Therapists' Perceived Competence in Delivering Trauma-Focused Cognitive Behavioral Therapy During Statewide Learning Collaboratives

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Abstract

The learning collaborative (LC), a multi-component training and implementation model, is one promising approach to address the need for increased availability of trauma-focused evidence-based practices. The current study used data from four cohorts of a statewide LC on Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) to 1) evaluate pre- to post-LC changes in therapists' perceived competence in delivering TF-CBT and 2) explore therapist and contextual factors related to therapists' perceived TF-CBT competence. Therapists (N = 237) completed pre- and post-LC measures of practice information, interprofessional collaboration, organizational climate, and TF-CBT knowledge, perceived competence, and use. Findings indicated therapists' perceived TF-CBT competence significantly increased, pre- to post-LC (d = 1.31), with greater use of trauma-focused practices at pre-training and more TF-CBT training cases completed predicting greater pre- to post-LC gains in perceived TF-CBT competence. These findings highlight the need to assist therapists in identifying and completing training cases to promote competence and implementation.

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The Journal of Behavioral Health Services & Research, 2023. 500–513.
DOI 10.1007/s11414-023-09847-2

Approximately 66% of youth experience at least one traumatic event prior to adulthood, with 33%–50% experiencing multiple traumas.[1–3] Childhood trauma is linked to many biopsychosocial sequelae, including psychiatric and physical illnesses,[4–8] as well as considerable societal and economic burdens.[9,10] Given these consequences, it is critical that youth who experience traumatic events receive effective trauma-focused mental health services to address trauma-related difficulties and promote recovery.

However, a gap between research and practice exists, with trauma-focused evidence-based practices (EBPs) not always available, accessible, and/or competently delivered to youth and families.[11,12] Thus, efforts to close this research-to-practice gap and increase the reach and impact of these EBPs are needed. One promising model for addressing these needs is the learning collaborative (LC) model. The LC is a multi-component implementation model for providing training and ongoing support to mental health clinicians, clinical supervisors, and senior leaders to promote EBP adoption, implementation, and sustainment.[13] LCs include several components (e.g., didactics, consultation/coaching, training cases) to train clinicians in a targeted EBP, while also addressing therapist- (e.g., attitudes) and organization-level (e.g., limited EBP support, high caseloads, payment) implementation barriers.[14–17]

Studies evaluating LCs on trauma-focused EBPs for youth, such as Trauma-Focused Cognitive Behavioral Therapy (TF-CBT),[18] have found improved child and caregiver outcomes (e.g., reduced posttraumatic stress, depression, behavior problems, and parent distress), as well as increases in therapist-reported TF-CBT use, adherence, and competence, pre- to post-LC.[14–16,19–22] Another study examining an enhanced LC model, the Community-Based LC,[23] found that LC-related increases in therapist-reported TF-CBT adherence were sustained at 2-year follow-up.[24] Taken together, these findings reveal the LC model as a promising method for promoting EBP–and particularly TF-CBT–implementation and sustainment.

One specific construct that may help measure the success of implementation efforts–including LCs–is therapist competence, or skillfulness, in delivery of the targeted EBP. Many trauma-focused EBPs, like TF-CBT, require therapists to implement challenging treatment components (e.g., exposure to trauma reminders) with youth and caregivers.[19] As a result, therapists need to be and feel competent in their ability to deliver these difficult treatment components.[19] Indeed, less skilled or confident therapists who engage in these more challenging components may have difficulty with implementation, resulting in briefer or prematurely terminated exposures, for example, which in turn may result in poor client outcomes or future therapist avoidance of these components.[25,26] One study found the more challenging treatment components (e.g., trauma narrative, cognitive restructuring) of TF-CBT to be the least implemented components among clinicians working in a children's advocacy center.[27] Additionally, qualitative interviews with national TF-CBT trainers revealed providers' avoidance of the trauma narrative and concerns about providers' competence in delivering the trauma narrative as common challenges to implementation.[28]

Importantly, prior studies have indicated that higher TF-CBT fidelity (i.e., adherence and competence) is associated with better treatment outcomes.[14,20] For example, Amaya-Jackson and colleagues[14] found that greater TF-CBT treatment fidelity during a LC positively moderated pre- to post-treatment improvements in youth-reported posttraumatic stress symptoms. A more recent study found that therapists' perceived TF-CBT competence with their LC training cases predicted clinically significant pre- to post-treatment reductions in posttraumatic stress symptoms, per both client- and caregiver-reports.[20] Given these promising findings, more research is needed to understand how to best improve therapist competence with EBPs and how competence relates to successful implementation and client outcomes.

