

Cultural adaptation and feasibility of trauma-focused cognitive behavioural therapy in China

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Abstract

Background: The contradiction between the burden of post-traumatic stress disorder (PTSD) and the lack of evidence-based treatments (EBTs) is common in low- and middle-income countries of Asia. The adaptation of trauma-focused cognitive behavioural therapy (TF-CBT) is helpful for meeting the needs of children in these countries. The objectives of this study were to describe the cultural adaptation process of TF-CBT and to explore the feasibility and acceptability of adapted interventions in China.

Method: Based on the Map of the Adaptation Process (MAP), this study adapted the types of participants, form, content elements, length and language of TF-CBT. A total of 58 children and 8 facilitators participated in a feasibility study. Feasibility was measured by the retention of children. Acceptability was assessed by the client satisfaction questionnaire (CSQ-8) and interviews with the children and facilitators.

Result: An intervention based on TF-CBT that included 7 group sessions and 3 individual sessions was developed. The results of the feasibility study showed that children had a high average retention rate (above 97%) and satisfaction (78.95%) with the intervention. Qualitative interviews showed that children and facilitators had high acceptance of the adapted intervention.

Conclusion: The adapted group-based TF-CBT had good participant retention and satisfaction. It could be smoothly implemented in the Chinese school environment.

Trial registration: Chinese Clinical Trial Registry, ChiCTR1800019837. Registered 2 December 2018, <http://www.chictr.org.cn/showproj.aspx?proj=33479>.

1. Background

Exposure to traumatic events (TEs) during childhood is relatively common (Alisic et al., 2014). Post-traumatic stress disorder (PTSD) is considered to be the most prevalent global psychological outcome after exposure to TEs (Longo et al., 2017), with prevalence rates ranging from 1.3–37.4% in different countries (Ameringen et al., 2008). Like other countries, several low- and middle-income countries of Asia experience the burden of PTSD. Researchers conducted surveys in China, Lebanon, Sri Lanka, and found that the prevalence of PTSD in children ranged from 12.36–25% (Zhai et al., 2015; Catani, Schauer, & Neuner, 2008). PTSD has extensive and long-term consequences for several negative outcomes, such as physical health (Maschi et al., 2013), academic dropout (Porche et al., 2011), and co-occurring psychiatric symptoms related to depression and anxiety (Kessler et al., 2000). Therefore, it is necessary to provide evidence-based treatments (EBTs) for Asian children.

Extensive work has been done to develop and test EBTs for PTSD, including trauma-focused cognitive behavioural therapy (TF-CBT), eye movement desensitization and reprocessing, child-parent psychotherapy and parent training (Mavranouzouli et al., 2019). However, these are mostly found in Western countries (Ennis et al., 2019). Cultural adaptation needs to be considered when introducing them

into Asian countries as a large number of studies have confirmed the necessity of the cultural adaptation of EBTs in cross-cultural research (Bernal et al., 1995; McKleroy et al., 2006; Resnicow et al., 2000). Researchers need to systematically modify intervention protocols to consider language, culture, and context in such a way that they are compatible with clients' cultural patterns, meanings and values (Bernal et al., 2009).

TF-CBT is helpful to meet the needs of EBTs of Asian countries as it has been considered the gold standard for psychological trauma intervention in children (Cisler et al., 2015). It has been successfully applied in different countries, such as the United States (Deblinger et al., 2011), Norway (Jensen et al., 2014), Congo (McMullen et al., 2013), and Zambia (Murray et al., 2015). In the process of dissemination and implementation, TF-CBT has shown strong adaptability as it has undergone various adaptations related to service providers (Berger et al., 2007; Deblinger et al., 2011; Stein et al., 2003), recipients (King et al., 2000; Murray et al., 2015), form (Deblinger et al., 2016b) and content (McMullen et al., 2013).

However, few studies have conducted TF-CBT on children in Asia. Damra (2014) adapted the length, number, language, and activities of TF-CBT in Jordan, but little is known about the reason these areas were chosen and the form of the final adaptation intervention. Some studies have provided trauma interventions similar to TF-CBT for children or adults in Asia, such as cognitive behavioural therapy (Pityaratstian, 2015; Chen et al., 2014), prolonged exposure (Asukai, 2010), and the My Trauma Recovery programme intervention (Wang, 2016). However, these interventions weakened or even lacked two core treatment components of TF-CBT: trauma exposure and cognitive coping.

