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An Evaluation of Trauma Focused Cognitive Behavioral Therapy for Children in Zambia

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Abstract

Objectives—To monitor and evaluate the feasibility of implementing Trauma Focused-Cognitive Behavioral Therapy (TF-CBT) to address trauma and stress-related symptoms in orphans and vulnerable children (OVC) in Zambia as part of ongoing programming within a non-governmental organization (NGO).

Methods—As part of ongoing programming, voluntary care-workers administered locally validated assessments to identify children who met criteria for moderate to severe trauma symptomatology. Local lay counselors implemented TF-CBT with identified families, while participating in ongoing supervision. Fifty-eight children and adolescents aged 5–18 completed the TF-CBT treatment, with pre- and post-assessments.

Results—The mean number of traumas reported by the treatment completers (N=58) was 4.11. Post assessments showed significant reductions in severity of trauma symptoms ($p<0.0001$), and severity of shame symptoms ($p<0.0001$).

Conclusions—Our results suggest that TF-CBT is a feasible treatment option in Zambia for OVC. A decrease in symptoms suggests that a controlled trial is warranted. Implementation factors monitored suggest that it is feasible to integrate and evaluate evidence-based mental health

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assessments and intervention into programmatic services run by an NGO in low/middle resource countries. Results also support the effectiveness of implementation strategies such as task shifting, and the apprenticeship model of training and supervision.

Keywords

Child Trauma; Evidence-Based Treatment; Implementation; International; Low-resource Setting

The importance of addressing mental health problems in children and adolescents in low- and middle-income countries (LMIC) where children are often exposed to violence and trauma is increasingly recognized (Benjet, 2010; Patel, Flisher, Nikapota, & Malhotra, 2008; Prince, et al., 2007). Orphans and vulnerable children (OVC) is a term commonly used in the global public health literature and is broadly defined as a child who is either orphaned (lost one or both parents) or vulnerable (a child living in circumstances with high risks) (PEPFAR, 2006; Worldbank, 2005). By definition, OVC have been subjected to multiple ongoing stressful and traumatic life events such as abuse, neglect, parental loss and/or other HIV-related problems (Andrews, Skinner & Zuma, 2006; Bicego, Rutstein & Johnson, 2003; UNICEF, 2006; Monasch & Boerma, 2004). A recent study found that >90% of orphans or abandoned children from six sites (Cambodia, Cameroon, Ethiopia, India, Kenya and Tanzania) experienced one or more traumatic events and >40% experienced at least two (Whetten, Ostermann, Whetten, O'Donnell & Thielman, 2011). The majority had been physically or sexually abused. In a brief qualitative study in Zambia, HIV-affected caregivers and children stated that “defilement” (child sexual abuse - CSA) was a major problem (Murray, et al., 2006).

The negative sequelae of stressors and traumas in childhood are well studied. Child survivors of CSA or other forms of abuse and/or neglect are at increased risk for anxiety, inappropriate sexual behavior and preoccupation, anger, guilt, shame, depression, post-traumatic stress disorder, and other emotional and behavioral problems throughout their lifespan (Andrews, Corry, Slade, Issakidis, & Swanston, 2004; Cutajar et al., 2010; Finkelhor, Ormrod, & Turner, 2007; Mills et al., 2013; Nanni, Uher, & Danese, 2012; Norman et al., 2012; Radford, Corral, Bradley, & Fisher, 2013). An international review of the OVC literature (including Africa) reported multiple trauma and stress-related problems that extend into adolescence and adulthood (Cluver & Gardner, 2007). In Uganda and Tanzania, orphans were shown to have a higher risk than non-orphans of depression, anxiety, anger and disruptive behavior, a sense of failure, and suicidal thoughts (Atwine, Cantor-Graae & Banjunirwe, 2005; Makame, Ani & Grantham-McGregor, 2002). Caregivers describe orphans as worried, fearful, wanting to be alone, having no hope for the future and more unhappy, tearful, inactive, angry, distressed and helpless than non-orphans (Atwine et al., 2005). Parental loss increases risk for depression, anxiety, conduct disorder and substance abuse (Kaplow, Saunders, Angold & Costello, 2010).

