11-2020

Listen, Don't Tell: Partnership and Adaptation to Implement Trauma-Focused Cognitive Behavioral Therapy in Low-Resourced Settings

Rosaura Orengo-Aguayo

Regan W. Stewart

Bianca T. Villalobos

Juventino Hernandez Rodriguez

Aubrey R. Dueweke

See next page for additional authors

Authors

Rosaura Orengo-Aguayo, Regan W. Stewart, Bianca T. Villalobos, Juventino Hernandez Rodriguez, Aubrey R. Dueweke, Michael A. de Arellano, and John Young

Abstract

Clinical psychological science has developed many efficacious treatments for diverse emotional and behavioral difficulties encountered by children and adolescents, although randomized trials investigating these treatments have disproportionally been conducted by American, university-based research labs. The subsection of the world population involved in these studies, however, represents very few people among those in need of psychological services whose voices, perspectives, and orientations to therapy have not generally been reflected in well-funded research trials. Dissemination and implementation of evidence-based services designed to meet the needs of this broader global population, therefore, may require cultural and contextual adaptation in order to be successful. The current paper describes the implementation of Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) in three separate low-resourced settings (rural South Carolina, Puerto Rico, and El Salvador) utilizing the EPIS framework and guided by a community-based participatory research framework. Emphasis is placed on description of program development, building collaborative and responsive partnerships, and the use of implementation strategies to guide continuous quality improvement. Program evaluation data comparing baseline to post-treatment trauma symptoms and treatment completion rates for all sites are also presented, which suggests that treatment was associated with a large reduction in symptoms, exceeding that noted in many TF-CBT randomized trials. The implications of attention to context, adaptation, and methods of building partnerships with global communities are discussed, with a particular focus on propelling more refined models and controlled studies in the future.

Key Words: implementation; adaptation; partnership; trauma; global workforce development

Public Significance Statement: The current paper describes efforts to implement Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) for successful deployment in three, low-resource settings (rural South Carolina, Puerto Rico, and El Salvador). Findings highlight the importance of partnership and contextual adaptations for successful implementation in low-resourced settings.

Listen, Don't Tell: Partnership and Adaptation to Implement Trauma-Focused Cognitive Behavioral Therapy in Low-Resourced Settings

Numerous psychotherapy approaches exist to address youth behavioral health problems with demonstrable efficacy (Weisz & Kazdin, 2017). This body of evidence, however, has historically been derived from studies conducted in highly resourced, well-controlled research settings with samples of mostly White, urban, and economically advantaged North American youth (Weisz & Gray, 2008; Weisz et al. 2013). There is considerably less evidence for the success of these interventions in less controlled, low-resource, and/or global settings (although notable exceptions exist; e.g., Baumann et al., 2014; Murray et al., 2013; Patterson et al., 2012; Weisz et al., 2012). For example, only nine of the 52 studies included in Weisz and colleagues' (2013) meta-analysis were conducted internationally, and those exhibited notably lower effect sizes. This represents a significant science-to-practice gap, especially considering that mental health disorders are among the top three leading causes of disability globally (IHME, 2017). Youth in low-to-middle income countries are particularly at risk of experiencing some of the most significant etiological risk factors and encounter the greatest barriers to accessing psychological services (Wang et al., 2007).

Given that this group broadly represents the vast majority of youth on the planet, it follows that psychological science would focus its efforts on adapting evidence-based practices (EBPs) to function in more diverse environments than those in which they were developed. Achieving this goal will require not only cultural and linguistic adaptations to existing EBPs (Cabassa & Baumann, 2013), but also a view of implementation that is potentially more flexible, adaptive, and iterative than that afforded by traditional efficacy and effectiveness trials (Beidas, Koerner, Weingardt, & Kendall, 2011). For example, in the diffusion of any innovation, continuous adaptation is expected and likely whether researchers/administrators want it or not (Rogers, 2003). This has been notable in studies of consumer, clinician, and organizational factors (Beidas et al., 2015), longitudinal examinations of training in EBPs

(Stirman, Miller, Toder, & Calloway, 2013), and a comprehensive literature review concerning diffusion of innovations in healthcare organizations (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004). A framework for multifaceted, contextualized, time-sensitive implementation has also been developed to guide adaptation efforts (i.e., the Exploration, Preparation, Implementation, and Sustainment framework, or EPIS; Aarons, Hurlburt, & Horwitz, 2011; Moullin, Dickson, Stadnick, Rabin, & Aarons, 2019). As the name suggests, EPIS is divided into distinct phases. In the Exploration phase a service system, organization, researcher, and/or other stakeholder(s) identify a need, make use of all available resources to identify the best EBP to address that need, decide whether or not to adopt this practice, and consider potential adaptations necessary for successful deployment. In the Preparation phase, potential barriers and facilitators to implementation are assessed and strategies for EBP rollout are discerned. During the Implementation phase the EBP is initiated and ongoing monitoring is used to adjust strategies and optimize adoption of the innovation. Finally, during the Sustainment phase capacity is instilled so that the EBP can continue to be delivered within the unique context in which it was implemented, typically in a less resource-intensive manner than was initially necessary. Ideally, issues of sustainment are considered from the onset of study, although this has been shown to be more difficult in practice than in theory. Within each phase, the outer system context (e.g., service and policy environment; sociopolitical context; characteristics of the consumers of the EBP), the inner organizational context (e.g., leadership; clinicians; internal policies), innovation factors (e.g., characteristics and fit of the EBP and implementing team), and bridging factors (e.g., community and academic partnerships) dynamically interact to either hinder or support the implementation process (Aarons et al., 2012; Moullin et al., 2019).