In addition, it is unclear whether a guiding framework was used in most TF-CBT cultural adaptation studies, and there are inconsistencies in the way TF-CBT has been culturally adapted (Ennis et al., 2019). A theoretical model is important to better understand why and how to adapt the intervention. In a number of adapted models, the Map of the Adaptation Process (MAP) has been favoured for several reasons. This is a five-stage model for cultural adaptation that fully details how to select, adapt and deliver the appropriate intervention for new settings (Escoffery et al., 2019; McKleroy et al., 2006). Additionally, it strikes a good balance between flexibility for the new contexts and fidelity to the original intervention. On the one hand, it emphasizes that adaptation should be a planned process that maintains fidelity to core elements; on the other hand, it advocates modifications to meet the needs of local clients and stakeholders (McKleroy et al., 2006). It has been used to effectively adapt interventions in a number of cultural studies across the Pacific Islands and the United States (Ferrer-Wreder et al., 2012; Whealin et al., 2017).

Therefore, this manuscript, guided by the MAP, was designed to adapt TF-CBT to meet the needs of Asian children. The study had two purposes: 1) to systematically document the adaptation process of TF-CBT and 2) to assess the feasibility and acceptability of the adapted intervention in China.

2. Methods

The MAP includes five stages: (1) assessment; (2) selection; (3) preparation; (4) pilot; and (5) implementation. Drawing upon recommendations from the MAP, this study engaged in the first four stages to conduct our adaptation. Five-stage implementation will be needed to further adapt the intervention in the future.

2.1 Stage 1: Assessment

The first stage was to evaluate relevant characteristics of target population (such as children, parents, and facilitators) to identify the clients' culture. Quantitative and qualitative data were collected using the PTSD Checklist-5 (PCL-5, Blevins et al., 2015) questionnaires and interviews. The results showed that (1) there was a large number of left-behind children in China, with a total of more than 6.97 million. 96% of left-behind children were cared for by grandparents, and their parents could not participate in the study. (2) The total number of children who experienced TEs was large, and the types of TEs children experienced were diverse. The study collected 6,819 valid questionnaires in 56 primary and secondary schools in 8 provinces and found that 59.35% of children were exposed to one TE, the positive rate of PTSD was 12.05%, and more than 13.09% of children experienced three kinds of TEs. Seven kinds of TEs (serious accident, fatal diseases, natural disasters, robbery, sexual assault, abuse, and violence) were risk factors for PTSD. (3) The scale of facilitators was small, and their burden was heavy; most of them were not professionals. For example, there were fewer than 40,000 mental health teachers in primary and secondary schools in China, and the number of students covered by one teacher exceeded 1,000. More than 60% of psychological teachers were part-time staff and did not have psychological backgrounds (Deng Linyuan, Ma Bohui, & Wu Mingming, 2014; Yabing, 2012).

2.2 Stage 2: Selection

The second stage involved selecting the most appropriate EBT and making decisions about whether the treatment should be adapted based on assessment data. Taking into account several indicators, such as evidence strength and quality, relative advantage, and adaptability, TF-CBT was determined to be appropriate for our purpose. TF-CBT is a structured treatment designed to solve the problems of traumatized children and their parents. It comprises 8 components, including psychoeducation and parenting, relaxation, affect expression and modulation, cognitive coping, trauma narrative and processing, in vivo mastery, conjoint sessions, and enhancing safety and future development (Cohen, 2006). It can be offered in individual or group formats (Deblinger et al., 2016a). Because TF-CBT was designed for the Midwestern client population, adaptation was needed to address Asian children.

2.3 Stage 3: Preparation

2.3.1 Primary adaptation. The third stage involved making modifications to the intervention to rectify the mismatch between the original TF-CBT and the clients' culture identified through the assessment. The authors systematically viewed original TF-CBT handbooks, literature and videos, received training provided by internationally certified TF-CBT trainers, and interviewed professional supervisors. The

researchers subsequently adapted the types of participants, form, and content elements of the intervention.

First, due to the large number of left-behind children whose parents could not participate in the research, the study removed parent involvement and retained the seven units in which only children participated. Therefore, the final treatment included psychoeducation, relaxation, affect expression and modulation, cognitive coping, trauma narrative and processing, in vivo mastery, and enhancing safety and future development. In addition, to compensate for the lack of parents, "family time" was added in each session, which involved assigning homework to the children and encouraging them to complete it with their caregivers (grandparents, parents, or other relatives) and friends after each intervention.

Second, considering that children may have experienced more than one TE, we integrated the applicable subjects of the intervention so that the intervention was not limited to the type of TE. Due to the large number of left-behind children, in addition to the 7 types of PTSD-risk TEs (serious accidents, fatal diseases, natural disasters, robbery, sexual assaults, abuse and violence), the study added "separation" to the TEs. As long as a child had experienced any of the above eight types of TEs and had symptoms of PTSD, he or she could receive this treatment.

Third, we decided to use the group format of TF-CBT because of the imbalance between the number of children and facilitators. We changed the elements of the original group TF-CBT with localized Chinese elements, such as games, stories, songs and picture books. Taking into account the lack of professionalism of the facilitators, the selection of elements followed three principles: (1) the elements were more intuitive, operable and interesting; (2) they did not have the potential to harm the children; and (3) they were consistent with the purpose of the intervention. In addition, each unit developed intervention guidelines (group protocols, verbatim transcription, etc.) to standardize the intervention and to make it easier for facilitators with different backgrounds to use.

