $n = 3$), inability to bill for treatment (CPT, $n = 1$), lack of motivation to use a new treatment (CPT, $n = 1$; PE, $n = 2$), and lack of local supervision to support the use of new practice (PE, $n = 1$).

The mean number of EBT sessions completed in the total sample was approximately 7 sessions ($SD = 4.09$), with completed sessions ranging from 1 to 19. Overall, 42% ($n = 238$) of the total sample

Table 5

Adoption: Patient Demographic Characteristics

Demographic variable	Total sample (N = 568)		Military affiliated (n = 215)		Civilian (n = 353)	
	N	%	n	%	n	%
Age (years)						
14–29	184	32.4	37	17.2	147	41.6
30–49	263	46.3	126	58.6	137	38.8
50–64	91	16.0	39	18.1	52	14.7
65–79	30	5.3	13	6	17	4.8
Gender						
Female	326	57.4	58	26.9	268	75.9
Male	233	41.0	155	72.1	78	22.1
Transgender or nonbinary	9	1.6	2	<1.0	7	2
Marital status						
Single	184	32.4	41	19.1	171	48.4
Married	240	42.3	118	54.9	125	35.4
Formerly married	144	25.4	56	26.0	57	16.1
Ethnicity						
Non-Hispanic/Latino	399	70.2	172	80.0	227	64.3
Hispanic/Latino	151	26.6	36	16.7	115	32.6
Race						
White	414	72.9	142	66.0	272	77.1
Black	85	15.0	47	21.9	38	10.8
Other	69	12.1	26	12.1	43	12.2
Education						
High school or less	184	32.4	56	26.0	128	36.3
Some college/associate degree	240	42.3	103	48.0	137	38.8
College/graduate degree	144	25.4	56	26.0	88	24.9
Cognitive processing therapy	476	83.8	180	83.7	296	83.9
Treatment setting						
Outpatient	474	83.5	159	74.0	315	89.2
Residential inpatient	47	8.3	41	19.1	6	1.7
Telehealth	10	1.8	3	1.4	7	2
Other	37	6.5	12	5.5	25	7.1
Military status						
Active duty	58	10.2	58	27.0	—	—
Guard/reserve	10	1.8	10	4.7	—	—
Veteran	147	25.9	147	68.4	—	—
Military affiliation						
Air Force	41	7.2	41	19.1	—	—
Army	92	16.2	92	42.8	—	—
Marine	24	4.2	24	11.1	—	—
Navy	30	5.2	30	14.0	—	—
Other/multiple branches	28	4.9	28	13.0	—	—
Military era						
Korea	6	1.1	6	2.8	—	—
Vietnam	17	3	17	7.9	—	—
Persian Gulf	47	8.3	47	21.9	—	—
Post-9/11	130	22.9	130	60.5	—	—
Multiple eras	15	2.6	15	7.0	—	—

Note. — = not applicable. Proportion and frequency statistics differ for individual demographic variables due to missing data.

completed treatment. On average, treatment completers attended approximately 11 sessions ($SD = 2.66$) while participants who dropped out completed 5 sessions ($SD = 2.53$).

Maintenance

Provider Level

At the 6-month follow-up survey, 60 out of 90 trained PE providers completed the survey (66% response rate). Of the PE providers who completed the survey, 72% of providers reported continued implementation of PE with patients. At 6 months, 93 out of 193 trained CPT providers completed the survey (48% response rate). Of the CPT providers who completed the survey, 95% of providers reported continued implementation of CPT with patients (Table 3).

At the 1-year follow-up survey, 44 out of 90 trained PE providers completed the survey (49% response rate). Of the PE providers who completed the survey, 77% of providers reported continued implementation of PE with their patients. In the CPT group, 72 out of 193 trained providers completed the follow-up survey (37% response rate). Of the CPT providers who completed the survey, 87% of providers reported continued implementation of CPT with their patients.

Discussion

Overall, the SSTI Learning Community training model was successful in achieving proposed RE-AIM-guided outcomes. At the provider level, the SSTI enrolled providers who were primarily female, White, and master's-level counselors or social workers, which is reflective of the mental health provider population (Heisler, 2018; Salsberg et al., 2017). Although in-person trainings were offered in only six states, the SSTI reached providers in 25 states. This suggests significant demand among community providers in training for EBTs for PTSD, since providers were willing to travel if necessary, and that the SSTI could support providers nationally. Having a training model that utilizes virtual learning for most of the training elements (the only in-person requirement was the 2-day workshop) may also support national scalability of the program. Among providers who completed 6- and 12-month surveys, providers' evaluation of clinical consultation and portal resources was highly positive and providers' reports of continued usage of EBT for PTSD 6 and 12 months posttraining also was high. Maintenance rates were similar to the VA PE training program, whereby between 77.2% and 70.6% of providers continued to use PE 6- and 18-months posttraining, respectively (Rosen, Eftekhari, et al., 2017).