Program development and implementation efforts that involve community partners may facilitate the implementation of an innovation across EPIS phases by increasing external validity and ownership (Bodison et al. 2015). Community Based Participatory Research (CBPR) is a collaborative

approach to research that equitably involves community partners to increase the relevance, fit, and sustainability of interventions in a particular context (Minkler & Wallerstein, 2003). It is an active component of the model to value community partners' goals and input into the implementation process, even to such a degree as to deviate from optimal research methodologies in order to incorporate their perspectives. This is designed to facilitate ownership of EBP programs by the target environments, sustainability of innovations, and more egalitarian statuses of all stakeholders (Bodison et al., 2015). Documenting program implementation strategies, such as aspects of the CBPR approach to build collaborative partnerships across the EPIS phases, may facilitate greater understanding of program success and contextual methods of sustainability.

Trauma-Focused Cognitive Behavioral Therapy as a Model Program

Trauma-Focused Cognitive Behavioral Therapy (TF-CBT; Cohen, Mannarino, & Deblinger, 2017) has one of the largest evidence bases of any treatment model for trauma-exposed youth. Over 21 randomized trials have demonstrated support for its efficacy in improving PTSD symptoms across a variety of global service settings (Cohen et al., 2017, pp. 74–80; de Arellano et al., 2014). Of these, 16 have established benefits in comparison to active and wait-list control groups, with 9 showing superiority to usual care or non-directive, supportive therapy, 5 showing superiority to a wait-list, and 2 showing equivalence with Eye Movement Desensitization and Reprocessing (EMDR) and Cognitive Behavioral Intervention for Trauma in Schools (CBITS). Further, TF-CBT trials have also occurred in various settings (de Arellano et al., 2005; Stewart et al., 2017) and with youth in low and middle-income countries like Zambia (Murray et al., 2013), the Democratic Republic of the Congo (O'Callaghan et al. 2013; McMullen et al., 2013), and Kenya and Tanzania (Dorsey, Lucid, & Martin, 2020). In the United States, TF-CBT has also been culturally tailored for Hispanic youth (de Arellano, Danielson, & Felton, 2012) and American Indians and Alaska Natives (BigFoot & Schmidt, 2010), but their effectiveness has yet to be systematically investigated with randomized controlled trials. As such, evidence suggests that

the TF-CBT treatment model is amenable to study of cross-contextual dissemination, implementation, and adaptation.

Current Study and Context for Adapted Implementation

The combination of CBPR and EPIS offers a potentially ideal method of studying implementation and diffusion of TF-CBT across multiple contexts. The current paper presents an overview of three such efforts, which begins with the resourced environment of an American academic institution and then continues in the divergent environments of Puerto Rico and El Salvador. These environments were chosen due to the team's interest in developing TF-CBT for use with Hispanic populations and other published work suggesting promise in this direction (e.g., de Arellano et al., 2012). Additionally, the significant need of youth in these locations contributed to the team's desire to provide training and make EBPs available. For example, between 30-60% of children in Latin America experience a traumatic event during their lifetime, and political instability, violent crime, extreme poverty, and forced migration are commonplace (Wirtz et al., 2016). The island of Puerto Rico suffers these same risk factors and was recently the site of one of the worst natural disasters in recorded history (Hurricane Maria), which contributed to longstanding power and water outages, disruptions to social structure, and elevations in the number of traumatized youth (Orengo-Aguayo et al., 2019a).

Implementation factors that guided this work across EPIS phases began with an a priori, central emphasis on building and maintaining strong organizational partnerships. Consistent with a CBPR approach, primary value was placed on external partners' needs, timelines, and priorities, even when these were not ideal for the research team (Chambers & Azrin, 2013). The team was also intentional about being engaged, responsive, and flexible throughout all phases of implementation, leading to a willingness to make adaptations at any time (Powell, Proctor, & Glass, 2014). This openness to revision resulted in rapid-cycling of implementation strategies to guide continuous quality improvement (Aarons, Hulburt, & Horwitz, 2011; Moullin et al., 2019; Orengo-Aguayo et al., 2019c).

Before proceeding to descriptions of individual program implementation, it should be noted that these efforts were implemented flexibly and in response to the unique challenges and contexts encountered in the various projects. Although guided by the EPIS and CBPR frameworks in general, the many moving parts and coordination among multiple agencies made it difficult to create an extremely structured a priori method of program development and evaluation. As such, the case examples presented here are more representative of retrospective organization and lessons learned in deployment, which may help form the basis for a more standardized approach to replicating the process. Each presents the first three EPIS stages in sequential order, including description of adaptations to implementation strategies and preliminary program evaluation data concerning treatment outcome. Table 1 summarizes the goals and decision points made across the EPIS phases and factors and Table 2 provides an overview of the key implementation principles involved. All projects described were part of existing service-focused grants, which were determined to be consistent with quality improvement efforts that did not require Institutional Review Board approval. Nonetheless, the research team maintained close communication with local university and organizational partners and informed all stakeholders of each effort's progress and findings on a regular basis.

TF-CBT via Telehealth in South Carolina

This project was funded by a Duke Endowment Grant, a SAMHSA National Child Traumatic Stress Network (NCTSN) grant, and the South Carolina Telehealth Alliance. The research team established partnerships with rural and underserved school districts with the goal of increasing access to evidence-based trauma treatment via telehealth (Stewart, Orengo-Aguayo, Gilmore, & de Arellano, 2017; Stewart, Orengo-Aguayo, Cohen, Mannarino, & de Arellano, 2017). Bilingual postdoctoral fellows provided TF-CBT via telehealth for 42 youth (ages 7-18) and their caregivers. Both the child and their supportive caregiver completed self-report measures assessing the child's symptoms of posttraumatic stress (UCLA PTSD-RI; Steinberg, Brymer, Decker, & Pynoos, 2004) and overall emotional duress.