2.3.2 Small-scale trial and adaptation. The treatment protocol was tested on a small scale to provide a round of feedback for further intervention adaptation. Students in grades 3-6 from a primary school in Henan Province were selected. The trial was conducted in the form of an open group, and the group size was maintained between 6-15 children. Some sessions, such as affect expression and modulation and cognitive coping, were tested.

Based on changes in the children's participation motivation and attention in the group, we further adjusted group length, game content, language style, etc. First, we found that when the group time exceeded 60 minutes, the children's attention was easily distracted, and it was difficult to ensure the quality of the group. Therefore, each group session time was reduced to 50-60 minutes. Based on the children's attitude and performance in different games, the study adapted some game content and deleted games that were likely to create group pressure and potential injury. In addition, the language was adjusted to a style familiar to the children, and some words that were difficult for children to understand were modified.

2.4 Stage 4: Pilot study

2.4.1 Participants. The fourth stage was to evaluate the feasibility and acceptability of the adapted intervention. Pilot study was conducted between November 2018 and June 2019 at three primary schools in Henan, China. Students were eligible to participate in the programme if they (1) were between the ages of 7 and 15; (2) experienced at least one TE; (3) had symptoms of PTSD (assessed by PCL-5); and (4) had normal language communication skills. Children were excluded if they (1) had developmental delays, substance abuse or severe psychiatric symptoms; (2) demonstrated suicidal ideation, self-injury or other aggressive behaviours; or (3) participated in another treatment. After the parents and children provided informed consent, 115 children were recruited. The mean age was 10.83 years (SD = 0.84), and 59.13% (n = 68) were boys. The average number of TEs that children had experienced was 4.17 (SD = 1.89). A total of 57.89% of children had experienced separation (such as parental divorce, parental imprisonment or sudden separation from an important person), 51.75% of children had experienced bereavement, and 44.74% of children had been exposed to domestic violence (see Table 1).

2.4.2 Treatment. Children were randomly allocated to the treatment-as-usual (TAU) group or TF-CBT group with a computer-generated random allocation. Figure 1 presented the CONSORT diagram illustrating the participant flow. Fifty-seven children were allocated to TAU group which involved traditional services (such as 1-2 mental health courses a week) provided by school teachers. Fifty-eight children were assigned to the TF-CBT group to receive 10 sessions of adapted TF-CBT and traditional services over 6 weeks. Intervention was conducted by 8 facilitators; 3 of them were the developers of the intervention, and the others were undergraduates and postgraduates who majored in social work and had previously received training. Interventions were performed twice a week for an hour in school. More details about the pilot study will be published in another paper.

2.4.3 Data collection. Data were collected during the pilot study. Data collectors blinded to treatment assignment participated. Feasibility was measured by the retention of children. Acceptability was assessed by three indicators: satisfaction of children, feedback from children and feedback from facilitators.

Retention of children was recorded by the facilitators according to the children's attendance at each session.

Satisfaction of children was assessed by the Client Satisfaction Questionnaire (CSQ-8; Larsen et al., 1978). The CSQ-8 contains eight items; higher scores indicate higher satisfaction, with scores of 8–20, 21–26, and 27–32 viewed as low, medium, and high levels of satisfaction, respectively. The alpha coefficients ranged from .83 to .93 (Attkisson, Zwick, 1982).

The acceptability feedback of children was collected by focus groups. Thirty children were randomly selected from the TF-CBT group to be interviewed by a research assistant. A total of 4 focus groups were conducted in school, and each group was conducted for 1 hour. The topic guides (in Table 2) inquired in

great detail about the children's acceptance of and satisfaction with the content and delivery of the intervention and the changes or outcomes they made after the intervention.

The feasibility/acceptability feedback of facilitators was collected by interviews. Eight facilitators were interviewed one-by-one after the project. The topic guides for the interviews (in Table 2) involved the facilitators' acceptance of the adaptation intervention as well as the difficulties and challenges they encountered in the programme.

2.4.4 Data analysis. Descriptive statistics were calculated (numbers, means and standard deviations) and analysed using intent-to-treat (ITT) analysis. Missing satisfaction data were not imputed. All qualitative interviews were documented and audio-recorded by the facilitators and assistants, and the documentation was analysed using thematic analysis.

3. Results

3.1 Cross-cultural adaptation of TF-CBT in China

This study developed a TF-CBT intervention with a combination of 7 group sessions (50-60 minutes each) and 3 individual sessions (40-50 minutes each). Each session had a similar structure: participants began with an activity review, worked through a series of games, interactive discussions, or exercises; and ended with family time. The adapted interventions are described in Table 3.