At the patient level, 67% of patients with PTSD received education about EBTs for PTSD and 29% initiated EBT for PTSD treatment. In defining reach of EBTs for PTSD in VA settings, Sayer et al. (2021) categorized 33% being high, 15% or less being low, and the range in between being medium. Reach of EBTs for PTSD in our program falls within the medium reach threshold category (Sayer et al., 2021) and is higher than the median reach (12%) reported in the VA PE training program 18 months posttraining (Rosen, Eftekhari, et al., 2017). This data is not available for the VA CPT training program. Important to note, patients reached by our program were both civilian and veterans with PTSD, and setting differences between the VA and those enrolled

in our program limit comparisons. Patients demonstrated significant reductions in PTSD and depression symptoms as indicated on the PCL-5 and PHQ-9, respectively. Most treatment completers (79%) had posttreatment scores below the PCL-5 PTSD cutoff of 33 (Bovin et al., 2016), indicating probable loss of diagnosis. Results are consistent with published literature of patient symptom reductions following a learning collaborative community training program (LoSavio et al., 2019) and VA training programs (Chard et al., 2012; Eftekhari et al., 2013). Overall, 42% of the patients who initiated an EBT for PTSD completed treatment. Providers enrolled in our program reported system-level, provider-level, and client-level barriers to implementation at the 6-month follow-up similar to those identified in VA (Karlin & Cross, 2014; Rosen et al., 2016).

Provider-level rates of treatment implementation varied among patients, ranging from 1 to 19 sessions with a mean of 7 sessions. Previous research has identified seven or more treatment sessions as an adequate dose of treatment for CPT and PE (Mott et al., 2014; Watts et al., 2014). Research on variable-length CPT among civilians has indicated that most participants respond in fewer than 12 treatment sessions, and the average number of sessions completed was 9 (Galovski et al., 2012). Patient dropout from treatment was 58% and consistent with dropout rates reported by LoSavio et al. (2019), though higher than observed in the VA PE training program (28%; Eftekhari et al., 2013). Notably, recent reviews of EBT for PTSD in VA routine clinical care settings indicate low rates of treatment completion 9% (Maguen et al., 2019) and 14.3% (Hale et al., 2019).

The SSTI aimed to reach veteran-serving providers practicing in community settings and in private practice. Providers applying to the training program self-identifying as veteran-serving mental health providers with intention to treat of military-affiliated patients, but also treated civilian patients as a part of their practice. This cohort of community-based veteran-serving providers not only treated 215 military-affiliated patients during the program period but also treated 353 patient who identified as civilians with EBTs for PTSD. An unintended positive outcome of the training program was expanding the access to EBT for PTSD beyond veterans. Notability, the providers in this program evaluation reported treating more civilians than military-affiliated patients. Important to note, training programs like ours develop competency in providers beyond the training period, and most respondents to the 12-month follow-up reported continuing to use the respective EBT for PTSD in their practice. It is likely more patients military affiliated and civilian will receive EBTs for PTSD with these trained providers in the coming years. This highlights the need for additional strategies to reach community-based providers who serve a larger proportion of veterans on their caseloads to support the program goal of increasing access to EBTs for PTSD for service members and veterans with PTSD seeking mental health services in community settings. As such since this evaluation, we have worked with managed care stakeholders to promote EBT for PTSD training to their veteran-serving mental health providers and conducted educational events in PTSD and EBTs for PTSD to their providers and care navigators.

Limitations

There are a number of limitations to note. First, these data result from a program evaluation and lack a direct comparison

group. While we have noted outcome comparisons to prior training programs, the SSTI is unique in that it adapted elements of the learning collaborative model implemented by LoSavio et al. (2019) in an attempt to develop a nationally scalable, resource-efficient training model, and thus differs in key respects from that original model. It is therefore difficult to assess whether the adapted learning community model described here was associated with improved outcomes or decreased benefits. Further research is needed to evaluate the effect of specific training components (e.g., in-person training vs. training plus consultation) on provider and patient outcomes. An additional limitation is consultation attendance tracking was not reliably documented by the consultants. As such, we are unable to examine consultation attendance as a predictor of program outcomes or patient outcomes. While we offered the availability of meeting with senior leaders and agencies as needed, most agencies did not request to meet. Given that research has pointed to both these elements as important in EBT sustainability (Rosen et al., 2016), future evaluation should include more specificity.