Design and Implementation Procedure (via EPIS Framework)

Exploration

Identifying the Need. The Telehealth Outreach Program (TOP; Stewart et al., 2017) at the Medical University of South Carolina, Mental Health Disparities and Diversity Program provides school-based TF-CBT via telehealth to youth, particularly those who are underserved (e.g., racial and ethnic minorities; youth living in rural locations with few service providers). It began as an outgrowth of the longstanding Community Outreach Program – Esperanza (COPE; de Arellano et al., 2005), which provides in-person services to similar groups of underserved youths. Unfortunately, there are many more youth in need than the program has the capacity to treat. As such, telehealth partnerships with schools were seen as an efficient, viable method of capitalizing on the lessons learned through COPE and meeting the needs of youth in their local community to deliver services.

Developing Relationships with the Deployment Environment. The project first approached schools to conduct informal discussions and an appraisal of their clinical need related to traumatic stress. These schools were selected from among those identified by the Health Resources and Services Administration as having a shortage of mental health professionals, designated by the South Carolina Department of Education as notable in their educational disparities and among the top quartile of youth receiving free or reduced-price lunches. Once a list of schools had been compiled, meetings were solicited with key stakeholders (e.g., school boards; individual principals; parent groups; teachers) to conduct more formal introductions and better understand needs. In particular, these discussions focused on understanding: 1) types of mental health services currently provided at the school; 2) barriers to increasing access to those services; 3) staff's views about telehealth as a potential solution; 4) key points of contact and assistance for technical considerations (e.g., maintaining connections; storage of equipment; assurance of privacy for sessions); 5) and possible workflow procedures. Stakeholders generally reported recognition of a shortage of mental health professionals and diffuse barriers to

children and caregivers receiving services. Similarly, there was overall support for implementing telehealth as a strategy. The most commonly-raised problems were physical space to conduct sessions and the process of student referral. Space concerns were typically overcome quickly on the part of schools, and it became apparent to the research team that calling or emailing the project coordinator for referral (as opposed to faxing a form) would be preferable in almost all cases. All procedures were set up in accord with feedback from stakeholders, particularly concerning the methods of referring children for treatment.

Consider Adaptations to the EBP. The first and most overt adaptation was to the format of service delivery through remote video conferencing. Although this adjustment may seem minimal, in practice there were numerous considerations to make before deployment. For example, TF-CBT uses various worksheets and visual examples, which demanded a solution to both display them to the remote youth during sessions and deliver them for the purposes of homework exercises. Handouts were reconstructed into slideshow presentations that could be viewed through a screen-sharing function on the telehealth software. Likewise, files were sent to patients and caregivers who might assist with homework completion (all telehealth resources can be downloaded for free at telehealthfortrauma.com). Additionally, early feedback indicated that 60-90 minute sessions, typical for TF-CBT, were not tenable because the rooms in which services were rendered were needed by school staff and the amount of class a student missed was seen as problematic by the school administration. As such, session length was adapted to be 30-45 minutes long, which necessitated meeting with parents at other times.

Preparation

Identify Barriers and Facilitators. Most officials and teachers were very receptive to the idea of providing free assistance to some of their most disenfranchised students. Engagement and enactment of active support, however, were highly variable depending upon context. Across most schools,

technological difficulties represented the first significant barrier to treating youth. In particular, the telehealth equipment provided was often confusing to teachers and administrators who were asked to help youth connect to distal treatment providers. Similarly, the main mission of these institutions was education, and the removal of children and teachers from that already heavily under-resourced environment was not always met with great enthusiasm. Finally, another macroeconomic factor that affected eventual program sustainability (but not establishment or grant-funded provision of services) was the lack of reimbursement for telehealth services by psychologists in the state at the time.

Develop an Implementation Plan. As indicated above, school-based sessions were adjusted to be shorter in length and caregiver sessions were conducted at some time convenient to the caregiver (typically after work or during a lunch break). Engagement was also seen as a potential barrier during initial program development, which was addressed through systematic reminder phone calls and text messages. Additionally, given that ethnic minorities are more likely to report stigma as a barrier to accessing mental health care (Clement et al., 2015), care was taken to discuss and address caregivers' concerns and negative perceptions about treatment from an ethno-cultural perspective when relevant. For example, topics such as system mistrust, stigma related to seeking mental healthcare, and motivations for pursuing therapy were discussed with caregivers and patients at onset and regular intervals.

Implementation

Training Providers in the EBP. Treatment was provided by three bilingual postdoctoral fellows whose graduate educations and academic careers were oriented toward posttraumatic stress research. In addition to long-term experience treating youth in both Spanish and English using TF-CBT protocols, the team also participated in formal TF-CBT training with a national trainer specifically for this project. One-on-one clinical supervision meetings were also held weekly to ensure appropriate implementation of treatment techniques and continued development of the therapists' clinical skill set. In short, the

level of expertise and diligence associated with treatment provision in this setting was unlikely to be paralleled in any non-academic setting where resources are much more limited.

Initiation of the EBP and Ongoing Monitoring and Support. The initial program rollout saw few referrals, which prompted a rapid response from the team. This entailed discussion with schools, which led to updating promotion materials. Additionally, the geographic catchment area was expanded in order to increase referrals and program availability. It was also determined that teachers in the targeted schools were often averse to phone calls (given too many other tasks to manage). As a consequence, advertising was updated to assure teachers that communication could occur via email only.

