THE JOURNAL OF CHILD PSYCHOLOGY AND PSYCHIATRY

ACAMH THE ASSOCIATION FOR CHILD AND ADOLESCENT MENTAL HEALTH

Journal of Child Psychology and Psychiatry 54:11 (2013), pp 1231–1241 doi:10.1111/jcpp.12094

Group trauma-focused cognitive-behavioural therapy with former child soldiers and other war-affected boys in the DR Congo: a randomised controlled trial

John McMullen,[1] Paul O'Callaghan,[1] Ciaran Shannon,[2] Alastair Black,[3] and John Eakin[1]

[1]Doctorate in Educational, Child and Adolescent Psychology, Queens University, Belfast, UK; [2]Doctorate in Clinical Psychology Queens University, Belfast, UK; [3]Futures (NI) Belfast, Northern Ireland, UK

Background: The Democratic Republic of Congo (DRC) has been home to the world's deadliest conflict since World War II and is reported to have the largest number of child soldiers in the world. Despite evidence of the debilitating impact of war, no group-based mental health or psychosocial intervention has been evaluated in a randomised controlled trial for psychologically distressed former child soldiers. **Method:** A randomised controlled trial involving 50 boys, aged 13–17, including former child soldiers ($n = 39$) and other war-affected boys ($n = 11$). They were randomly assigned to an intervention group, or wait-list control group. The intervention group received a 15-session, group-based, culturally adapted Trauma-Focused Cognitive–Behavioural Therapy (TF-CBT) intervention. Assessment interviews were completed at baseline, postintervention and 3-month follow-up (intervention group). **Results:** Analysis of Covariance (ANCOVA) demonstrated that, in comparison to the wait-list control group, the TF-CBT intervention group had highly significant reductions in posttraumatic stress symptoms, overall psychosocial distress, depression or anxiety-like symptoms, conduct problems and a significant increase in prosocial behaviour ($p < .001$ for all). Effect sizes were higher when former child soldier scores were separated for sub-analysis. Three-month follow-up of the intervention group found that treatment gains were maintained. **Conclusions:** A culturally modified, group-based TF-CBT intervention was effective in reducing posttraumatic stress and psychosocial distress in former child soldiers and other war-affected boys. **Keywords:** Children, group, posttraumatic stress, psychosocial distress, therapy, war.

Introduction

Globally, just over 1 billion children under the age of 18 live in countries affected by war (Machel, 2009). There are continued calls to increase public awareness of the effects of war; to understand the impact on mental health and development; and to develop culturally appropriate interventions to treat children traumatised by war (Barenbaum, Ruchkin, & Schwab-Stone, 2004; Betancourt et al., 2008; Machel, 2009; McMullen, O'Callaghan, Richards, Eakin, & Rafferty, 2011).

One of the cruellest outcomes of war has been the abduction and recruitment of children by armed groups. At an age better suited for school, many boys and girls serve as combatants, messengers, scouts, porters, cooks, mine sweepers, spies and sex slaves (Machel, 2009; Wessells, 2006). The tragic use of these 'child soldiers' is most critical on the continent of Africa, especially in the Democratic Republic of Congo (DRC) which is thought to have approximately 30,000 children, from as young as 7, fighting or living with at least nine separate armed groups (Bell, 2006; Wessells, 2006).

Posttraumatic stress disorder (PTSD) is the most researched mental health difficulty in war-affected children (Jordans, Tol, Komproe, & de Jong, 2009). Previous studies have found high incidences of posttraumatic stress among African former child soldiers (Amone-P'Olak, Garnefski, & Kraaij, 2007; Bayer, Klasen, & Adam, 2007; Derluyn, Broekaert, Schuyten, & de Temmerman, 2004). Other consequences of war for children can include depression (Thabet et al., 2004), aggressive behaviour (Bayer et al., 2007) and social difficulties (Wessells, 2006). Former child soldiers often experience stigma on return to their communities, and thus providing assistance for former child soldiers may risk increasing resentment rather than promoting reintegration (Betancourt, Agnew-Blais, Gilman, Williams, & Ellis, 2010). Previous research has suggested that psychosocial and mental health interventions should be offered to all war-affected children, on the basis of needs (distress and persistent impairment) and not labels, but evaluated with particular attention to subgroups of interest such as former child soldiers (Betancourt et al., 2008).