Currently, broad-based psychosocial support in a variety of forms is the standard of care for OVC in Africa. These support services generally consist of home-based visits, psychosocial counseling, and/or social activities (Bryant et al., 2012). However, there are few studies on the effectiveness of these programs in reducing trauma and stress related problems (Schenk, 2009), with some suggesting limited effectiveness (Tol et al., 2009; Bryant et al., 2012). Studies have found that some evidence-based practices (largely cognitive behavioral) are adaptable, feasible and effective in LMIC for moderate to severe mental health problems (Bolton, et al., 2007; Bolton, et al., 2003; Rahman, Malik, Sikander, Roberts & Creed, 2008). While promising, these studies have all been conducted with adult populations in LMIC, with the exception of Bolton et al., (2007) which tested Interpersonal Psychotherapy

for Depression for Adolescents. Thus, the current literature has limited relevance to OVC populations.

Trauma-focused cognitive behavioral therapy (TF-CBT) (Cohen, Mariano & Deblinger, 2006) was developed to address the multiple negative impacts of stressful or traumatic life events for youth aged 3–17 years old and their parents or primary caregivers (when available). Multiple randomized controlled studies conducted in high-income countries have demonstrated that TF-CBT is highly effective in treating the sequelae of child trauma (Deblinger, Mannarino, Cohen & Steer, 2006; Dorsey, Briggs-King, & Woods, 2011). Follow-up studies provide evidence of sustained benefit at 6 months, one year, and two years post-treatment (Cohen & Mannarino, 1998; Deblinger, et al., 2006; Deblinger, Steer, & Lippmann, 1999). Although criteria is often that a child is sexually abused for the studies, most are multiple traumatized demonstrating the efficacy of this treatment on a wide range of traumatic incidents (e.g., Deblinger et al., 2006). TF-CBT has been adapted and used with a variety of populations including Latino (de Arellano & Danielson, 2005), and Native Americans (BigFoot & Schmidt, 2010). It has demonstrated broad applicability as well as acceptability among ethnically diverse therapists, children, and parents (Huey & Polo, 2008). To our knowledge, TF-CBT has not previously been evaluated with trauma-affected OVC in a LMIC.

This paper describes the monitoring and evaluation of the implementation of TF-CBT conducted by Catholic Relief Services (CRS) in Zambia, in collaboration with the XX (removed identifiers) as technical advisors. This project sought to evaluate the feasibility of implementing TF-CBT and the changes in trauma-related symptoms with OVC in Zambia as part of ongoing CRS programming. It was hypothesized that TF-CBT could be feasibly integrated into existing CRS supported health infrastructures and would lead to symptom improvement among OVC.

Background Work in Zambia

This project was preceded by a qualitative study that found that abuse and neglect were significant problems, as reported by local women and children, for HIV-affected children (XX (removed identifier) et al., 2006). Subsequently, mental health assessment measures were locally validated (Refs removed identifiers). A community-based participatory research (CBPR) approach consisting of focus groups with the community and local stakeholders and feedback loops was used to discuss possible interventions to address abuse and neglect, what was currently available and used in Zambia, and eventually decide on a treatment intervention to test in a pilot feasibility study (Ref removed identifier). Stakeholders in Lusaka voiced a need for a trauma and grief specific intervention that addressed both children and adolescents. In a small feasibility study of TF-CBT, pre-post measures showed positive results suggesting reduction in mental health symptoms and a qualitative study showed acceptability from counselors and clients (Ref – removed identifier). These studies and ongoing related collaborative work led CRS to partner with JHU for the current project.

Methods

Setting

This project took place in 7 different centers located in Lusaka and Kabwe, Zambia. These centers were locations run by CRS partner organizations, the Ministry of Health (MoH) and/or Project Concern International KidSAFE. Centers included 2 hospices, 3 centers for street youth, 1 child care center for children infected or affected by HIV, and 1 Ministry of Health Clinic. As part of their standard practice, the centers receive referrals from home-based care

workers (volunteers) who provided outreach services in the catchment areas served by each center. These volunteer community workers completed the assessment forms (described below) for each referred child. The centers are all located in densely populated urban and peri-urban areas with populations known to be highly affected by HIV and AIDS according to CRS mapping.