Results

Seventy trauma-exposed youth in 7 underserved communities across South Carolina received TF-CBT via telehealth. Of these, 88.6% completed a full course of TF-CBT and 96.8% of these treatment completers no longer met diagnostic criteria for a trauma-related disorder at posttreatment. Effect sizes for PTSD symptoms pre-to-post treatment were large (**d** = 2.04 child report; **d** = 1.50 caregiver report; see Stewart, Orengo-Aguayo, Young, et al., in press).

School-based TF-CBT in Puerto Rico Post-Hurricane Maria

This project, funded by the NCTSN, began shortly after Hurricane Maria devastated Puerto Rico in 2017. Partnerships with the Puerto Rico Department of Education (PR-DE) were established with the goals of: 1) training staff on trauma-informed practices; 2) training mental health providers on TF-CBT; and 3) providing consultation to administration to develop trauma-informed schools (see Orengo-Aguayo et al., 2019b for full description of the project). Training participants included teachers, school administrators, and PR-DE leadership. Recipients of TF-CBT training were psychologists who delivered services to Puerto Rican youth (ages 3 – 18; 100% Hispanic) enrolled in public schools and their supportive caregiver(s). Both the child and their caregivers completed self-report measures assessing

the child's symptoms of posttraumatic stress (CPSS-5; Foa, Asnaani, Zang, Capaldi, & Yeh, 2017) and overall emotional duress.

Exploration Phase

Identifying the Need. On September 20, 2017, Hurricane Maria made landfall on the island of Puerto Rico, becoming one of the most devastating and costliest natural disasters in recorded history. Approximately 4,645 deaths were attributable to the impact of the hurricane, the entire island's power and communications systems were rendered inoperative, and mass population exodus to the mainland United States occurred shortly after (Kishore et al., 2018). As soon as communications with the island were possible after the hurricane dissipated, the team contacted the PR-DE to determine what they could do to help. The impetus for this contact was multifaceted and included the potential to aid people in desperate need, establishing programmatic dissemination and implementation efforts of EBPs, and the fact that one of the authors was born and raised in Puerto Rico (and thus had personally meaningful reasons for offering assistance). Communication mainly occurred via WhatsApp messages (mobile phone application commonly used globally) due to island-wide cell phone tower outages and focused on three key areas: 1) assessing emotional and physical safety of educational personnel; 2) determining potential short- and long-term needs; and 3) outlining what researchers might do to help, with an emphasis on CBPR, contextual adaptation, and the fact that the majority of the research team spoke fluent Spanish. Stakeholders' responses were recorded in field notes and informally coded to develop a staged implementation plan that was sensitive to the immediate post-disaster needs of students, school staff, and leadership as well as the eventual long-term needs for trauma-focused services on the island.

Developing Relationships with the Deployment Environment. At the onset of this relationship there was no structured or codified plan for services, which would have likely been logistically impossible given the state of decimation caused by the hurricane. Instead, initial discussions focused on determination of likely system- and individual-level needs from a CBPR perspective, with the team

offering their expertise concerning sequelae of such severe trauma exposure and ideas for how to offer assistance in the school-based environment (which had few resources and was experiencing considerable flux, including numerous school closings due to population reduction). The PR-DE leadership was particularly interested in addressing long-term mental health needs of their students, given their impression that the aftermath of the hurricane was likely to have long-term and far-reaching effects. Additionally, a common theme of discussion was the anticipation that similar (albeit hopefully less severe) disasters were likely in the future, as were other pervasive potentially traumatic experiences as a result of societal impact. As such, the PR-DE was motivated to develop a trauma-informed infrastructure for all schools, which would form the basis for provision of evidence-based services. These stakeholder meetings culminated in the co-design of a multi-tiered, trauma-focused intervention model informed by best practice post-disaster guidelines and careful consideration of the views of local stakeholders who were much more familiar with proximal and pragmatic challenges (see Orengo-Aguayo et al., 2019b for a full description).

Consider Adaptations to the EBP. The first overt issue for adaptation was ensuring that training, support materials, and ongoing consultation occurred in Spanish, with attention to linguistic form common in Puerto Rico. This was informed by previous experience in the South Carolina project detailed above, as well as other global training efforts. Part of the support materials in this case was a TF-CBT online training course (www.tfcbt2.musc.edu) with accompanying videos, long available in English but not in Spanish. Ideally, the online course would have been translated to Spanish prior to the beginning of the project, but this was not feasible given timelines and the amount of resources necessary to accomplish this feat (this effort is currently underway). Instead, the team distilled and adapted existing TF-CBT orientation materials to a more condensed form and then translated it into Spanish. Additionally, therapists were provided with the only academic TF-CBT book chapter that could be located in Spanish (Moreland, de Arellano, Hanson, & Deblinger, 2016). Materials also included Spanish versions of

handouts, suggested agendas, lists of therapeutic activities to use in sessions, and measures (all in paper form and on a cloud-based drive).

Preparation Phase

Identify Barriers and Facilitators. Approximately five months post-disaster, a meeting with the director of school psychology at the PR-DE indicated that the biggest challenges to offering mental health services to students were due to consistent and progressive budget cuts over the past 15 years. As a result, the vast majority of the department's mental health budget reportedly became apportioned to fund mandated eligibility assessments for Special Education services and almost no treatment was offered through schools. The director also indicated that the PR-DE only employed 35 psychologists, all of whom worked on a part-time basis (approximately two days per week) to address the mental health needs of approximately 300,000 students in 856 schools. Furthermore, none of the providers had formal training in EBPs for posttraumatic stress. Despite these challenges, the director reported that all providers were willing to work, learn, and grow in an effort to provide help to those in need, and cited this notable motivation as a systemic strength in developing an implementation process. In all discussions with PR-DE officials it was also apparent that the entire organization was prioritizing trauma-focused training, trauma-informed infrastructure, and mental health services for youth. The director was also helpful in discerning that the start of the school year would be the most opportune time to begin training. At this point in discussions, this timeline was short in terms of having materials fully prepared, but in the spirit of CBPR the advice was taken to heart and trainings were scheduled at a time optimal for the PR-DE. Finally, the fact that training was provided without charge to the PR-DE, the provision of support materials in Spanish, and ongoing contact with bilingual trainers were all cited as major strengths to facilitate rollout.