Systematic and practitioner reviews of interventions addressing psychosocial well-being and mental health of children affected by war in low- and middle-income countries (LAMIC) have found a serious lack of rigorous studies (Ehntholt & Yule, 2006; Jordans et al., 2009). Individual mental health interventions may not be feasible as a first-line strategy in LAMIC countries due to a lack of resources and hence experts have advocated for

Conflicts of interest statement: No conflicts declared.
ClinicalTrials.gov Identifier: NCT01494831 (http://www.clinicaltrials.gov/ct2/show/NCT01494831)

group interventions in community or educational settings (Barenbaum et al., 2004; Dowdney, 2007). However, there is some support for individual treatments that can be offered to particularly vulnerable or disturbed children, or for whom problems persist despite group intervention (Barenbaum et al., 2004). One such intervention is Narrative Exposure Therapy (NET; Schauer, Neuner, & Elbert, 2005), an individual treatment, based on the principles of cognitive-behaviour therapy, exposure therapy and testimony therapy. A recent randomised controlled trial (RCT) of NET with former child soldiers in northern Uganda (Ertl, Pfeiffer, Schauer, Elbert, & Neuner, 2011) found a significant reduction in PTSD symptoms compared with an academic catch-up programme or wait-list control. To the author's knowledge, this study was the first RCT to examine an individual-based mental health intervention directed at former child soldiers specifically. While this is a positive step, there remains a gap in the evidence base for a group-based intervention developed specifically for child soldiers.

Group format has been found to normalise difficulties and promote peer support through which problem-solving and coping skills can be modelled and practiced in the safety of a group setting (Barenbaum et al., 2004). There have been some previous RCTs of group interventions with war-affected children and adolescents in LAMIC countries. These have involved a range of modalities and have demonstrated varying degrees of effectiveness in reducing mental health and psychosocial difficulties. They include Group Interpersonal Psychotherapy (IPT-G) with adolescents in Uganda (Bolton et al., 2007; a 'Mind-body Skills' intervention with adolescents in Kosovo (Gordon, Staples, Blyta, Bytyqi, & Wilson, 2008), a three-tiered mental health programme with secondary school students in Bosnia (Layne et al., 2008); and Classroom Based Intervention Programs (CBI) in Palestine (Khamis, Macy, & Coignez, 2004), Indonesia (Tol et al., 2008) and Nepal (Jordans et al., 2010).

There have also been a number of quasi-controlled and noncontrolled studies with war-affected children and adolescents in LAMIC countries that displayed positive outcomes (Gregory & Embrey, 2010; Gupta & Zimmer, 2008; Staples, Abdel, & Gordon, 2011). To the best of the authors' knowledge, no previous group-based mental health or psychosocial intervention has been developed for former child soldiers and evaluated in a RCT.

The primary objective of the study was to determine if group-based TF-CBT is effective in reducing symptoms of posttraumatic stress in former child soldiers and other war-affected boys. The secondary objective was to examine the effects of the intervention on depression/anxiety-like symptoms, conduct problems and prosocial behaviour. We anticipated Trauma-Focused Cognitive–Behavioural Therapy (TF-CBT) combined with usual care to be superior to usual care alone for both primary and secondary outcomes.

Method

Trial design

This was a parallel-group study with a wait-list control group and equal randomisation (1:1) using matching dyads based on reported level of posttraumatic stress. Interviewers were double blinded pre- and postintervention.

Participants and setting

The intervention took place during May–July 2011 in Beni, a town in the North Kivu province of eastern DRC. It was approved and facilitated by World Vision DRC (WVDRC), and a local Congolese partner NGO, Centre d'Encadrement d'Enfants Rescapés non Accompagnés et Orphelins (CERAO). As with many other towns in the North Kivu province of the DRC, Beni has borne the brunt of years of war, atrocities and human rights violations committed against the civilian population by government and foreign armies and by an array of rebel groups. CERAO manage a Transit and Orientation Centre (CTO) where former child soldiers stay prior to completing the process of Disarmament, Demobilization and Reintegration (DDR). The DDR process is managed by the International Committee of the Red Cross (ICRC) who received the boys after they had been disarmed and demobilised by MONUSCO – the UN Stabilisation Mission in the DR Congo. The boys had received papers from the UN attesting to their former combatant status and these papers gave them immunity from re-arrest and accusations of desertion. Assisted by WVDRC, CERAO also seek to provide host families and vocational training to other war-affected children and adolescents. Prior to this study, WVDRC and CERAO had identified those war-affected young people in Beni who were most in need of support.