Procedures

The project was conducted within regular CRS programming. Volunteer outreach workers (N=48) were instructed by the CRS program manager to choose one family per week from their normal case-load of vulnerable children to administer a locally validated assessment tool (Refs – removed identifier). Most volunteer outreach workers stated they knew specific families that they thought would benefit from this program. Assessment forms were scored by these volunteers and double-checked for completeness and correct scoring by a supervisor located at each location. Children who met inclusion criteria were visited again by the volunteer and invited to participate in the TF-CBT treatment. The volunteer presented an invitation letter explaining that TF-CBT was a new program CRS was offering, and families would either verbally agree to the new program or decline (and continue to receive existing CRS services). The CRS monitoring and evaluations (M&E) staff met weekly with center supervisors to collect all assessment forms and invitation letters. Each eligible case where the family agreed to participate was assigned to one of 18 local counselors trained in TF-CBT. Assignment was based on the child's language (families and counselors were fluent in different local languages), location, and counselor's current availability to take on a case. Counselors would telephone the volunteer outreach workers to arrange an initial meeting date, time and location to tell the family about TF-CBT and invite them to participate. One to two weeks after the treatment was completed, all participants were re-assessed by a different counselor (i.e., not the one that provided TF-CBT) to limit response bias.

Participants

Children met criteria for treatment if they were between 5 and 18 years, reported experiencing one or more traumatic event(s) in their lifetime, and scored a 39 or higher on the locally-validated version of the PTSD-RI symptom scale (Murray, et al., 2011a; Frederick et al., 1992). Children were excluded from the study if they had pervasive developmental delays, active and severe substance abuse or psychotic symptoms that could be observed during assessment.

Measures

Two locally validated measures were used in this project.

The Post-Traumatic Stress Disorder-Reaction Index (PTSD-RI) is a self-report instrument designed to assess trauma exposure and post-traumatic stress experiences and symptoms among children and adolescents. The measure contains three parts, 1) a section on exposures to 12 different traumatic events; 2) a section with 12 questions related to the objective and subjective experiences and memories of the traumatic event; and 3) a section on the frequency of occurrence of 20 specific post-traumatic stress symptoms during the past month (Table 1). The PTSD-RI is one of the most widely used measures of childhood PTSD (Goenjian et al., 1995; Laor et al., 2002; Macksoud & Aber, 1996; Shaw & Harris, 1994), and demonstrated validity and reliability in the detection of traumatic stress symptoms among youth in Zambia (Murray et al., 2011a). Based on this local study and in discussion with CRS, a score of 39 was estimated to indicate moderate to severe trauma symptomatology.

The SHAME Measure (Feiring & Taska, 2005) is an 8-item self-report measure focusing on shame-related feelings in response to child sexual abuse (Table 1). The Shame Questionnaire was originally a four-item self-report measure developed to assess a child and adolescent's self-reported shame related to surviving sexual abuse (Feiring, Taska & Lewis, 1998). An additional 4-items were included to ensure reliability among older children and adolescents in a longitudinal study examining shame related to sexual abuse and its role in the subsequent development and maintenance of PTSD symptoms (Feiring & Taska, 2005). The original measure has been used among children (Deblinger, et al., 2006; Feiring, Taska & Lewis, 2002) and adolescents (Feiring et al., 2002). The measure has demonstrated adequate reliability with an alpha coefficient of .86 (Feiring & Taska, 2005). During earlier CBPR steps, Zambian stakeholders felt that shame was a culturally important characteristic to assess in relation to abuse and neglect, and selected this brief shame measure as the best representation. A local validation study showed good reliability and validity, and an average score of 6 indicative of "cases" (Michalopoulos et al., under review). This is supported by Feiring and Taska (2005) which states that a score of 6 is high. The SHAME measure was administered to all children due to local collaborators input and desire to monitor this characteristic regardless of what it may be linked to (e.g., sexual abuse as it was developed or other situations like HIV).

Treatment Training and Supervision

TF-CBT training was provided to 18 local counselors who had little to no mental health training background. This follows the task-shifting model (Lewin et al., 2007; WHO, 2008) in which counselors with minimal formal training are trained to provide services historically provided only by professionals with formal mental health training. Three local supervisors were chosen based on their role as leaders in the previous small feasibility and acceptability study. One supervisor worked at a counseling center, one was studying at the University of Zambia, and one worked at a local community-based organization (CBO). None had ever learned a structured therapy before working on the previous TF-CBT study. One of the supervisors had to drop out during this project due to work commitments, and was replaced by a counselor who demonstrated quick uptake of TF-CBT, ability to perform in role-plays, and leadership skills.