Psychologists reported their biggest challenges as: 1) completing all of their duties within the two days per week they worked for the PR-DE; 2) being constantly called to address crises in the

schools; 3) lack of time to learn and implement EBPs; 4) burnout; and 5) personal post-hurricane difficulties. Psychologists noted their strengths as: 1) a strong sense of commitment to helping students; 2) being resourceful despite limited resources and time; and 3) having a director whom they trusted and knew had their best interests in mind. Current needs were reported as: 1) training in EBPs; 2) equipping other school providers to address ongoing crises; 3) receiving ongoing support for TF-CBT implementation from both the PR-DE and trainers; 4) receiving Spanish-language materials; and 5) revising the current school mental health referral system which often resulted in children not receiving services until 4-6 months later.

Develop an Implementation Plan. After a thorough effort to understand the context in which training and treatment would be deployed, the team consulted with national TF-CBT experts in the United States to solicit input and advice concerning the team's implementation plan. These discussions were formative to building training around a Learning Collaborative Model (Bunger et al., 2016), which was consistent with the CBPR approach described earlier. This model divided training into four distinct phases: 1) pre-training work (i.e., completing an online TF-CBT web-course and reading the Spanish orientation materials); 2) a two-day, in-person training that included experiential training and discussion of theory, assessment, and treatment; 3) an action period where providers conducted at least three TF-CBT cases and received biweekly consultation calls with trainers (in Spanish); and 4) a second, two-day learning session approximately 3 – 4 months after the first to provide additional training in implementation of latter TF-CBT components (e.g., trauma narrative) and address thematic challenges noted in consultation calls. Throughout, an emphasis was placed on ongoing measurement of symptoms and treatment fidelity. Additionally, a concise and visual depiction of the learning collaborative model was developed to provide psychologists with informed consent about the training process. This document was provided to 35 eligible PR-DE psychologists, 19 (54.29%) of whom agreed to complete all training components.

Implementation

Training Providers in the EBP. Consistent with prior research indicating that active, experiential training optimizes fidelity and behavioral change (e.g., Beidas & Kendall, 2010; Dorsey, Berliner, Lyon, Pullmann & Murray, 2016) the team endeavored to design dynamic, engaging, and experiential trainings. Trainings were quickly developed with the intention of implementation at the start of the school year; however, logistical difficulties arose given that the participating psychologists had not received their annual contracts by that time. As such, the training was postponed until contracts had been distributed and signed, and was eventually rescheduled for late October. This was less optimal on the part of key PR-DE stakeholders, but enabled complete development of materials and greater organization by the trainers. This included a presentation of the results of a large-scale survey concerning posttraumatic symptoms of more than 96,000 Puerto Rican public school students as a way to contextualize the need for trauma-focused services (Orengo-Aguayo et al., 2019a). This produced strong emotional reactions from many providers, which were attributed to the stark realization of the impact of the hurricane and personal emotional salience regarding adjustment to loss and changing circumstances. During the course of this discussion, which comprised the first hour of face-to-face training activities, the team determined that these reactions were sufficiently salient to warrant immediately covering self-care and vicarious trauma (rather than at the end of the two-day event). Providers remarked that this had a profound effect, helped orient them to the rest of the training, and motivated them to learn as much as possible.

Training then focused on a general overview of the etiology of posttraumatic stress symptoms, neurobiological factors, typical comorbidities, methods of general assessment, and TF-CBT specific components. All aspects of the training were constructed to be interactive and used role-plays as much as possible, including in response to providers' questions. In the course of observing providers' initial assessment role plays, it became apparent that there was confusion with evidence-based assessment

and scoring. In response, more time was dedicated to broader-level instruction about measurement and ongoing monitoring, and spreadsheets to score some of the measures were produced and distributed.

The second learning session (which occurred five months later) began with a review of material covered in the initial training, as well as thematic issues discerned from ongoing consultation calls (described below). New material primarily focused on development of the trauma narrative, an in-vivo hierarchy, and safety planning. Additionally, a postdoctoral fellow gave a thorough case presentation that exemplified many of the issues with which therapists-in-training were known to have difficulties. This tangible example offered the opportunity to convey nuanced information and give providers ideas about how to deliver specific TF-CBT components. It was also successful in engaging the audience, facilitating questions, and providing lasting, memorable information to guide future development. Another simple strategy that resonated with the audience was the provision of vouchers for completing particular training activities or milestones, which has been suggested as a method of increasing engagement and fidelity (Beidas et al., 2017). Three vouchers could be exchanged for one therapeutically-relevant support material (e.g., therapy books), which trainees reported as extremely enjoyable and motivational.