Inclusion criteria for this intervention were: (a) male, (b) under 18 and (c) either a former child soldier (abducted or recruited by an armed group) or a witness to a violent event involving a real or perceived direct threat to life. To keep the trial naturalistic, adolescents with suicidal ideation, substance abuse or other mental health difficulties were not excluded. All of the boys who had been previously identified by WVDRC and CERAO were screened using the war experiences checklist (Table 1). All of these boys met the inclusion criteria. These included former child soldiers (n = 39) and other war-affected boys (n = 11). They ranged in age from 13 to 17 ($\overline{X}$ = 15.8, SD = 1.4). All of the adolescents had Swahili as their first language. When the project commenced, 24 of the boys were living in the CTO, 21 were living with parents,

Table 1 Study sample characteristics at trial baseline for war experiences[a]

	Traumatic event experienced	TF-CBT group (n = 25)	Wait-list control Group (n = 25)	Total (n = 50)	%
1	Severe punishment or revenge	21	23	44	88
2	Lack of food or water	21	22	43	86
3	Carrying heavy loads	20	19	39	78
4	Being severely beaten	17	22	39	78
5	Abducted or living with armed groups	15	24	39	78
6	Mutilation	18	18	36	72
7	See a lot of blood or corpses of people	18	16	34	68
8	Direct threats	14	19	33	66
9	Murder	17	14	31	62
10	Forced to lie on cement floor & soaked with water	16	15	31	62
11	Ambush	16	14	30	60
12	Looting	16	11	27	54
13	Explosion or fire	12	15	27	54
14	Death of a parent	13	11	24	48
15	Fighting or attacks	16	8	24	48
16	Serious illness	12	9	21	42
17	Road accident	12	8	20	40
18	Burnt with a hot knife	12	8	20	40
19	Rape	9	8	17	34
20	Inappropriate touch	12	5	17	34
21	Shot with a bullet	11	6	17	34
22	Parents divorced/separated	8	5	13	26

Characteristic	TF-CBT (n = 25)	Control group (n = 25)
Age in years	15.9 (1.3)[b]	15.6 (1.4)[b]
Number of traumatic events experienced	13.1 (6.2)[b]	11.7 (5.6)[b]
Former child soldiers	18	19
Living in CTO	12	11
Living with family or host family	10	12
Street boys	3	2

[a]The boys were asked if they had either witnessed or experienced each of the 22 traumatic life events.
[b]Data are means (*SD*).

guardians or host families and 5 were still sleeping on the streets while host families were sought. Random allocation resulted in the living conditions being almost equally distributed between the two groups. The treatment group contained 12 boys living at the CTO, 10 with families and 3 street boys. The wait-list control group had 11 boys living in the CTO, 12 with families and 2 street boys. Details of the participants' progress throughout the study are presented in the CONSORT flowchart in Figure 1.

Ethical approval and consent

Ethical approval was given by an Independent Review Board at Queen's University, Belfast (QUB) and subsequently by the School of Psychology Research Ethics Committee, QUB. In the absence of a similar local ethics committee, the project was granted approval by World Vision's Regional Director, after review by their child protection and social work teams, and by the Director and President of CERAO. The research project was explained to all participants and staff members of CERAO and a period of 24 hours reflection was provided before informed oral consent was sought at the screening stage of the study (Bolton et al., 2007). The boys were made aware of their right to withdraw at any time and have their data destroyed. They signed (signature or fingerprint) a translated version of the participants' consent form after this was explained to them. As most of the boys did not have known parents, the translated consent forms were signed for each boy by next of kin or guardians who were acting in loco parentis (Ertl et al., 2011; Gupta & Zimmer, 2008).

Procedure

The initial translation of the measures from English to French and Swahili was completed by the first and second authors, assisted by two Congolese students who were majoring in English at Goma University. These translations were checked and amended by a focus group of 7 local CERAO staff. The focus group helped to increase the cultural applicability of the screening instruments and to increase face validity by making adjustments to the phrasing of some items. No items were added or removed. The focus group also compiled a list of the potentially traumatic events the boys may have witnessed during the war. Twenty-two traumatic life events were chosen and this was then developed into a dichotomous