3.1.1 Group session 1: Psychoeducation. The goals of this session were building relationships, introducing trauma knowledge, normalizing children's response to trauma and instilling hope for recovery. The adaption was reflected in the way trauma knowledge was imparted and by injecting hope. By letting children read a picture book that described five injured animals being treated together, the facilitators guided the TEs and trauma reactions. Then, the children were required to add a happy ending to the picture book to convey the hope of healing. Finally, the children's hopes were reinforced through a one-minute applause game.

3.1.2 Group session 2: Relaxation. The purpose of this session was to teach the children relaxation techniques to cope with stressful situations. The modifications were mainly reflected in the content and delivery mode. First, because left-behind children could not receive extra support outside the group, the imagery and mindfulness techniques, which both required guidance from others, were deleted in this session. Second, with regard to the form of delivery, the study adopted guessing riddles that described the four animals' responses to stress and relaxation methods to let the children list their common stress scenarios and responses. Then, the facilitator taught the children relaxation methods and guided them to apply relaxation methods to different stress scenarios.

3.1.3 Group session 3: Affect expression and modulation. This session aimed to guide the children to recognize, express, monitor and regulate their emotions. The study adapted the original delivery method to be more interesting, diverse, intuitive and operable. For example, several pictures and games, such as

stickers (identifying various emotional features on the stickers), emotion camp maps (smashing the different emotions with a small ball; when an emotion was hit, the children needed to express "I felt.....when"), emotion thermometers (using a "thermometer" to measure the degree of emotion) and emotional jar games (shaking the emotional bottle until the emotion was calm), were used to help the children understand what different emotional characteristics were, what emotions they had in different situations, and how to express their emotions and realize that the emotions were adjustable.

3.1.4 Group session 4: Cognitive coping. This session was mainly to help children distinguish between thoughts, emotions, and behaviours and to understand the impact of unreasonable thoughts. The adaptations in this session were mainly reflected in the use of storytelling and metaphor to embody abstract concepts. For example, "little angel" and "little devil" were used as metaphors for "reasonable thought" and "unreasonable thought", and the children were asked, "What does the little angel/little devil say to you in this case?" to make it easier for the children to think and understand reasonable/unreasonable thoughts.

3.1.5 Group session 5: Cognitive coping. This session required the most modification in the study. It aimed to teach the children to replace unreasonable thoughts with reasonable thoughts. The abstract replacement method was adapted to be more operative, practical and acceptable. The study adopted a four-step method of "defeating the little devil" (pausing, realizing the existence of the little devil, thinking about what the little devil said to you, and looking for the little angel to defeat the little devil) to replace unreasonable thoughts. Subsequently, four common reasonable thoughts, "little angels" (enthusiasm, affirmativeness, empathy and communication), were introduced to help children master using reasonable thoughts to replace unreasonable thoughts.

3.1.6 Group session 6: Trauma narrative. This session enabled the children to accept and learn the methods of trauma narrative. We adapted the content of picture books and follow-up activities. The session began by reading a trauma storybook and summarizing the eight elements of the trauma narrative (time, place, character, cause, process, outcome, emotion and thought). Afterwards, the children were asked to complete the "bear's picture book" and record their unforgettable events and to write a "catalogue" for their stories. Finally, one of the happiest things was chosen to be filled in according to the eight elements to exercise the method of trauma narrative.

3.1.7 Individual sessions 1, 2 & 3: Trauma narrative and processing. The first individual session was to allow the children to tell their own trauma memories. The eight elements were used to help children gradually write/draw trauma stories with the guidance of facilitators. The second and third individual sessions were to address the children's unreasonable or reasonable but useless thoughts and to formulate the action strategy. Several techniques, such as in vivo mastery (if needed), responsibility circle, Socratic questioning, miracle question, exception question and problem solving therapy, were used to solve the children's problems in a targeted and in-depth way and to rewrite the children's trauma storybooks.

3.1.8 Group session 7: Enhancing safety and future development. This session integrated the last two sessions of the original group TF-CBT. Its purpose was to review all interventions and explore standard safety preparedness skills so that the children could respond to similar incidents that might occur in the future. The main adaptations in this session were the method of teaching security techniques and the content of farewell ceremonies. The study set up a situation in which Pinocchio had a stress response and unreasonable thoughts due to his parents' migrant work, and the children were asked to help Pinocchio solve the problem. In this way, relaxation, emotional regulation, cognitive processing and other skills were integrated and exercised together. Then, the facilitators could guide the children to use these methods to solve different problems in the future. Finally, at the farewell ceremony, the TE notes written by the children were turned away by magic so that the children could say goodbye to the TEs.