Initiation of the EBP and Ongoing Monitoring and Support. As outlined above, it became apparent that additional supports for assessment would be necessary if ongoing monitoring was going to occur. Part of the adaptation and adjustment employed to address this need was assigning a post-doctoral fellow to serve as a metrics coordinator who offered ongoing assistance in implementing, scoring, and utilizing measures. Many of the initial communications with the metrics coordinator were initially handled via email, but protracted internet outages (even a year after the hurricane) contributed to barriers to this medium of communication. Puerto Rico providers indicated, however, that they got around these difficulties through the use of WhatsApp, and communication was successfully adapted to occur in this format. In addition to enabling clarification of assessment issues, this shift also developed

into a modality for additional interactions in the form of reminders for providers, discussion of general difficulties with implementation, and provision of "virtual" vouchers (which had a similar effect on provider behavior).

Finally, biweekly consultation calls were utilized based on prior research suggesting that this enhances therapist implementation and adherence (Hershell, McNeil, & McNeil, 2004; Nadeem, Gleacher, & Beidas, 2013). These calls allowed for more in-depth discussion, training, and monitoring of implementation issues as well as detailing issues useful in informing the second training. The original intention was to conduct these meetings via video conferencing software, but the same infrastructure problems that limited providers' internet access became a barrier to reliable meetings. Instead, a telephone-based approach was adopted. This was considered less ideal by all parties, but also more efficient and less frustrating than having to resort to a phone call when internet access was unavailable. Calls were at regularly scheduled times and remained static for Puerto Rican time (which does not observe daylight savings). The metrics coordinator also participated in these calls in order to answer questions or provide more detail than was feasible using WhatsApp. This frequently required calls to progress more slowly and less efficiently, but it provided the foundation for therapists to actively understand what to measure, how to do so, and why. Additionally, after the first few weeks of calls a provider suggested that engagement might be increased if everyone had an opportunity to briefly discuss one of their own cases. This facilitated construction of a 2 – 3-minute format for case updates that allowed all therapists to participate, while still allotting time for more substantial discussion about a single case. Additionally, these meetings were deliberately designed to encourage interactions among group members for the purposes of providing encouragement, insights on adaptations, and advice on how to advance implementation of particular strategies. Although reported informally, therapists indicated that this element of ongoing calls was extremely beneficial and promoted a sense of affinity and belonging.

Results

Treatment is ongoing and attrition rates could change, but at the time of writing, 31 of 48 youth have completed TF-CBT (i.e., all PRACTICE components) and only one youth has dropped out prematurely (caregiver no longer being interested in services for the child). Effect sizes for PTSD symptoms pre-to-post treatment were large (**d** = 1.94 child report; **d** = 1.89 caregiver report).

TF-CBT Training, Implementation, and Ongoing Consultation in El Salvador

This project was funded by a United States Agency for International Development (USAID) grant. The team established a partnership with a local community mental health organization with the goals of 1) training mental health providers in TF-CBT; 2) training providers to offer trauma-informed workshops at local schools; and 3) conducting school-wide mental health needs assessments. Similar to the Puerto Rico project, the work described below was conducted for the purposes of building local workforce capacity to provide evidence-based, trauma-informed care. Recipients of TF-CBT training were psychologists employed by a local partnering agency who delivered the intervention to students from El Salvador (ages 3-18; 100% Hispanic) enrolled in the areas of San Salvador and Santa Tecla. Recipients of trainings included teachers, school administrators, and parents of students. Both the child and their supportive caregiver completed self-report measures assessing the child's symptoms of posttraumatic stress (CPSS-5) and overall emotional duress.

Exploration Phase

Identifying the Need. El Salvador has experienced significant political, economic and civil unrest, including a civil war that ended in the 1990s. El Salvador is still plagued by high crime rates, significant gang activity, and has the highest murder rate in the world outside of active war zones. An estimated 20% of Salvadorians live abroad, and population loss due to expatriation continues to be a significant problem (CIA World Factbook, 2019). Efforts to coordinate TF-CBT training and implementation in this

context represented an opportunity for application in a global, Latin American context where most youth have an extremely high probability of encountering a potentially traumatic event.

Developing Relationships with the Deployment Environment. In contrast to the program descriptions above, this project began when USAID contacted the team inquiring about the potential to develop mental health services as part of existing program development efforts. Initial discussions indicated that this was to emphasize treatment of posttraumatic symptoms, given concerns that existing programming was investing into violence reduction efforts without addressing the impact of violence on youth mental health. After several months of discussion, three of the authors traveled to El Salvador for a meeting with various stakeholders and policy-makers, including USAID, the El Salvador Ministry of Education, mental health providers, and non-profit agencies. This involved in-person meetings with local agencies and partners to better understand their needs, a presentation of the various EBPs available for treating PTSD in youth, and recommendations for how to begin program development in El Salvador. Informed by experiences in Puerto Rico, the team addressed similar constructs, including identification of: 1) the most pressing clinical needs/concerns; 2) previously successful interventions or programs; and 3) the central features of needed systemic change. Responses were recorded and informally coded to reveal that stakeholders were mostly interested in creating trauma-informed systems and schools for at-risk youth. The outcome of these meetings resulted in USAID funding a pilot trial of TF-CBT training and implementation to be conducted in five schools and one community-based clinic.

Consider Adaptations to the EBP. Informed by the previous project in Puerto Rico, all materials were available in Spanish and adapted for the Salvadorian dialect with the assistance of a local psychologist. Similarly, it was anticipated that assessment and ongoing monitoring would be among the most difficult components of training. This facilitated pre-emptive adjustments to the training program and support materials provided at onset, including posting short assessment scoring videos of concrete examples online, providing a more detailed assessment manual, and introducing the metrics coordinator

from the very beginning of interactions with provider trainees. In the course of discussions with local agencies, it was also discovered that psychologists in El Salvador were generally paid per unit of work, which entailed extremely specific confirmations to receive payment. As such, the providers were strongly accustomed to the use of checklists to organize and catalog their activities. Taking this into account, the team developed brief, one-page checklists for important assessment and therapeutic activities, which were constructed to be as visual and concise as possible. A similar process was undertaken to improve the specificity of presenting problems in youth referred for treatment. At onset, most of the referral sources at schools did not have knowledge to discriminate trauma from other forms of emotional duress, and as a consequence referred many children who exhibited general signs of difficulty. The team worked with psychologists, supervisors, and school administrators to develop a short referral checklist with general information and concrete steps to guide referral decisions.