A significant limitation in evaluating the program is the reliance on provider reporting. Response rates varied at the monthly surveys and at the 6-month and 1-year evaluations (25%–77%). Most providers who responded to surveys were actively engaged in the program and implementing EBTs for PTSD. It is possible that those who did not respond are less actively implementing EBTs for PTSD, resulting in artificially higher evaluations of reach, adoption, and maintenance. Similarly, patient effectiveness data are limited to those entered into the Provider Portal. On the monthly surveys, providers reported initiating EBTs for PTSD with 930 patients, yet only 568 patients receiving EBTs for PTSD were entered into the Provider Portal. It is notable that completing monthly provider surveys takes approximately 3 min, whereas formally enrolling patients into the Provider Portal requires upwards of 10–20 min per patient to submit de-identified patient demographics, patient treatment sessions, and symptom measurement. It is possible that dropout rates and reported symptom outcomes may have been impacted by providers entering more limited measurement data into the portal. Interestingly, the Provider Portal was rated as helpful in developing competency in implementing EBTs for PTSD, used at least weekly by 67% of respondents, and available portal usage data indicated substantial viewing of videos and webinars by providers. At this time, the Provider Portal is not able to track individual user data which is a significant limitation in understanding the specific challenges in collecting patient outcomes.

Finally, our program evaluation did not include a measure of provider treatment fidelity. Excluding fidelity ratings such as audio or video review of sessions was a deliberate decision at the onset of the training program development as audio or video fidelity monitoring in routine care settings is costly and burdensome for the provider and the program and could limit scalability and reach of providers. As such, this limited our ability to report on implementation of the training program. Despite these limitations, to our knowledge, this is the first evaluation of a National Training Program outside the VA that aims to attend to the elements to support a scalable, resource-efficient training model. Therefore, it contributes to the growing understanding of training and dissemination in EBTs for PTSD.

Future Directions

Evaluation of the reach, efficacy, adoption, implementation, and maintenance of the SSTI for EBTs for PTSD suggests strong potential for positive public health impact among veteran-serving mental health providers and the clients they treat. Use of the RE-AIM framework has provided data to indicate need for additional investigation and further refinement of the learning community training model described here. First, all SSTI workshops during the evaluation period were conducted in person, and while we reached providers in 25 states, in-person workshops have significant cost and limited scalability. The coronavirus disease 2019 (COVID-19) pandemic has accelerated both the need for, and technology to support, virtual workshops on delivery of EBTs. However, additional research is needed to evaluate virtual workshops and to compare learning outcomes between in-person and virtual workshops. As a result of the initial evaluation of how frequently providers were educating patients regarding EBTs for PTSD and initiating CPT or PE, we added a preworkshop webinar focused specifically on how to educate clients on EBTs for PTSD. Evaluation is needed to determine whether this new webinar has an effect on education and initiation reach. Future research is needed on examining provider-level predictors of success in training programs. This research would help inform selection criteria for training programs. While most providers used the Provider Portal regularly and indicated it was helpful, further evaluation at the individual user level may inform potential refinements to support more comprehensive data collection and provider competency in implementing EBTs for PTSD. Finally, evaluation is needed to explore whether effectiveness outcomes in our program were consistent across participating patients who were treated by the same providers, including exploring potential differences in response between civilian and military-affiliated patients.

Implications

The SSTI Learning Community model represents an adaptation of traditional learning collaboratives aimed at increasing availability of EBTs for PTSD in community settings, in response to longstanding concerns that prior DoD and VA training programs have rarely included community providers. Findings presented here indicate that not only was SSTI able to reach community providers, but that community providers actively participated in learning communities, gained practical skills for delivery of EBTs for PTSD in their unique settings—demonstrated by substantial improvement in PTSD and depression outcomes among enrolled patients—and were able to sustain use of CPT or PE over time. In reporting on the first evaluation of a National Training Program for community-based mental health providers, we look ahead to continued work in refining scalable models for building provider competence in delivery of EBTs.

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