Additionally, other factors beyond training may influence the success of EBP training, implementation, and sustainment.[29] For example, the Consolidated Framework for Implementation Research (CFIR) proposes five domains associated with implementation: (1) intervention characteristics,

(2) individual therapist characteristics, (3) inner setting (e.g., organizational factors), (4) outer setting (e.g., external context or environment factors), and the (5) implementation process.[29] A better understanding of the potentially malleable therapist, inner setting, and outer setting factors related to therapist competence and EBP delivery could inform and improve future training and implementation efforts. However, previous studies have indicated mixed findings with regards to which therapist and other contextual factors relate to therapist competence.

Regarding individual therapist characteristics or therapist-level factors related to adherence and competence, Beidas and colleagues[30] found that more CBT experience with youth anxiety was associated with less adherence; whereas, Carpenter and colleagues[31] found that more professional experience predicted greater post-workshop Motivational Interviewing competence. In yet another training study, clinical experience did not predict therapist competence with exposure therapy.[32] However, more knowledge of exposure therapy at post-training has predicted greater clinical proficiency in applying exposure therapy for therapists who had received comprehensive training (i.e., online learning, motivational enhancement, and learning community).[32] Apart from experience and knowledge, greater emotional exhaustion, greater longevity at one's organization, and holding other professional licenses or certificates have been associated with lower levels of EBT adherence and competence.[33,34]

Additionally, individual perceptions of a more positive organizational climate (i.e., one's feelings and attitudes about their work environment) and greater external pressures to make program changes were found to positively relate to post-training adherence and competence.[30,34] In contrast, another study did not find perceived organizational factors (e.g., intra- and extra-organizational implementation readiness, organizational support) to relate to early adherence and competence in delivering another trauma-focused EBP, Cognitive Processing Therapy, post- training.[35] These mixed findings across studies may in part be due to the implementation of different EBPs in various settings for various patient populations. Other factors, such as type of setting (community based mental health, child advocacy centers, school-based clinics), therapist prior experience in mental health and trauma-specific treatment specifically, and varying client populations (age, symptom severity, racial/ethnic/cultural diversity) also offer potential explanations for these study differences. Further research is needed to elucidate how therapist, inner setting, and outer setting factors affect and influence EBP adherence and competence.

In summary, there is a need to increase the availability of trauma-focused EBPs, and the LC model provides one promising approach for addressing this need. Therapist competence (particularly for TF-CBT) relates to both implementation and client outcomes,[14,20] and thus, represents an important construct to measure when evaluating training and implementation efforts. However, prior studies have had mixed findings on which therapist and inner setting (organizational) factors affect competence, and to our knowledge, no study has examined the influence of outer setting, or community-level, factors on therapist competence (TF-CBT or otherwise). To address these gaps, the current study used data from four cohorts of an annual statewide clinical LC on TF-CBT, a trauma-focused treatment for youth and families shown to be effective at reducing trauma-related difficulties across numerous randomized clinical trials.[18,36,37] The current study aimed to: 1) evaluate pre- to post-LC changes in therapist-perceived TF-CBT competence and 2) explore therapist-, organization-, and community-level factors related to therapist-perceived TF-CBT competence following a LC.

Methods

Participants

Participants ($N=237$) were masters' and doctoral level therapists (21 clinical supervisors and 216 therapists) who participated in one of four TF-CBT LCs (cohort 1 $n=55$, cohort 2 $n=59$, cohort 3 $n=58$, cohort 4 $n=64$). Therapists were from 73 agencies across a Southeastern state. Since data

were gathered originally as part of a training and implementation initiative (see details below) versus a research study, demographics (e.g., age, race, gender) were not collected.

Procedures

Project BEST is an extant statewide training initiative started in 2007 with funding from the Duke Endowment. Its overall mission is to increase the reach and impact of trauma-focused EBPs for youth across the state. As part of this initiative, Project BEST has partnered to provide annual statewide LCs to train mental health providers to deliver TF-CBT. The annual LCs were open to community mental health agencies and related therapists across the state. Four cohorts of TF-CBT LCs were conducted 2017–2020, which constitute the focus of this study.