3.2 Feasibility and acceptability of adapted TF-CBT

3.2.1 Retention of children. All 58 children completed 10 sessions of intervention, and the average retention rate was maintained above 97%. As shown in Figure 2, the participation rate of the children in the first group session and three individual sessions was 100%. Of 58 children, 98.28% (n = 57) attended the 2nd, 3rd, and 5th group sessions, 1 child was on leave, 96.55% (n = 56) attended the 6th session, 94.83% (n = 55) attended the 4th and 7th sessions, and 1 child was on sick leave. A total of 99.13% (n = 114) of the children completed the posttreatment, and 1 child was not evaluated because he was on sick leave. All children completed the follow-up assessment.

3.2.2 Acceptance and satisfaction of children. A total of 98.28% (n = 57) of the children completed the CSQ-8 posttreatment. A total of 78.95% (n = 45) and 19.30% (n = 11) of the children had high or medium levels of satisfaction, respectively. A total of 89.48% (n = 51) of the children said that they "will" or "definitely will" recommend that their friends receive our intervention.

The results of the focus groups also showed that the children had a high degree of satisfaction and acceptance of the adapted TF-CBT. When asked about their acceptance of the group format, the children expressed their support: *"I made good friends in the group," "The group was relatively open, and I became more outspoken than before."* With regard to their acceptance of the individual format, a girl expressed that she liked the individual sessions very much: *"I think the group leader can help me, and I will feel better after speaking out, and nothing will hinder me anymore. I feel safe with one-on-one."* In addition, children thought that the games in the programme were very interesting. Compared with competitive games, the children preferred cooperative games. *"Because there are so many people in games, we can help each other and solve problems together."* When talking about the growth and change produced by the intervention, the children said that they had gained a lot: *"I feel that the intervention has given me support, and I am more confident to face difficulties"; "The group let me learn a lot of knowledge. For example, when I am sad, I can use some methods to adjust my mood. I feel very happy."*

3.2.3 Acceptance and satisfaction of facilitators. The results of the semi-structured interviews indicated that the facilitators had strong satisfaction and acceptance of the intervention. With regard to the

inclusion of multiple types of TEs, the facilitators said that it did not have much impact on the project because the details of TEs were not involved in the group sessions. In addition, the facilitators highly accepted the combination of group and individual formats, and they felt that this created a transition of relationships, emotions, and knowledge that helped to quickly establish a relationship and sense of trust between the facilitator and the child and helped to save the investment of the facilitators' time and resources.

In terms of acceptance of content, the facilitators generally believed that Chinese elements, such as games, picture books and music, were very popular with the children. *"They can increase the interest of the project, help children integrate into the group more quickly and relax to accept the knowledge."* At the same time, it was useful to use the children's language style to control discipline: *"Every time they hear 'one, two, three, sit on the side', the scene will immediately calm down."* When asked whether the training knowledge could be implemented substantially, the facilitators said that they did not have much difficulty with this because the project provided standardized materials, which were helpful to remind them of the overall designs and priorities of intervention and to effectively deal with emergencies. Moreover, the facilitators were satisfied that the project had made a difference to the children and themselves: *"After the programme, the child's relationship always becomes more harmonious and active"; "The intervention provides good problem-solving methods and skills for children with sudden traumatic events"; "I also gain the method of how to provide treatment for children, and I feel a sense of trust and value."*

3.2.4 Challenges for the facilitators and children. Both the children and the facilitators reported difficulties in completing family time. The children said this was mainly because school work was so stressful that they did not have enough time to complete family time. However, the facilitators thought this problem was created by the high frequency of the intervention; two sessions a week caused the children to lack practice time. Another facilitator believed that another reason was the lack of a reward mechanism, which made the children less motivated to finish it.

The facilitators also noted some challenges in the implementation of the intervention. First, children in different grades had different cognitive and comprehension abilities, which slowed the progress of the group. When the programme developed to the later stage, it often took a long time to maintain discipline. Additionally, more mature elements should be adopted for children in the upper grades. Moreover, the individual sessions were located in the second half of the group, making it difficult for facilitators to monitor the use of skills and action strategies.

4. Discussion

The study developed a group-based TF-CBT intervention that consisted of 7 group sessions and 3 individual sessions. The pilot study showed that the children and facilitators reported high feasibility and acceptability of the adapted intervention in China.

Maintaining a balance between "flexibility" and "fidelity" is an important issue when adapting EBTs (Castro, Barrera, 2004; Ennis et al., 2019). Two key lessons were learned in our adaptation process. First,

the assessment was helpful to determine the direction, content and scope of “flexibility”. This study first found inconsistencies between the original TF-CBT and the clients’ environment through assessment and adapted these mismatches to make the intervention most suitable for the local environment. Second, the programme should consider whether the goals of each session were met to ensure “fidelity”. We grasped and distinguished the treatment rationale (the “why”), concrete goals (the “what”), and implementation strategy (the “how”) of each component. Cultural adaptation was mainly intended to modify the implementation strategy and retain the treatment rationale as well as the concrete goals so that the active components of the intervention were not changed.