Training and supervision followed a version of the Apprenticeship Model developed for use with task-shifting in LMIC (Murray, et al., 2011b). Briefly, there was an initial in-person training, followed by practice groups where local counselors and supervisors role-played TF-CBT components based on agendas developed by trainers. Counselors were closely supervised in their application of TF-CBT by trainers and local supervisors. Throughout, supervisors and counselors met locally 2–4 hours a week, and trainers spoke with the local supervisors (N=3) via meeting/skype/phone for at least 2 hours a week per supervisor. All supervisors were fluent in English (as well as local languages). During these meetings, every case was verbally reported on, forms were reviewed, and the following session was planned. The Apprenticeship model also includes an iterative process wherein cultural modifications are discussed among local counselors and made by local providers (i.e., flexibility of the model) throughout the training and implementation, while trainers review just to assure fidelity.

Treatment was conducted through weekly TF-CBT sessions lasting 1–2 hours over an average of 11 weeks (range 8–23). Sessions included a mix of the child alone, a caregiver(s) alone, and the family members together. Monitoring for treatment fidelity consisted of counselors completing a fidelity checklist per case (Deblinger, Cohen, Mannarino, Murray & Epstein, 2008) and case notes, in addition to the overall fidelity monitoring of the Apprenticeship Model.

Data Analysis

Descriptive statistics were generated detailing frequencies of demographic characteristics, trauma exposure, and associated symptoms among the study participants. As this was an evaluation conducted by CRS within the context of a more general service program with technical assistance, there were several types of participants, depending on their conclusion of treatment and follow-up (See results below and Figure 1.) Demographic, trauma exposure, and baseline scale scores were compared across participant completer and non-completer status using chi-square tests and independent *t*-tests. All other tests presented were performed on those who completed treatment and follow-up (N=58). The mean number of traumas reported was used as cut-off point to create low (below mean) and high (above mean) traumatic exposure groups among children. Children reporting sex abuse were analyzed as sub-group. Paired-sample *t*-tests (Daly, 2008) were performed to compare the number of traumas and symptoms, scale's scores, pre- and post-treatment for treatment completers with baseline and follow up assessments (N=58). A two-tailed alpha level of $p=0.05$ was used as the cutoff for statistical significance. All analyses were carried out using STATA 10.1 (StataCorp, 2007).

Results

Of 343 children assessed for this project by community health volunteers, 59% (202) had scores equal or higher to 39 points on the PTSD-RI scale and were therefore put on a list to be offered TF-CBT treatment (See Figure 1). No children were found to have the exclusion criteria of severe substance abuse or psychosis.

Of the 202 cases, 187 (92.5%) said yes to the invitation to participate in the TF-CBT program. Fifteen of the original eligible children who received an offer letter (7.4%) refused treatment. Reasons for refusing the invitation to treatment included: fear that the treatment was involved with Satanism (which is a response CRS and other nongovernmental organizations or NGOs hear occasionally in the area), did not have the time, and parent/caregiver insisting on material goods in return for participation. Ninety-three of the cases who said yes to the offer letter (49.7%) were never found to begin treatment. Reasons included inability to find the family due to relocation, community volunteer assessor was not reachable (e.g., stopped working, unresponsive, died), death of the child, or client not being found in their community to be offered the treatment. Since assessors were community volunteers, they were not formally contracted for a job and occasionally would just stop working, or become unreachable to CRS. The communities CRS worked within had very high rates of HIV so relocation due to deaths, changes in family systems, or needing work were also common. There was also a waiting period for some of the families given the high demand with a short time period (N=187) and already full caseloads of the counselors. Ninety-four of the original eligible children who said yes to the offer letter (50.3%) initiated treatment with a TF-CBT counselor.

There were no significant differences in demographic characteristics, range of traumas reported, or Shame scale scores between children who were eligible and did not receive or refused treatment, compared to those who agreed to participate in the TF-CBT. However, PTSD scale scores were significantly lower in children who refused treatment (30.3) compared to those who accepted (40.5, $p=0.001$).

Of the 94 that agreed to treatment, 65 (69.1%) cases completed all TF-CBT sessions (i.e. treatment completers) and 29 (30.9%) discontinued treatment (i.e. drop-out). Most of the dropouts (N=23; 79%) did so early in treatment, between sessions 1 and 4. Reasons for dropping out of treatment included: a) moved out of the city (N=8), b) stopped coming (e.g., work, illness, family issue) (N=7), c) cases had to be transferred because of counselor

attrition and transfer failed (N=6), d) relocation due to floods (N=2), and e) not interested in services without material goods (N=2). Four were not able to be found to determine reason of drop-out. Of the 65 cases that completed the treatment, 58 (89.2%) completed a post-assessment, and the 7 other clients were lost to follow-up.