Each LC lasted approximately 10 months and consisted of four main components: pre-work phase, two learning sessions, two action periods, and metrics. In the pre-work phase, therapists completed the web-based TF-CBT training course (TF-CBT*Web*2.0)[38] and attended a webinar orientation session to learn about the LC training requirements. Therapists then attended two 2-day in-person training workshops (i.e., learning sessions) led by TF-CBT master trainers; these learning sessions included didactics, practice opportunities, and plan-do-study-act cycles to enhance therapists' TF-CBT-specific skills and to identify and ameliorate implementation barriers.[39] During the 3–4-month action periods after each learning session, therapists identified training cases to practice TF-CBT and participated in biweekly group coaching/consultation calls (led by nationally approved TF-CBT trainers) to facilitate TF-CBT treatment delivery with fidelity.

Participating therapists also completed weekly online surveys (i.e., metrics) about each of their TF-CBT training cases. These surveys inquired about therapist self-reported use of and perceived competence in delivering TF-CBT components, caregiver engagement in treatment, and barriers or problems that made adhering to the TF-CBT treatment model difficult with the client (e.g., engagement problems/crises) in that week's session. These weekly metric surveys began after the first learning session and were then administered weekly throughout the LC training initiative. Therapists also completed online surveys, pre- and post-LCs, that measured clinical practice information, TF-CBT knowledge, perceived competence, TF-CBT practices, community practices, and organizational climate. Therapists who attended both learning sessions, participated in at least 12 consultation calls, and completed a minimum of two TF-CBT training cases were added to the Project BEST roster of trained professionals. All of the training initiative's program evaluation and quality improvement data collection and analysis procedures were approved by Medical University of South Carolina's Institutional Review Board.

Measures

Professional status and background Therapists were asked about their highest degree; primary professional field; licensure status; the number of years they were employed at their current organization, agency, or practice; years worked in the field of child mental health; and years of experience doing therapy with youth with posttraumatic stress.

TF-CBT Clinical Skills Questionnaire (TCSQ)[40] The TCSQ is a 33-item self-report measure of therapist competence with TF-CBT components across various cultural, developmental, and familial backgrounds. Therapists rated their competence for each item on a 5-point Likert scale (1 = *not at all*, 2 = *a little bit*, 3 = *somewhat*, 4 = *very much*, 5 = *exceptionally*). The measure has six rationally developed subscales: Psychoeducation (two items; e.g., *I feel competent to provide a rationale to caregivers and children about why it is necessary to talk about their trauma*), Coping (four items; e.g., *I understand and feel competent to deliver the relaxation component of TF-CBT*), Exposure (six items; e.g., *I feel competent to successfully engage avoidant and reluctant children in treatment*

to talk about their trauma), Caregiving (three items; e.g., *I understand and feel competent to conduct the conjoint parent–child sessions as part of delivering TF-CBT*), General (seven items; e.g., *I feel competent to identify cases that are appropriate for TF-CBT treatment and cases that are not*), and Tailoring (12 items; e.g., *I feel competent to do TF-CBT with very young children, ages 3–6 years*). The total competency score is an average of all 33 items, indicating an overall score of therapists' perceived competency to deliver TF-CBT. Prior research with truncated 11- and 20-item versions of the TCSQ support the total scale's convergent and criterion validity, responsiveness, and excellent internal consistency.[19,41,42] In the current study, the TCSQ's internal consistency was excellent across timepoints for the total scale (pre-CBLC: $\alpha = 0.99$, post-CBLC $\alpha = 0.96$) and good-to-excellent across subscales (pre-CBLC: αs = 0.81–0.97; post-CBLC: αs = 0.80–0.93).

TF-CBT Knowledge Test (TKT)[43] The TKT is a 17-item objective measure of knowledge of the TF-CBT protocol and its practice elements using multiple-choice and true/false questions. The number of correct answers is summed for a total score (and then averaged for a percent score). Past studies using the TKT and an abbreviated 11-item version provide evidence of the TKT's acceptable item discrimination, convergent construct validity, and concurrent and predictive criterion validity.[41,42,44] With the present sample, the TKT's average item difficulty was 0.52 (range: 0.11–0.84), and its average item discrimination was 0.27 (range: -0.001–0.45).