The children had high retention and satisfaction with the adapted intervention, which might be affected by factors such as the school environment, parents' informed consent, the group format, and the elements and contents of the intervention. In the school environment, the research was more accessible to children, especially when the research received the support of the head teacher and parents. The children were encouraged to participate in the programme, which was helpful to maintain retention. In addition, group services delivered in the school environment helped to create a safe, informal, and low-stigma atmosphere, which made the children more willing to accept the programme (Tyrer & Fazel, 2014). Additionally, research has shown that culturally adapted TF-CBT can be successfully implemented in a new environment (Deblinger et al., 2016b). This research adapted elements in accordance with the nature of the children and the context, which greatly enhanced the enjoyment of the intervention and made the children have high satisfaction with and retention in the programme.

Compared with the original TF-CBT group, the adapted intervention is more appropriate in Chinese contexts. The intervention retained the eight core contents of TF-CBT but adapted them: the types of TEs, parental involvement, and group activities. On the one hand, the adaptation was determined by the realistic environment. For example, most Chinese children had experienced more than one TE, and it was difficult to fully define whether they were mainly affected by a certain type of TE. Moreover, it was difficult to make the parents participate in the project, let alone to involve parents and children in parallel. The adapted intervention effectively reduced the difficulties in implementation and was more in line with Chinese national conditions. On the other hand, the adapted intervention had more advantages than the original. First, the adapted intervention focused on transforming the original concepts into more intuitive and visualized operation steps. For example, the replacement of unreasonable thoughts was visualized as a “four-step method of defeating the little devil”, which was easier for children to accept and understand. Second, we emphasized refining the principle of technology; for example, in the relaxation session, we used the example of a four-animal relaxation method to abstract the core principle of relaxation “one tight, one loose” so that the children could make an inference and develop other methods that were more suitable for themselves based on the core principles. Finally, the intervention emphasized the independence of using skills, such as the removal of imagery and mindfulness skills, so that children could practice independently outside the programme.

The intervention of this study has many similarities to and differences from the Cognitive behavioural intervention for trauma in schools (CBITS, second edition). Both have the same theoretical basis and

group structure, and both serve children who have experienced multiple TEs in school environment. However, there are two major differences: (1) CBITS provides services for children (10 group sessions, 3 individual sessions), parents (2 sessions) and teachers (1 session), while our programme focuses only on children (7 group sessions and 3 individual sessions), and (2) CBITS imparts knowledge mainly by leading questions, while our project is more inclined to use games, picture books and stories to impart knowledge. Therefore, compared with CBITS, our adaptation is more suitable for the large number of left-behind children in China whose parents are unable to participate in the programme. At the same time, the scheme is more interesting and more easily accepted by children.

There were also some challenges and limitations in the study: (1) the high frequency of intervention and the lack of incentive mechanisms made it difficult for children to complete the "family time"; (2) the absence of parents had an impact on children who suffered from domestic trauma, and children were still suffering from the trauma caused by their parents' unscientific upbringing during the intervention period; and (3) the study sample size was small.

The programme will make further adaptations based on the pilot study. First, the project will advance the individual sessions to the middle of the intervention, which will help the facilitator monitor the children's method usage in the subsequent group. At the same time, the programme will adjust some of the childish elements to make the overall content more in line with children's cognition. The project will also add more incentive mechanisms to encourage children to maintain group discipline and complete "family time".

The final stage of the MAP entails disseminating the intervention, monitoring its fidelity, and refining it as needed (McKleroy et al., 2006). This pilot study demonstrated that the intervention was feasible and acceptable, but the facilitators were mainly trained graduate and undergraduate students. We must realize that if the intervention is extended to first-line health facilitators, it may be faced with a large gap between professional background, attitudes towards implementation and implementation compliance. Therefore, a large-scale randomized controlled trial (RCT) conducted by first-line mental health facilitators is needed to further adapt TF-CBT.

5. Conclusion

The culturally adapted TF-CBT has a good participant retention rate and satisfaction and can be implemented smoothly in the Chinese school environment. It needs to be further adapted through a rigorous large-scale RCT.

Abbreviations

PTSD: Post-traumatic stress disorder; EBTs: Evidence-based treatments; TF-CBT: Trauma-focused cognitive behavioural therapy; MAP: Map of the Adaptation Process; CSQ-8: Client satisfaction questionnaire; TEs: Traumatic events; PCL-5: PTSD Checklist-5; SD: Standard deviation; TAU: Treatment-as-

usual; ITT:Intent-to-treat; CBITS:Cognitive behavioural intervention for trauma in schools;
RCT:Randomized controlled trial.