Demographics

Of the treatment completers with pre and post-treatment assessments (N=58), mean age was 12.9 years old (range 5–18 years), 84.5% were in school, 44.8% were identified as single orphans and 34.5% were identified as double orphans (see Table 2).

Treatment completers (N=65), eligible, non-enrolled (N=108) (included N=93 eligible but not found after offer, and N=15 offered and refused treatment), and drop-outs (N=29) did not significantly differ by age, sex and orphan status. Baseline scale scores were also similar across these groups; mean PTSD score among completers was 67.69, 69.08 among eligible, non-enrolled ($p=0.55$), and 69.4 among drop-outs, while the Shame score was 8.53, 9.53, and 12.3 ($p=0.25$), respectively.

Cumulative Risk Exposure

The mean number of traumas reported by the treatment completers with pre and post-assessments (N=58) was 4.11(SD= 2.10). The three most frequent types of traumas were: *Seeing a family being hit* and *Seeing dead body*, with a prevalence of exposure of 55.17% each (N= 32), followed by *Witnessing a violent death/serious injury of a loved one* with 54.39% (N=31). Other stressors reported included being hit punched or kicked at home by 34.48% (N=20), and sexual abuse was endorsed by 17.24% (N=10). Of the children, 91.38% had experienced 2 traumatic events, 77.59% reported 3 events, and 51.72% had more than 4 events.

Changes in symptom outcome measures

The mean changes in PTSD scores over all sessions are presented in Table 3. The average PTSD score after treatment (27.6) was significantly lower than the average pretreatment score (67.7, $p<0.0001$). The effect was similar among males and females, with no significant difference in the mean post intervention score (27.5 vs. 27.8, respectively, $p=0.96$). The change in the mean PTSD score for treatment completers was 40.16 points (SD=25.39). Mean PTSD scores after treatment were not significantly different ($p=0.12$) in those reporting above (22.0, SD=29.2) and below (22.6, SD= 17.9) the sample's mean number of traumas (4). Similarly, the change in mean PTSD score pre and post-treatment was equivalent ($p=0.97$) among those with less than 4 traumas (40.28, SD= 24.2) compared to those with more than 4 traumas (40.03, SD= 27).

Changes in mean Shame score for treatment completers are presented in Table 4. Overall, the mean score post-treatment was 2.2 (SD=5.4), which was significantly lower than the pre-treatment mean score of 8.3 ($p<0.0001$). Males and females had a similar reduction, with no significant differences in the post-treatment mean score (1.5 vs. 2.8, respectively, $p=0.36$). Mean Shame score post-treatment was lower in those with less than 4 traumas (1.3, SD=4.6) compared to those with more than 4 traumas (2.9, SD=5.7), although this difference was not significant ($p= 0.23$). Although the change in mean score pre-and post-treatment was larger in children with more than 4 traumas (6.35, SD=8.58) compared to those with less than 4 traumas (4.48, SD=6.49), the difference was not significant ($p=0.34$). However, the mean difference in Shame score pre- and posttreatment was not significantly different ($p=0.59$) among those with less than 4 traumas (5.18, SD= 6.9) compared to those who reported 4 or more (6.35, SD=8.6). Children who reported sex abuse as trauma had significantly higher shame scores compared to those who did not report sexual abuse; both pre-treatment (15,

SD=9.15; 7.15, SD=7.22, $p=0.004$) and post-treatment (6.78, SD=8.33; 1.29, SD=4.12, $p=0.004$).

TF-CBT Treatment

The clinical monitoring suggest that TF-CBT was conducted by local lay counselors with fidelity. This is likely largely due to the close monitoring built into the Apprenticeship Model. For example, every week the supervisor and trainer would review the plan for the following session with the counselor. If mistakes were made in a session, these were caught by either the supervisor or trainer and the plan for the next week included re-doing the component, or parts of it, as needed. No counselors formally implemented the additional traumatic grief components of TF-CBT (Cohen et al., 2006), although some did write a chapter in the Trauma Narrative (i.e., gradual exposure component) about the death of a loved one. Session length varied from 30 minutes to 2 hours based on client preference (e.g., some families who traveled long distances preferred longer sessions).