TF-CBT Practices Scale (TPS)[16] The TPS is a 44-item self-report measure of therapist adherence to TF-CBT. Therapist respondents indicate the percentage of trauma cases on their caseload (during the past 6 months) with which they used specific practice elements that are either prescribed ($n = 40$) or proscribed ($n = 4$) by TF-CBT's protocol. Response options use a 6-point Likert scale (1 = *none*, 2 = *1%–20%*, 3 = *21%–40%*, 4 = *41%–60%*, 5 = *61%–80%*, 6 = *81%–100%*). After reverse-scoring responses on items involving TF-CBT-prohibited practice elements, a total score for the TPS is calculated by summing all 44 items. Additionally, the TPS has seven rational subscales: General Clinical Skills, Psychoeducation, Coping, Gradual Exposure, Personal Safety, Behavior Management, and Multidisciplinary Collaboration. Consistent with previous studies that found excellent internal consistency for the TPS' total scale,[16,24] the TPS' total scale had excellent internal consistency at pre-LC ($\alpha = 0.92$).

Implementation Climate Scale (ICS)[45] The ICS is an 18-item questionnaire that measures an employee's perception of their organization's climate for EBP implementation. Items are rated on a 5-point Likert scale from "not at all" to a "very great extent." The ICS has demonstrated acceptable construct validity, good to excellent reliability, and has six subscales: focus on EBP, selection for openness, recognition for EBP, selection for EBP, education support for EBP, and rewards for EBP.[45,46] The total score is computed by taking an average of the scale scores. The present sample's total scale had excellent internal consistency at pre-LC ($\alpha = 0.92$).

TF-CBT in your Organization (TFO)[24] The TFO measures an employee's perception of their organization's support for TF-CBT implementation. Therapists rated their agreement with 20 statements on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). An additional item was included for the present study's LCs to ask therapists about the extent to which they agreed that clinicians in their organization were skilled in using TF-CBT with LGBTQ clients and their families. A total score for the TFO is yielded by averaging all of its items. The TFO has previously shown excellent internal consistency and responsiveness to training.[24] With the current sample, the TFO had good internal consistency at pre-LC ($\alpha = 0.88$).

Supervision Frequency Therapists reported on how frequently they had planned in-person group or individual supervision with their primary clinical supervisor over the last 6 months on a 5-point scale. For study analyses, responses were dichotomized to frequent supervision (1 = *once a week or more* or *2–3 times per month*) or infrequent/no supervision (0 = *once a month, less than once a month*, or *no supervision*).

Barriers to Child Trauma Treatment[47] This 11-item measure has respondents rate the degree to which they perceive specific issues pose current barriers in their community to youth receiving EBT for trauma. Items (e.g., *Medicaid or other insurance will not pay for evidence-based services)* are rated on a 5-point Likert scale (0 = *rarely a barrier*, 4 = *nearly always a barrier*). A total score is obtained by summing item responses, with higher scores indicating greater perceived community barriers. The measure has shown good to excellent internal consistency, responsiveness, and construct validity.[47] In the current study, its internal consistency at pre-LC was good ($\alpha = 0.87$).

Interprofessional Collaboration (IPC) for Child Trauma Services[47] The IPC is an 8-item questionnaire measuring a professional's perception of IPC among agencies serving abused and traumatized youth within their community (e.g., *In your community, how frequently do different agencies serving abused and traumatized children and youth share detailed information about the progress of children and families in treatment?*). Four items had respondents rate the IPC's *quality* using a 5-point Likert scale (1 = *poor*, 5 = *excellent*); whereas, the other four items assess IPC *frequency* using another 5-point Likert scale (1 = *rarely*, 5 = *nearly always*). A total score is then obtained by summing item responses, with higher total scores indicating better perceived IPC among agencies in their community. Consistent with prior findings,[47] this measure had excellent internal consistency with the current sample at pre-LC ($\alpha = 0.94$).

Data Analysis Plan

Nesting Potential nesting effects at the level of LC cohort on relations of interest (e.g., TF-CBT Knowledge, TPS) were modeled as fixed effects using linear mixed-effects models. These analyses were found to be non-significant for all variables (i.e., $ps = 0.06–0.89$), and thus, these variables were dropped from subsequent primary analyses.

Missing Over 85% ($n = 203$, 85.7%) of participating therapists completed the post-LC assessment. Independent *t*-tests were conducted to compare post-LC assessment completers and non-completers on pre-LC variables. Number of years employed by current organization was significantly different between completers and non-completers ($t[143.99] = -2.38$, $p = 0.02$), such that completers ($M = 2.6$, $SD = 3.5$) were employed at their current organization for a longer amount of time than non-completers were ($M = 1.8$, $SD = 1.2$), though only to a trivial degree ($d = 0.19$). No other significant differences on pre-LC variables were found between post-LC assessment completers and non-completers. Moreover, Little's missing completely at random (MCAR) test was not significant for pre-LC data ($\chi 2[5,607] = 5,507.82$, $p = 0.83$) or post-LC data ($\chi 2[561] = 559.32$, $p = 0.51$), suggesting that missing data were MCAR for both time points.