Declarations

Ethics approval and consent to participate

The study protocol was approved by the Chinese Ethics Committee of Registering Clinical Trials (Approval no. of ethics committee: ChiECRCT-20180191) and was registered under the Chinese Clinical Trial Registry (Registration number: ChiCTR1800019837). Written informed consent was obtained from the children and at least one parent or legal guardian before being enrolled.

Consent for publication

Not applicable.

Availability of data and materials

The dataset analyzed during the current study is available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

JL takes main responsibilities for the integrity of the data and the accuracy of the data analysis, as well as drafting of the manuscript. JNL, LY and YZ takes main responsibilities for intervention, and critical revision of the manuscript for important intellectual content. ZYQ takes responsibilities for study concept and design and critical revision of the manuscript for important intellectual content. All authors read and approved the final manuscript.

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Tables

Table 1 The characteristics of the children

Characteristic	Total	TF-CBT group ¹	TAU group ²
<i>Gender</i>			
Boy	68(59.13%)	34(58.62%)	34(59.65%)
Girl	47(40.86%)	24(41.38%)	23(40.35%)
Age, mean(SD ³)	10.83(0.84)	10.89(0.85)	10.77(0.84)
<i>Traumatic events</i>			
Separation	66(57.89%)	35(60.34%)	31(55.36%)
Bereavement	59(51.75%)	25(43.10%)	34(60.71%)
Domestic violence	51(44.74%)	29(50.00%)	22(39.29%)
Observed threatened or serious injury	49(42.98%)	25(43.10%)	24(42.86%)
Witnessed domestic violence	48(42.11%)	23(39.66%)	25(44.64%)
Serious accident	42(36.84%)	22(37.93%)	20(35.71%)
Life-threatening medical illness	42(36.84%)	20(34.48%)	22(39.29%)
Bullying	35(30.70%)	15(25.86%)	20(35.71%)

¹ TF-CBT group: Trauma-focused cognitive behavioural therapy group; ²TAU group: Treatment-as-usual group; ³SD: Standard deviation

Table 2 The topic guides for interviews with children and facilitators

Focus group discussion questions with children
Was the intervention helpful for you?
What did you think of the group format?
What did you think of the individual format?
What did you think of the group elements (games, picture books, etc.)?
Was there anything (knowledge or skills) you will keep using?
What were the problems you encountered when receiving the intervention?
Individual interviews with facilitators
Did the absence of parents have any influence on the group?
Could family time be completed? What was the final effect?
Did the inclusion of different types of children have an impact on group development?
What advantages and disadvantages did the intervention have in the group format?
What advantages and disadvantages did the intervention have in the individual format?
What were the challenges you encountered in the process of developing group and individual sessions?
What did you think of the different elements (games, picture books, music) in the project?
Were the standardized materials helpful for you?
Was this intervention helpful for children? Did you think it can solve the children's problems?
Were you satisfied with the children's changes? If not, why?
Was this intervention helpful for yourself?
Are you willing to continue using this intervention in the future?

Table 3 The contents of the adapted intervention

Group session 1 Psychoeducation
Warm up game: getting to know each other
Formulate group rules
Picture books: education about traumatic events and reactions
Applause game: inject hope
Family time
Group session 2 Relaxation
Activities review
Warm up game: deepen understanding
Guess the riddle: list stress events and reactions
Relaxation technique practice
Family time
Group session 3 Affect expression and modulation
Game: activities review
Game: recognize emotions and monitor emotional degrees
Formulate emotion regulation methods
Family time
Group session 4 Cognitive coping
Activities review
Storytelling: recognize thoughts, emotions, and behaviours
Case analysis: linkage between thoughts, emotions, and behaviours
Family time
Group session 5 Cognitive coping
Game: activities review
Four-step method of defeating the "little devil"
Cartoon: learn reasonable thoughts
Role play: practice replacing unreasonable thoughts
Family time
Group session 6 Trauma narrative

Game: activities review
Picture books: education about the method of trauma narrative
Write trauma memory
Family time
Individual session 1 Trauma narrative
Explain rationale and the method to pause and relax
Write trauma memory
Examine the trauma memory
Conclusion
Individual session 2 Trauma narrative and processing
Check-in
Revise the trauma memory
Process the trauma memory
Formulate action strategy
Individual session 3 Trauma narrative and processing
Revise the trauma memory
Process the trauma memory
Formulate action strategy
Group session 7 Enhancing safety and future development
Game: review the knowledge of the entire project
Case guide: practice security techniques
Relapse prevention
Graduation ceremony