Preparation Phase

Identify Barriers and Facilitators. Discussions with key stakeholders uncovered a litany of barriers to training and implementation. These primarily centered on the scarcity of resources (i.e., availability of psychological providers; limited familial and environmental resources) and stigma associated with pursuing mental health treatment. Perhaps unsurprisingly, lack of awareness of trauma and its developmental etiological impact on youth was also frequently reported as problematic to garnering support from schools and the community at large. Additionally, most psychologists had only 4 – 5 years of training (the equivalent of a Bachelor's degree in the American system), which typically focused on psychodynamic approaches and entailed little to no training in assessment, suicidality identification and response, or EBPs. Furthermore, the majority of healthcare providers were unaccustomed to reporting child abuse or neglect, topics likely to be inherent in offering specialty services for trauma. Numerous stakeholders explained that the violence routinely encountered in their communities contributed to a fear of reprisal (e.g., gang-related threats or physical harm, including

death), and thus avoidance of reporting. Although this was not ideal from the perspective of the team, it was a serious logistical issue that demanded adaptation to the culture of the deployment environment. Adjustments entailed strong, formal encouragement to report child abuse and neglect along with concrete steps to do so, but with an explicit indication that these decisions were the domain of the providers and supervisors.

Among the agencies contacted as possible sites for the pilot project, one community-based organization had several strengths to help leverage initial efforts. That particular community agency had worked with USAID on several previous projects and established a presence for providing services in local schools. Further, participation in these projects had exposed some providers to cognitive behavioral methods and theory, which could provide a strong foundation for TF-CBT training and diffusion to other members of the local system. Additionally, the agency and its personnel were excited to engage in TF-CBT training based on their reported identification of need for this type of service. Unfortunately, not all of these connections and strengths could be capitalized in the current effort, given the Ministry of Education's (MINED) suggestion of five specific schools to be included in the pilot effort. These were not among the schools identified by USAID as potentially strong partners or those in which the community-based agency had existing relationships. Rather, they were selected on the basis of being the top endorsers of violence exposure in schoolwide surveys the previous year. Although seemingly less optimal at onset, the team immediately adapted to this request and began formulating plans to connect the community-based agency with these schools (consistent with a CBPR approach).

Develop an Implementation Plan. Due to the research team's lack of connection to the suggested schools, initial implementation plans focused on introduction, reciprocal communication, and discussion of how the project could be integrated in a way that minimized the need for school personnel to adjust. Simultaneous to this effort to build relationships, the community-based agency provided as much information about trauma and its emotional/behavioral impact as possible (through

conversations, formal presentations, and concise handouts designed for the target audience of teachers and school administrators). In the course of these introductions and networking efforts three key opinion leaders were identified, who were psychologists with connections to administrators and teachers. Significant time was spent with these individuals to promote their awareness of the pilot program and solicit assistance in gaining a foothold in schools. Consistent with the predictions of diffusion theory in general (Rogers, 2003), the assistance of these individuals was invaluable in advancing implementation efforts.

The rest of training followed a pattern similar to Puerto Rico, with the adaptation to include three days at the initial meeting rather than two. This decision was based partly on the Salvadorian psychologists having fewer years of professional education (on average), and partly to allow for dynamic interplay between trainers and providers that would allow some topics to be expanded without sacrificing others on the cumulative agenda. Additionally, this adaptation was seen as allowing a closer cultural fit with the typical format for professional meetings, which often entails time for group members to talk on an informal, personal level (typically about their family origins and life journeys – a construct termed *personalismo*). All materials were adapted for local Spanish dialect and the same informed consent procedures about the training process used in Puerto Rico were employed.

Implementation

Training Providers in the EBP. Training began with a provider self-assessment regarding knowledge of posttraumatic stress. Individual content was then used to facilitate group discussion and compile themes for strengths and gaps in the overall provider knowledge-base. In turn, knowledge of these gaps was used to differentially emphasize certain topics in the training (particularly those that might not be apparent given El Salvador's near-ubiquitous exposure to some form of violence). Unlike the team's previous experience in Puerto Rico, however, this discussion did not entail significant emotional displays or other signs of adjustment to acute events. The inter-generational, broad-scale

occurrence of violence, loss, and potentially traumatic events was, unfortunately, a way of life for most everyone in the country, and bringing up the topic did not engender reactions deleterious to the demands of training. As predicted, providers had difficulty understanding assessment strategies, which improved greatly with the expanded amount of time dedicated to these topics. Inclusion of the metrics coordinator from onset was also helpful in this process. The second and third days of training incorporated role-play exercises as often as possible, including those generated in response to trainees' questions. This allowed for deviation to topics of interest and greater discovery of the areas in which providers' knowledge was more limited.

The voucher system that was so successful in promoting engagement in Puerto Rico was instituted at the first consultation call. Similar to its previous use, this was cited by providers as extremely motivational and successful. Approximately three months after the initial meeting researchers returned to conduct another two-day training, which began with an overview of outcome measures and summary of the project. Identified areas of strengths and difficulties were discussed, techniques were role-played, and substantial training time was dedicated to learning about the trauma narrative and safety planning.