Primary Analyses All analyses were conducted using SPSS v27. Only clinicians with pre- and post-LC assessment data were included in the primary analyses. For Aim 1, paired samples *t*-tests were run to examine pre- to post-LC changes in therapists' perceived competence for the TCSQ's total scale

and six subscales (i.e., psychoeducation, coping, exposure, caregiving, tailoring, general). Given the number of analyses, the Bonferroni correction was used to adjust for the inflated Type I error rate.

For Aim 2, a 4-step hierarchical regression analysis was conducted to examine whether therapist-, organization- (i.e., inner setting), and community-level (i.e., outer setting) variables predicted pre- to post-LC changes in therapists' perceived TF-CBT competence (i.e., TCSQ total score). Predictor variables were selected based on the literature described in the introduction[29–35] and statistically significant correlations with the outcome variable. The first block entry included pre-LC total TF-CBT perceived competence (TCSQ score) to control for baseline perceived competence. The second block entry included therapist factors: pre-LC TF-CBT knowledge (TKT), pre-LC use of trauma-focused practices (TPS), number of years at current agency, and number of TF-CBT training cases completed during the LC. The third block included pre-LC organization-level factors: implementation climate (ICS), support for TF-CBT implementation (TFO), and supervision frequency. The fourth block included two pre-LC community-level factors: interprofessional collaboration (IPC) and community barriers to child trauma treatment. This ordering was based on the Consolidated Framework for Implementation Research.[29] Importantly, the organization- and community-level variables were analyzed using individual therapists' perceptions of these variables, not an aggregate across an agency or community.

Based on the results of the hierarchical regression, post-hoc analyses were subsequently conducted to further examine the predictors that were found to be significant in Aim 2. A multiple regression analysis was performed to explore pre-LC therapist-, organization-, and community-level variables associated with a significant predictor in Aim 2. In addition to the same predictor variables included in the Aim 2 analysis, the number of training cases identified during the LC was also included in the post-hoc analyses.

Results

Participants

Most therapists were master's level ($n = 230$, 97.0%) and primarily in clinical social work ($n = 77$, 32.5%), nursing ($n = 73$, 30.8%), and counseling fields ($n = 61$, 25.7%). Therapists averaged 5.4 years ($SD = 6.3$, range: 1–41) of experience in the field of child mental health, 3.8 years ($SD = 4.3$, range: 1–26) of experience conducting therapy directly with youth that targeted posttraumatic stress, and 2.5 years ($SD = 3.3$, range: 1–20) of employment by their current agency. Most therapists ($n = 234$, 99.2%) indicated some prior TF-CBT training, most commonly learning about TF-CBT during graduate school ($n = 146$, 61.6%), completing an online TF-CBT course (e.g., TF-CBT*Web*, $n = 140$, 59.1%), and/or receiving clinical training on TF-CBT through their work ($n = 86$, 36.3%).

LC Participation Rates

Twenty-three (8.8%) therapists dropped out of the LC after initial enrollment. Of the 237 therapists who actively participated, 196 (82.7%) therapists rostered and were added to the Project BEST roster of trained professionals. Almost all therapists completed the first ($n = 236$, 99.6%) and second learning session ($n = 231$, 97.5%). On average, therapists attended 12.0 consultation calls ($SD = 2.3$, range: 0–15), completed 2.2 TF-CBT cases ($SD = 1.2$, range: 0–9), and completed 68.8% of weekly metrics ($SD = 26.9\%$, range: 2.9%–100%).

Pre- to Post-LC Changes in Perceived TF-CBT Competence

Therapists' overall perceived TF-CBT competence significantly improved, pre- to post-LC, $t(182) = 17.70$, $p < 0.001$, $d = 1.31$. Specifically, the average rating of perceived competence increased from "a little bit"/ "somewhat" competent pre-LC ($M = 2.9$, $SD = 1.0$) to "very much" competent post-LC ($M = 4.1$, $SD = 0.5$). Similarly, there were significant, large pre- to post-LC increases in therapists' perceived TF-CBT competence across all six subscales (see Table 1).