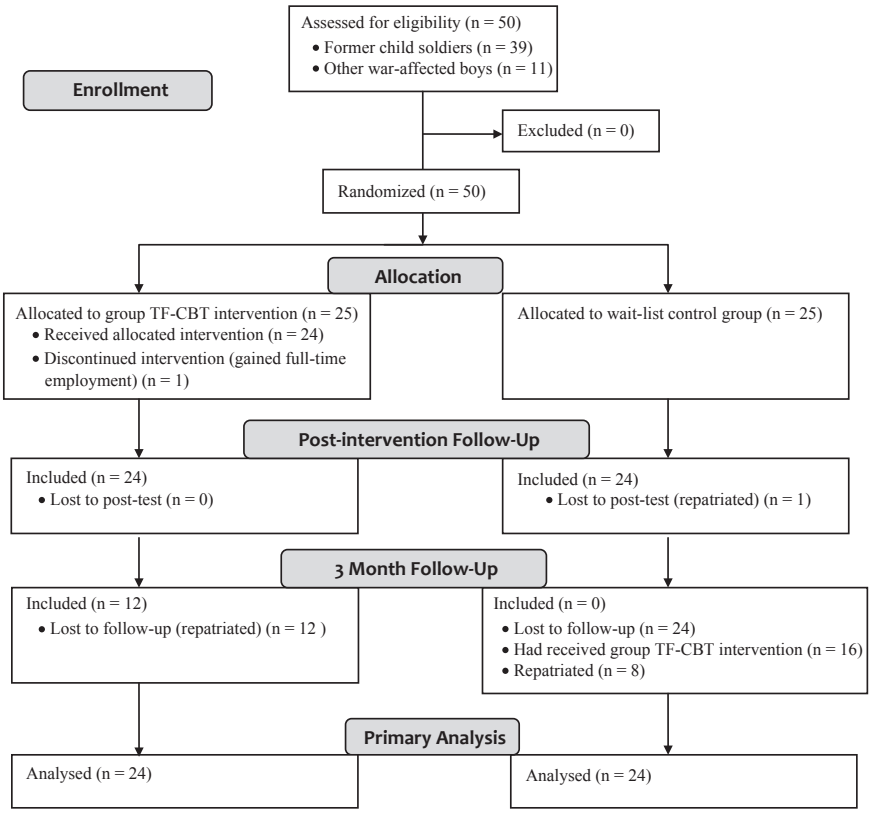

Figure 1 Flow of Participants through the study

questionnaire (Cronbach α = .895) to assess the war events that children had been exposed to. This formed the first part of the baseline assessment interviews. The boys may have been victims, perpetrators or witnesses of these events but were not asked to specify which of these roles they had played in the events. This decision was taken on the advice of local Congolese staff who felt that this would increase honesty in responses and limit any distress in completing the initial interviews. The findings of this questionnaire are contained in Table 1.

Five staff from CERAO were then trained by the first and second authors in administering the preintervention interviews with the children. Interviews took place individually at the CTO or a local school and lasted for 30–45 min. The boys were ranked on a list according to their total score for 'posttraumatic stress' on the UCLA-PTSD Reaction Index (Pynoos & Steinberg, 2002). They were then randomly allocated, by the first author, to either TF-CBT intervention group or wait-list control group using a matched dyad sequence from a computer randomisation program (www.random.org) generated by the third author (off site). To prevent selection bias, the first author was not present during assessment and did not meet the participants prior to the group allocation. None of the interviewers participated in the intervention to ensure blinding of treatment allocation. Data were collected by the same interviewers at preintervention (May 2011), 7 weeks later at postintervention (July 2011), and at a 3-month follow-up (October 2011).

Measures

The UCLA-PTSD Reaction Index (Revised; Pynoos & Steinberg, 2002) was used to assess levels of posttraumatic stress symptoms. This 22-item, self-report questionnaire is one of the most widely used and translated measure of posttraumatic stress among children throughout the world. Previous studies reported test–retest reliability ranging from 0.84 to 0.94 (Steinberg, Brymer, Decker, & Pynoos, 2004) Internal consistency (Cronbach α) for the Congolese Swahili version of the UCLA-PTSD RI we employed in this study was 0.82. Interviewees were asked to rate how much of the time they experienced each problem over the past week on a 5-point Likert Scale-0 (*none*), 1 (*little*), 2 (*some*), 3 (*much*) or 4 (*most*). These were accompanied by visual prompts.

The African Youth Psychosocial Assessment (Betancourt et al., 2009) was used to measure levels of psychosocial distress. Responses were recorded on the same Likert scale as the UCLA-PTSD RI to avoid confusion. As with the UCLA-PTSD RI, this self-report measure was delivered in interview format due to literacy difficulties among the population. The 40-item AYPA (formerly known as the Acholi Psychosocial Assessment Instrument; APAI) was developed and validated in northern Uganda from a qualitative study with youth, caregivers and mental health workers who were asked to identify the important problems of war-affected and displaced youth (Betancourt et al., 2009). The symptoms of these local syndromes share similarities with Western

definitions for mood disorders or depression, general anxiety disorder, conduct disorder and somatic complaints without medical cause. During translation, the phrasing of some items was changed and some synonyms inserted so the meaning of the original item was clear in Swahili, the language of the intervention. For example, 'holding your head in your hand' is a non-DSM-IV symptom of depression, found among young people in Uganda in Betancourt et al.'s original study and measured in the AYPA. It is also observed in young people in DR Congo but was referred to, in Swahili, as: 'kushika (to hold/grasp) tama (cheek)'. Cronbach's α for the total scale on the current Congolese Swahili version was 0.76 and for the sub-scales- 0.74 (depression/anxiety-like symptoms), 0.84 (conduct problems) and 0.83 (prosocial behaviour). The 3-item somatic complaints subscale was excluded from final analysis as reliability was found to be poor (0.31).