Initiation of the EBP and Ongoing Monitoring and Support. Knowing that stigma for mental health difficulties was very high, outreach and advertising of services in schools and the community adopted a tone of helping children learn how to behave and process feelings. This focus on more routine constructs may or may not have had an impact on referrals and treatment acceptability, but either way recruitment was extremely rapid and efficient. By the second month of the project therapists had a full caseload and a patient waitlist was started. Other ongoing support efforts followed the same pattern described above and were often conducted through WhatsApp.

Weekly consultation calls included clinical, organizational, and trouble-shooting discussion. Similar to Puerto Rico, internet access was also initially inconsistent, but the community-based partner

agency in El Salvador changed internet service providers and this issue was resolved. Knowledge of this inconsistency in service also contributed to creating backup presentations for any formal USAID or MINED discussions. These were typically scheduled via video conference, but a pre-recorded version of the presentation was sent to someone local ahead of time to guard against internet outages.

Results

Of the 121-youth enrolled in treatment, 104 (86%) completed TF-CBT. Effect sizes for PTSD symptoms (CPSS-5) pre-to-post treatment were large (**d** = 2.04 child report; **d** = 2.23 caregiver report).

Discussion

Across all dissemination and implementation sites described, TF-CBT appeared effective with effect sizes commensurate with those seen in well-resourced research studies conducted in the United States (medium-to-large; Rubin, Washburn & Schieszler, 2017). This is potentially unsurprising given consistency with previous results from more resourced and well-controlled randomized trials conducted in samples of American youth, which collectively lend some additional credence to the supposition that treatment was responsible for change (rather than the numerous confounds inherent in pre-post within group analyses). Additionally, it bears noting that these results were accomplished in what many American University-based researchers might describe as very challenging conditions. Global providers were generally unaware of EBPs, had neither training nor experience in assessment and monitoring, and faced significant contextual challenges (e.g., natural disaster; violence; limited organizational resources). Although some or all of these challenges may be common across applied clinical studies, the initial results in the given context are nonetheless encouraging and supportive of future research in a similar direction.

Additionally, the CBPR approach was critical to establishing programs, quickly addressing mistakes or needed adaptations, and consolidating learning from one initiative to the next. The South Carolina site represented the highest degree of resources and longest standing connections between

University researchers and applied environments. Even so, there were significant challenges connecting to applied environments and implementing services, each of which forced the team to take a step back and look at problems encountered from a new perspective. Done with attention to the applied agencies' needs, as well as detailed, thoughtful discovery through process evaluation, solutions became the foundation for developing and implementing future adaptation strategies (in global and much less resourced settings in this case). This point was so critical that it was sometimes necessary to implement procedures that the team viewed as non-optimal or non-desirable in order to foster truly collaborative efforts with sites. This collaboration was necessary to establish the appropriate context for adaptive study, wherein changes are often made rapidly in response to locally generated concerns. Without the help of partner agencies this would not have been possible, and it was the duty of the research team to *listen* to these organizations and *demonstrate* that researchers were truly their partners and worthy of trust and investment of time.

Being able to make changes in real-time also benefitted from detailed process notes that could be used to more carefully inform decision-making. Attention to these issues in a prospective fashion may have facilitated greater success of adaptation efforts, which were particularly reflected in the unexpectedly low dropout rates across sites. Additionally, the products of process evaluation led to establishing numerous ancillary techniques or behavioral nudges (Thaler & Sunstein, 2009) that were qualitatively cited as extremely beneficial. Tangible reinforcement in the form of vouchers for therapy support materials were so effective that the team developed an entire branding system around the training and implementation efforts. For example, the moniker *somos un equipo* (we are a team) was established and transferred to rubber bracelets and tote bags distributed to trainees and staff. Although amorphous given the methods of the study, the impact of these techniques was particularly salient (and meaningful) when the first email from a therapist was received with "*somos un equipo"* in the signature line. This conferred ownership, meaning, and orientation to a cause that would not typically be

associated with rigid, yet academically rigorous, training initiatives. In short, these small tokens of appreciation and respect provided a contextual group affinity that was priceless to the overall mission.

Limitations and Future Directions

The current studies are presented in short-form for this outlet, limited by their small sample size, and confounded by the lack of a control group. The latter issue extends not only to determination of the source of the very positive treatment outcomes achieved, but also to contextual adaptation efforts. That is, there was no way to be sure that the strategies employed to optimize dissemination and implementation in the target environment were responsible for successful TF-CBT deployment. The large effect size, qualitative feedback from trainees, process evaluation notes, and pattern of convergent results, however, suggest that future inquiry on these topics is warranted. Additionally, the lack of a firm a priori strategy to organize implementation efforts was not optimal. Ideally, this could have entailed a much more codified process from onset to create a more specific implementation plan for each site. Although the current projects did not coalesce in a way that allowed this prior organization, retrospective coding efforts shed some light on the strategies in common across sites.

In conclusion, the take-home message of this synopsis of broad-scale implementation efforts in three low-resourced setting is very simple. *Listen.* Formal models and frameworks are extremely useful to preparing to make contacts with service environments that could benefit from infusion of scientific practices. They are also, however, extremely limited in terms of contextual adaptability, which is key to building bridges with organizations that are situated to affect real benefits for *all* people, not just those from White, upper-middle-class, urban, highly-educated and resourced, American environments. Much as cognitive behavioral therapy reminds patients "you are the expert on you," the applied environments that researchers seek to change are the experts on themselves. When scientists learn to *listen,* they may also *hear,* and that may provide sweeping solutions to many of the biggest challenges currently facing dissemination and implementation science in low-resource settings.

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