Predicting Pre- to Post-LC Changes in Perceived TF-CBT Competence

The hierarchical regression model predicting therapist-perceived competence in TF-CBT was statistically significant (see Table 2). First, therapists' perceived competence in delivering TF-CBT (i.e., TCSQ score) at pre-LC significantly predicted the same variable at post-LC, $F(1, 163) = 30.89$, $p < 0.01$, and accounted for 15.9% of the variance. The addition of therapist-level predictors in the second step explained an additional 12% of the remaining variance in post-LC perceived competence, $F(5, 159) = 12.29$, $p < 0.01$, $R^2 = 0.28$, $\Delta R^2 = 0.12$. Among the therapist-level predictors, therapists' pre-LC use of trauma-focused practices (i.e., TPS score) and number of TF-CBT cases completed during the LC both significantly predicted pre- to post-LC changes in perceived competence. This finding suggests greater TF-CBT adherence at pre-training ($\beta = 0.25$, $p = 0.002$) predicted greater pre- to post-LC gains in perceived TF-CBT competence. Additionally, therapists who completed a greater number of TF-CBT training cases during the LC ($\beta = 0.24$, $p = 0.001$) also had greater pre- to post-LC increases in perceived TF-CBT competence. In contrast, number of years at current employer and pre-LC TF-CBT knowledge were not significantly related to pre- to post-LC changes in perceived TF-CBT competence.

Organizational or inner setting variables were introduced in step 3. While this model was still statistically significant, $F(8, 156) = 7.99$, $p < 0.01$, $R^2 = 0.29$, it was not a significant change from the previous step, explaining less than 2% more of the variance in post-LC perceived competence ($\Delta R^2 = 0.01$). Indeed, none of the organization-level variables (i.e., implementation climate, support for TF-CBT implementation, supervision frequency) were significantly associated with pre- to post-LC changes in perceived TF-CBT competence. Notably, pre-LC adherence to TF-CBT practices ($\beta = 0.23$, $p = 0.006$) and number of TF-CBT cases completed during the LC ($\beta = 0.25$, $p = 0.000$) remained significant in step three.

Similarly, the addition of outer setting or community-level variables (i.e., interprofessional collaboration, community barriers to child trauma treatment) in step 4 did not significantly improve the

Table 1

Paired samples t-test results comparing pre- to post-learning collaborative TF-CBT perceived competence

Variables	Pre-LC *M (SD)*	Post-LC *M (SD)*	*t*	*d*
Total TF-CBT perceived competence[a]	2.9 (1.0)	4.1 (0.5)	17.70**	1.31
TF-CBT psychoeducation[b]	3.2 (1.0)	4.4 (0.5)	14.81**	1.09
TF-CBT coping[b]	3.1 (1.1)	4.4 (0.5)	15.88**	1.16
TF-CBT exposure[b]	2.8 (1.0)	4.1 (0.5)	17.75**	1.30
TF-CBT caregiving[b]	2.9 (1.0)	4.2 (0.5)	16.25**	1.19
TF-CBT general[a]	2.9 (1.0)	4.2 (0.5)	17.39**	1.29
TF-CBT tailoring[a]	2.8 (1.0)	4.0 (0.5)	16.73**	1.24

TF-CBT Trauma-focused cognitive behavioral therapy; *LC* Learning collaborative; ** $p < .01$; [a]$N = 183$, [b]$N = 186$

Table 2

Hierarchical regression analyses examining predictors of post-learning collaborative perceived TF-CBT competence ($N = 165$)

Predictor	*B*	*SE B*	*β*	*R*	R^2	ΔR^2	ΔF
Step 1	–	–	–	.39	.15	.15	30.01**
Pre-LC perceived TF-CBT competence	.20	.04	.40**	–	–	–	–
Step 2	–	–	–	.53	.28	.13	7.02**
Trauma-focused practice use	.12	.04	.25**	–	–	–	–
TF-CBT knowledge	.06	.18	.03	–	–	–	–
Years at current employer	-.02	.01	-.10	–	–	–	–
Number of TF-CBT training cases completed	.10	.03	.24**	–	–	–	–
Step 3	–	–	–	.54	.29	.01	1.05
Implementation climate	.07	.06	.11	–	–	–	–
TF-CBT implementation support	-.01	.09	-.01	–	–	–	–
Supervision frequency	.04	.07	.05				
Step 4	–	–	–	.54	.29	.004	0.86
Interprofessional collaboration	.04	.04	.07	–	–	–	–
Community barriers	.002	.05	.003				

All predictor variables, except number of TF-CBT training cases completed, included in the analysis were assessed at pre-LC. Predictor variables were coded as 0 = supervision once a month, less than a month, or not at all; 1 = supervision 2–4 times a month; *TF-CBT* Trauma-focused cognitive behavioral therapy; *LC* Learning collaborative; **$p < .01$

model, although it continued to be significant, F (10, 154) = 6.43, $p < 0.01$, $R^2 = 0.29$, $\Delta R^2 = 0.004$. In this final model, pre-LC adherence to TF-CBT practices ($\beta = 0.23$, $p = 0.007$) and number of TF-CBT cases completed during the LC ($\beta = 0.24$, $p = 0.001$) continued to significantly predict pre- to post-LC changes in perceived TF-CBT competence.