A range of cultural modifications were made throughout the process of implementation, overall conceptualized as adaptations in *technique* rather than core concepts (Murray et al., in submission). Initial adaptations included simplifying the psychological jargon, and listing out step-by-step tasks for each component. Large family systems in Zambia were often included, with multiple different caregivers involved at different points in treatment (e.g., mother, aunty, grandmother). The explanation up-front about TF-CBT was crafted by local counselors and specifically discussed how TF-CBT was different from other programs individuals may be used to such as one-session “counseling” or Voluntary Counseling and Testing (VCT). Local counselors also integrated story telling and analogies that fit with the local culture, such as cooking nshima, a local dish. Therapeutic tools normally used in the United States such as markers and crayons were replaced with items readily available such as stones and plants. Additionally, the local tribal languages prompted alterations such as using one word for many emotions and using drawings and pictures. Finally, there were some core cultural values that the local counselors brought into TF-CBT across many components, such as religious and/or witchcraft beliefs. These types of modifications are in sync with other literature examining the cross-cultural adaptation of EBT in LMIC (e.g., Verdell et al., 2003, 2008; Patel et al., 2011).

Due to a task-shifting model and lack of a mature mental health system in Zambia, a site-specific detailed safety protocol was developed. Counselors were specifically trained how to ask risk questions about suicide and homicide, and asked these during every meeting. Based on client responses, counselors followed a step-by-step protocol which included calling their supervisor (often followed by a visit from the supervisor), developing a safety contract, utilizing some TF-CBT skills, and/or arranging for a 24 hour watch on a child. The protocol included a list of community resources our team found that could be called in extreme cases where we felt a child needed a safe place for a short time period.

Discussion

This paper describes a project carried out by Catholic Relief Services in Zambia, in collaboration with Johns Hopkins University. To our knowledge, this is the first study to examine the feasibility of TF-CBT in Africa with an OVC population using lay-workers as counselors. This research also uniquely represents a collaborative partnership between an academic institution as a technical advisor and a non-governmental organization (NGO) wherein monitoring and evaluation was imbedded into programmatic services.

Perhaps one of the most significant findings of this study is the feasibility of integrating and evaluating evidence-based mental health assessments and intervention into programmatic

services run by an NGO in a LMIC. With technical assistance, CRS demonstrated that it was feasible to integrate an evidence-based treatment (EBT) (TF-CBT) into their existing HIV-affected OVC programs with positive results, and evaluate this. However, this was not without challenges and lessons learned. First, those that refused treatment (N=15) gave some reasons that allowed the program to make some changes. Specifically, more time was spent at the beginning educating community volunteers and families about the nature of a program like TF-CBT and assuring them it was not linked to Satanism. In addition, community workers and counselors talked more clearly about families *not* receiving material goods in this program. Secondly, a significant percentage of those that said yes to an invitation to participate in TF-CBT (49.7%) were never found again to begin treatment. This was primarily attributed to the surprisingly high demand for the program, and the volunteer nature of the community-based workers that offered the treatment. The demand was simply beyond the programs capacity to respond to in a timely fashion, leading to challenges re-connecting with children and families. We also experienced many instances where the volunteer community worker was absent or unresponsive. In the future, it would be helpful to offer something to community workers so help with the commitment to a project. In addition, many individuals were not able to be found again due to relocation. This is partly an expected challenge due to the transient nature of the population. However, one of our major sites in Lusaka was Misisi compound. During the rainy season of 2009 the entire compound was flooded and families were re-located by the government to the football stadium and other shelters. There was no clear way to locate those families following the floods unless the family had a phone that they continued to use and therefore we lost a significant amount of clients in that period. Changes to the invitation process and increased counselor time for TF-CBT were made to help mitigate these challenges during the project. While it is notable that the retention of participants is different from a pure research study, the drop-out rate of 30% is not different from those in community settings in the U.S. (e.g., Cohen et al., 2011). A significant proportion of these had to do with the transient nature of this population, work and/or illness. Due to challenges like these and others, the climate is such that few NGOs working in LMIC monitor and evaluate their mental health or psychosocial programs (Schenk, 2009; Bryant et al., 2012), and even fewer employ and evaluate EBTs. This is in contrast to growing evidence that mental health EBTs are feasible, culturally adaptable, acceptable by local counselors and clients, and significantly effective in reducing symptoms (Bolton et al., 2003, 2007; Patel, Chowdhary, Rahman & Verdelli, 2011; Verdelli et al., 2003, 2008). Although not without challenges, TF-CBT implementation with monitoring and evaluation was feasible by CRS. More NGOs conducting similar projects would significantly advance the field by answering questions about implementation, effectiveness, acceptability and sustainability, as well as reducing the treatment gap.