Figures

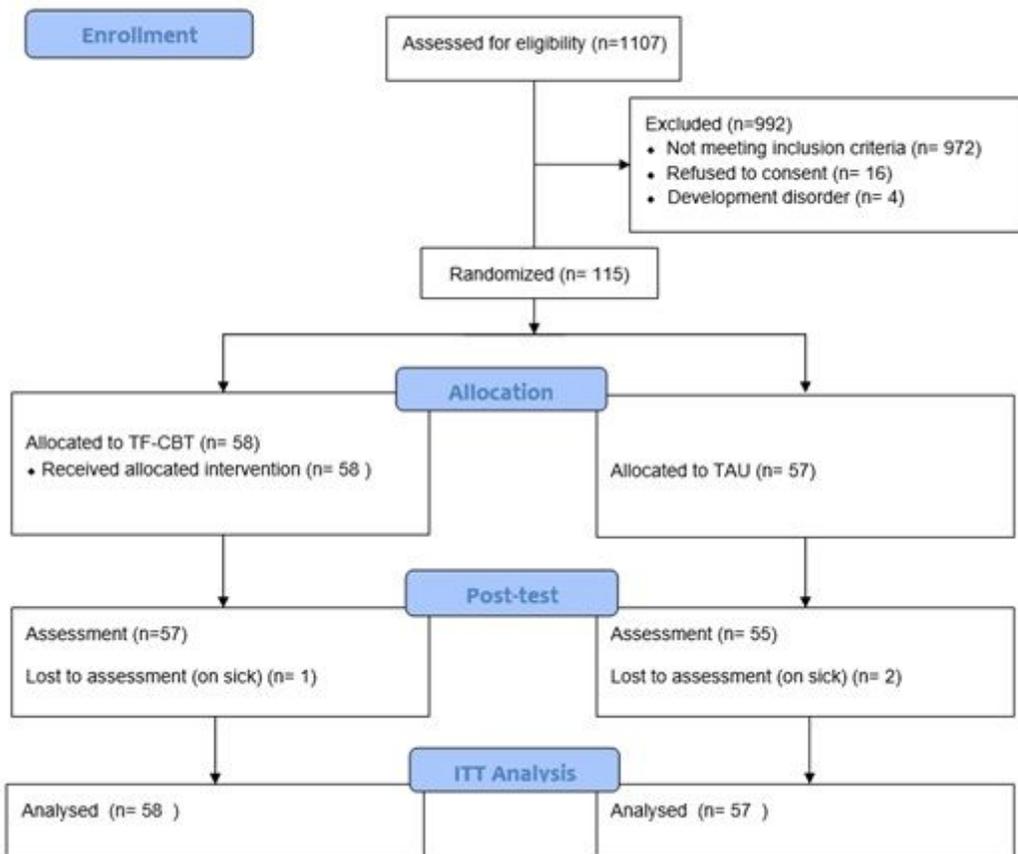


Figure 1

Participants Flow Through TF-CBT Intervention Protocol

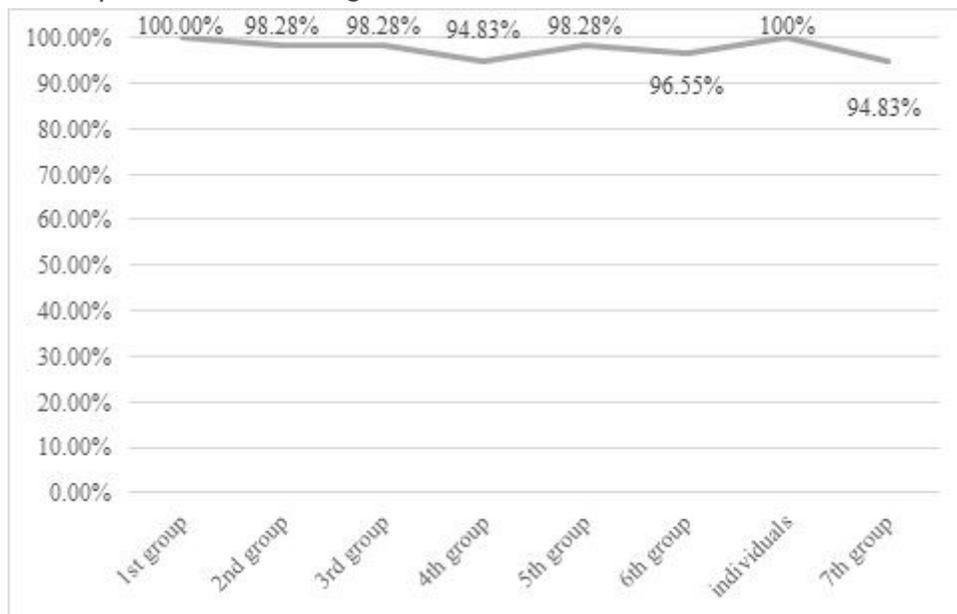


Figure 2

The retention of children

Supplementary Files

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- [CONSORTstatement.docx](#)
- [CONSORT2010Checklist.doc](#)