Post-hoc Analyses

Given that number of completed TF-CBT training cases during the LC significantly predicted pre- to post-LC changes in therapists' perceived TF-CBT competence, a multiple regression analysis was subsequently conducted to explore pre-LC variables that might predict the number of TF-CBT training cases completed. The model predicting number of completed TF-CBT training cases was significant, F (10, 194) = 5.89, $p < 0.01$, accounting for 23.3% of the variance (see Table 3). Specifically, the number of TF-CBT training cases identified and completed during the LC were significantly, positively correlated ($\beta = 0.44$, $p < 0.001$). In contrast, therapists who indicated more community barriers to youth receiving trauma treatment (e.g., not enough therapists trained in trauma EBTs) completed fewer training cases ($\beta = -0.16$, $p < 0.03$).

Discussion

The multi-component LC training/implementation model may help address the research-to-practice gap related to limited availability and access of quality EBTs, such as TF-CBT, for youth and families. Given prior findings indicating that therapist skill or competence in delivering an

EBP increases subsequent treatment use[48] and positive treatment response,[14,20] efforts to improve therapist-perceived competence, or self-efficacy, with EBTs have become an important component of therapist training and consultation.[49] The current study contributes to the extant literature by evaluating pre- to post-LC changes in therapists' perceived competence in delivering a specific EBP for trauma-related mental health problems and examining factors that may enhance competence over the course of training. As anticipated, findings showed that therapists' perceived competence in delivering TF-CBT significantly increased from pre- to post-LC. Our results replicate prior research indicating increased clinician-reported TF-CBT competency and fidelity pre- to post-LC.[14,20] Collectively, these studies provide additional support for the LC as an effective training and implementation model.

However, other factors, such as individual therapist characteristics, inner (e.g., organizational factors), and outer (e.g., external context or environment) setting factors, may also impact or influence therapists' competence in EBT delivery.[29] In the current study, neither inner setting factors (i.e., agency support for TF-CBT, organizational implementation climate, supervision frequency) nor outer setting factors (i.e., interprofessional collaboration, community barriers to child trauma treatment) were predictive of pre- to post-LC changes in perceived TF-CBT competence. One possibility is that study measures for these constructs relied solely on individual perceptions, and an aggregate across agencies or communities may have produced different results.[35] Additionally, inner and outer setting factors may not predict therapist-perceived competence but instead relate to other implementation outcomes (e.g., sustainability).[35] Moreover, the LC is a multi-component implementation model that includes learning sessions focused on plan-do-study-act cycles and ongoing consultation aimed at identifying and ameliorating implementation barriers. Consequently, the LC may have indirectly reduced inner and outer setting barriers, minimizing their impact on perceived competence. Future studies are warranted to elucidate the key components of the LC and the influence of inner and outer setting factors on therapist competence and other implementation outcomes.

Of the therapist factors examined, greater pre-LC reported use of TF-CBT practices significantly predicted pre- to post-LC gains in perceived TF-CBT competence. Further, the number of TF-CBT training cases completed during the LC also significantly predicted pre- to post-LC increases in

Table 3
Multiple regression analysis predicting number of TF-CBT training cases completed

Predictor	B	SE B	*B*
Trauma-focused practice use	.15	.10	.12
Perceived TF-CBT competence	-.02	.11	-.01
TF-CBT knowledge	-.81	.49	-.11
Number of years employed	-.004	.04	-.01
Supervision frequency	-.14	.17	-.05
TF-CBT implementation support	-.14	.22	-.06
Implementation climate	-.14	.15	-.08
Interprofessional collaboration	-.02	.11	-.01
Barriers to child trauma treatment	-.31	.14	-.16*
Number of training cases identified	.21	.03	.44**