The findings from this pre/post evaluation show that TF-CBT completers showed symptom reduction in trauma and shame. This decrease in symptoms along with research from the U.S that clearly shows the efficacy of TF-CBT in the treatment of PTSD and trauma symptoms (Cohen, Mannarino & Deblinger, 2010), suggests that a controlled trial of TF-CBT in Zambia for an OVC population is warranted. This study demonstrated equal decrease in symptoms across males and females, which is similarly supported by data from the U.S. based studies (Cohen, Deblinger, Mannarino & Steer, 2004). This project highlighted that among this population, there was a very high need for a treatment like TF-CBT with 59% of those assessed meeting the cut-off, further supporting future studies on TF-CBT.

In addition, almost all the children in the sample experienced more than 1 traumatic event (91.38%) and over half experienced 4 or more traumatic events. This is supported by the literature that OVC are subjected to multiple traumas (Whetten, Ostermann, Whetten, O'Donnell & Thielman, 2011). The variation of responses across traumatic events is

notable. The high incidence of seeing a dead body and witnessing death of a loved one may be a factor of living in a low-resource setting where this is common (Lozano et al., 2012). Seeing a family member hit was one of the highest traumatic events endorsed, which support data showing that interpersonal violence is quite common (Agardh, Tumwine, Asamoah, & Cantor-Graae, 2012; Okenwa & Lawoko, 2010). The rather low number of sexually abused children may be representative or may simply be the result of underreporting as is commonly found with sexual abuse (e.g., Kogan, 2004; Hershkowitz, Lanes, & Lamb, 2007; Priebe & Svedin, 2008). The clustering of victimizations for some children – or specific populations of children such as OVC – suggest that victimization may be more of a “condition” than an “event”. Poly-victimization has been shown to be a powerful predictor of trauma symptoms (Finkelhor et al., 2007). The importance of assessing and being able to treat poly-victimization is increasingly discussed (Finkelhor et al., 2007), and will likely need to be the focus of any treatment among an OVC population.

The reduction of symptoms through TF-CBT also further supports the feasibility of utilizing task-shifting whereby lay-workers with no previous mental health training learn and implement an EBT (Lewin et al., 2007; Murray et al., 2011b; Patel, 2009). The Apprenticeship Model helped assure that counselors implemented TF-CBT with fidelity. Future implementation science studies would be helpful to investigate differential outcome effects and adherence to a model if varying training and supervision models are used, such as less time-intensive versions of an apprenticeship model. Research shows that treatment outcomes are linked to fidelity (Barber, Crits-Christoph, Luborksy, 1996; Schoenwald, Carter, Chapman & Sheidow, 2008), so future studies with lay workers should more closely examine this link.

Limitations

A primary limitation of this study is the design of incorporating strong Monitoring and Evaluation (M&E) into an existing program, lacking a control group and randomization study design. This integration of M&E into existing programming forced the use of a convenience sample in community settings. Without a control comparison group, it cannot be stated whether the results were an outcome of the TF-CBT treatment alone or other factors. Children living in the communities involved in the project, specifically OVC and those infected or affected by HIV, often participate in a number of services, some of which could contribute to a change in symptoms. These may include food and nutrition programs, health care, legal protection, education, and general psychosocial support (Bryant et al., 2012). In addition, it is possible that volunteer home-based careworkers that identified and assessed families were biased in their choice, choosing families they thought would be more interested or those that they felt had greater problems. It is important to note that each volunteer had a limited catchment area and that by the end of the project, almost all families on their “caseload” were assessed. Other potential biases common to non-controlled studies include the Hawthorne effect, and children’s desire to please an interviewer.

Another limitation is the small sample size, which was the result of multiple factors. The high number of children that met criteria (59% of all assessed) for inclusion was not predicted. This led to a very high number of children (N=202) identified within a short period of time (3 months) that met criteria. There were a number of challenges leading to families not even being met again for treatment such as unavailable assessors, untraceable families, or even death. Some of the communities involved are known to be quite transient. For example, it is very common in urban Zambia for families to have to move based on job opportunities, and OVC are often shifted from household to household after the death of a parent(s). Given the high prevalence of HIV, there were additional reasons for retention challenges such as sickness or death of either a family member, the child or the volunteer assessor. The resulting sample size is likely partly due to lack of adequate resources to

follow-up with families, such as having to use volunteers as recruiters and assessors. As resources such as counselor time and the overall project budget could simply not meet the demand found so quickly, CRS had to stop assessing children in the community in order to respond appropriately to those already identified. There were additionally a small set of refusals (7.4%), which suggests more focus on implementation processes such as clarifying the purpose of mental health treatments. Small sample size was also a factor of attrition (31%). This is comparable to the use of TF-CBT study with a community sample done in the United States (Cohen et al., 2011). Finally, this project was not able to conduct a long-term follow-up. More studies are needed to see if effects found are long-standing.