All predictor variables, except number of training cases identified, included in the analysis were assessed at pre-LC. The "supervision" variable was coded as 0 = supervision once a month, less than a month, or not at all; 1 = supervision 2–4 times a month; *TF-CBT* Trauma-focused cognitive behavioral therapy; *LC* Learning collaborative; $*p < .05$, $**p < .01$; $N = 205$

perceived competence. It is not surprising that greater use or experience with an EBT would positively impact perceived competence, highlighting the need to provide therapists with strong foundations in EBPs early in their training program. This may help to ensure therapists optimally benefit from EBP trainings as they progress through their careers. Indeed, Jackson and colleagues[50] also found an interaction between training and case experience for developing EBT-specific competence. As another example, Jensen-Doss and colleagues[51] showed that therapists participating in a learning collaborative, who used more TF-CBT practices at pre-training, completed significantly more TF-CBT training cases. Collectively, these findings suggest that therapists need both ongoing support and case experience with implementing an EBT for greatest skill development.

One noted obstacle to these findings is that completion of training cases has been an oft-cited barrier to successful training completion in prior LC studies.[51,52] This highlights the importance of identifying and addressing barriers to case identification as part of the training/implementation effort. To increase our understanding of factors that may relate to number of training cases completed, the current study explored therapist-, organization-, and community-level variables associated with training case completion. Not surprisingly, the more training cases identified during the LC, the more cases tended to be completed. This illuminates the importance of including strategies early in training that target how to identify appropriate training cases within the LC. For instance, the consultation calls could provide increased focus on assisting therapists in accessing, identifying, and completing appropriate training cases.

It also may be important to address barriers to treatment completion. In our study, therapists completed fewer training cases if, pre-LC, they identified more barriers in their community to youth receiving trauma treatment (e.g., not enough therapists trained in trauma EBTs; Medicaid or other insurance not paying for EBTs). Interestingly, in a Community-Based LC (CBLC) that conjointly trained therapists and broker professionals (i.e., those who identify and refer youth/families for mental health treatment when warranted), significant pre- to post-CBLC decreases in reported community barriers to child trauma treatment were found.[46] Such findings suggest future research might compare the LC versus CBLC to further examine whether conjoint training of clinical and broker professionals significantly enhances interprofessional collaborations, and thereby improves the referral stream, which could then increase the likelihood of therapists having appropriate training cases and related competence.

Despite positive findings related to improved therapist competence, the current study has several noteworthy limitations. First, findings may have limited generalizability since the study's therapists volunteered to participate, all came from one state, and could afford to participate in the LC. Second, our measures relied on therapist self-report, which can be subject to biases (e.g., social desirability, response bias).[53] This is particularly salient for the study's measure of TF-CBT competence, which has not been psychometrically validated against expert observational ratings of TF-CBT competence. This is especially noteworthy since prior research has indicated poor concordance between self-report and observational coding methods for treatment fidelity.[53] Thus, future studies should validate this study's self-report measures of TF-CBT fidelity (i.e., TCSQ and TPS). Third, measurement of the organization and community variables in this study were based on individual perceptions of organization and community factors versus an aggregate of individuals within an organization or community. This stemmed from therapists being from 73 different agencies, with only one to a few therapists per agency. Relatedly, these individual raters were all therapists, with past research showing that perceptions of organizational and community variables can vary significantly by professional role (e.g., administrators vs. clinicians).[24,54] Fourth, the current study was based on a training initiative versus a research project, so there was no random assignment or comparison condition, limiting the ability to establish causality. Lastly, these findings were studied within an ongoing training initiative and no longer-term post-LC follow-up assessments were conducted, warranting further research to examine sustainability.

Implications for Behavioral Health

The current study evaluated therapist perceived competence in delivering TF-CBT, as research has demonstrated that perceived EBT competence is associated with better treatment outcomes.[20] Thus, study findings (i.e., significant pre- to post-LC changes in TF-CBT perceived competence) provide support that LC strategies (e.g., didactics, coaching/consultation, plan-do-study-act cycles) improve competence, which would presumably result in better treatment outcomes. Additionally, examination of therapist and contextual factors showed that reported pre-training use of trauma-focused practices and number of completed TF-CBT cases significantly predicted pre- to post-LC gains in perceived TF-CBT competence. Given these findings, future research should focus on studying strategies to assist therapists in identifying, retaining, and completing appropriate training cases. This could promote adoption and sustained implementation of TF-CBT and other EBTs and ultimately improve treatment outcomes.

Funding The training initiative was primarily funded by the Duke Endowment.

Declarations

Conflict of Interest The authors declare that they have no conflict of interest.

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