Conclusions

This study fills a critical gap in addressing global trauma within children and youth in LMIC by highlighting a collaborative partnership between an NGO and an academic partner that evaluated the feasibility of an EBT (TF-CBT). These partnerships are important in considering not only scientific knowledge but also sustainability in low-source settings. The recruitment process indicated a significant need for trauma-focused mental health services among an OVC population. This is supported by extensive literature highlighting the challenges within this population (Cluver & Gardner, 2007). Results showed that TF-CBT was feasible to implement within existing programs, and using lay workers as counselors, further supporting the task-shifting model. Findings also suggest that TF-CBT *may* be effective in reducing trauma and shame symptoms in Zambian children and adolescents, warranting further study. Literature calls for effective treatments to mitigate the interactive stressors of AIDS-orphanhood and trauma exposure on childhood PTSD (Cluver, Fincham & Seedat, 2009). Thus, future research should include randomized controlled trials of TF-CBT in LMIC to test effectiveness. Finally, there is growing evidence and recognition that implementation variables, such as feasibility, acceptability, and organizational culture and climate, need to be evaluated within the context of effectiveness studies (NIMH, 2007; McHugh and Barlow, 2010), and will be critical to overcoming barriers such as those we encountered.

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Figure 1.
Study Population

Table 1

Items included in PTSD-RI and Shame measures

Original PTSD-RI items	Locally relevant items added to the PTSD-RI
I watch out for danger	I cry
Something reminds me and I get upset	I think too much
Upsetting thoughts, pictures, sounds	Stopped going to school
I feel grouchy, angry, mad	I feel used
Dream of what happened	Do not like myself
Living through it again	I am reserved
Feel like staying by myself	Damaged psychologically
Feel alone inside	I feel rejected
Try not to talk, think, have feelings	I feel shy
Trouble feeling happiness, love	I sleep too much
Trouble feeling sadness, anger	Not feel at ease
I feel jumpy, startle easy	Not feel free
Have trouble going to sleep	I am surprised
Feel part of what happened my fault	I am ever quiet
Trouble remembering important parts	Unhappy or sad
Trouble concentrating/paying attention	I am nervous
Stay away from people, places, things	Unsettled mind
Reminds me have strong feelings	Run if I see abuser
I will not live a long life	
Afraid bad thing will happened again	
Shame measure items	
Feel ashamed, people can tell	
I think about what happened and want to go away	
Ashamed because I feel I am the only person	
What happened makes me feel dirty	
I feel like covering my body	
I wish I were invisible	
I feel disgusted with myself	
I feel exposed	

Table 2

Sample Demographics

	Treatment completers with pre-post assessments (N=58)
SEX	
Male	50 (29)
Female	50 (29)
AGE (years)	
5	1.7 (1)
6–11	25.9 (15)
>12	72.4 (42)
EDUCATION STATUS	
Currently in school	84.5 (49)
Not in school	15.5 (9)
ORPHAN STATUS	
Non-orphan	20.7 (12)
Single orphan	44.8 (26)
Double orphan	34.5 (20)

* Note: some percentages do not add to 100% because of missing data

Table 3

Average scores of PTSD scale (58 items) among children and adolescents completing pre and post-treatment assessments (N=58).

N	Pre-treatment score		Post-treatment score	
	Mean (SD)	Range	Mean (SD)	p-value
Total (58)	67.7 (21.9)	36–120	27.6 (25.2)	<0.0001
Males (29)	69.3 (20.1)	38–120	27.5 (21.5)	<0.0001
Females (29)	66.1 (23.7)	36–117	27.8 (28.6)	<0.0001

* p-value for the difference in pre and post mean scores

Table 4

Average Shame scale scores among children and adolescents completing pre and post-treatment assessments (N=58).

	Pre-treatment assessment		Post-treatment assessment		p-value *
	Mean (SD)	Range	Mean (SD)	Range	
Total (58)	8.5 (8.1)	0–29	2.2 (5.4)	0–27	<0.0001
Males (29)	9 (6.9)	0–23	1.5 (5.4)	0–27	0.0001
Females (29)	8.1 (9.2)	0–29	2.8 (5.4)	0–23	0.01

* p-value for the difference in mean score comparing pre and post measures