Intervention

A 15-session, manualised, TF-CBT intervention was delivered to the intervention group. TF-CBT is the recommended treatment choice for children and young people in the general population with PTSD (National Institute for Clinical Excellence (NICE), 2005) and is the only well-established treatment for young people exposed to traumatic events (Silverman et al., 2008). The manual in the current study was developed from the systematic treatment approach presented in the book *Treating Trauma and Traumatic Grief in Children and Adolescents (*Cohen, Mannarino, & Deblinger, 2006 and the script was based on the corresponding internet training course, *TF-CBTWeb*: *A Web-based Learning Course for Trauma-Focused Cognitive-Behavioral Therapy* (Smith & Saunders, 2005). This was adapted from individual into group format and culturally modified by including culturally applicable analogies and exemplars throughout.

The TF-CBT intervention included the following modules: (a) Psycho-education, (b) Stress management/Relaxation techniques (thought stopping, progressive muscle relaxation, imagining a safe place, deep breathing, (c) Affect expression and modulation (identifying and rating feelings and their intensity), (d) Cognitive coping (exploring the relationship between thoughts, feelings and behaviour), (e) Creating a trauma narrative, (f) Cognitive processing (identifying and changing inaccurate or unhelpful cognitions), (g) Future Hopes. All of these were completed as a group with the exception of the sessions exploring the boys' trauma narratives. These took place in 2–4 individual sessions to avoid the possibility of vicarious traumatisation within the group.

The cultural adaptations mainly involved the use of familiar games and songs to help the children relax, learn social skills and participate in group activities. Culturally appropriate stories and metaphors were employed throughout to explain certain points and provide relevant examples. Examples include: the script for progressive muscle relaxation which employed imagery of local animals and food; role-playing fear of local animals (e.g. mouse, cat, snake, etc.) to demonstrate the levels of intensity of feelings; considering the belief in one's neighbour is a witch as a thought that can affect feelings and behaviour. Three short 'parent' sessions were also held for any available parents and CERAO staff that were guardians for boys in both treatment group and the control group. These described the impact of trauma on young people, explained the intervention and facilitated training on child protection and children's rights from local NGO staff.

The intervention took place within a school building provided by CERAO. It was delivered by the first and second authors and two experienced Congolese counsellors through a local interpreter. The intervention scripts from the manual were supplied to these facilitators in French so that they could become familiar with each component. Daily training and evaluation sessions were held with these facilitators to ensure fidelity to the original intervention and to maximise cultural appropriateness. These local trained staff then facilitated the TF-CBT intervention with the boys in the wait-list control group, which began after completion of the postintervention assessment (2 months after baseline assessment).

No financial incentives were offered for participation although the intervention group received a piece of bread and an avocado before each session. The TF-CBT intervention took place within an existing psychosocial programme which provided vocational training, food and shelter. Both intervention and control groups were part of this programme so this was not a confounding variable. In addition, we organised games and sports sessions with both groups outside the treatment sessions. Child soldiers often report that their greatest stresses are economic and relate to limited life options (Wessells, 2006). Assuring basic needs such as food, shelter, safety and opportunity falls within the goals of the 'enhancing safety and future development' component of TF-CBT (Judith Cohen, personal communication, June 2011).

Data analysis

The TF-CBT group and the wait-list control group had been evenly matched for symptomatology through matched dyad randomisation. To further control for any differences between the groups at baseline, an Analysis of Covariance (ANCOVA) was used to analyse the data. Partial eta squared (η_p^2) effect sizes were recorded with .0099 constituting a small effect, .0588 a medium effect and .1379 a large effect (Cohen, 1988). Paired sample *t* tests were used to consider effect of intervention on treatment group

through baseline, postintervention and 3-month follow-up. Cohen's *d* effect sizes were considered small if .20–.49, medium if .50–.79, and large if .8 or more (Cohen, 1988). Bonferroni–Holm adjustment of significance levels was applied for multiple comparisons; setting the significance level at $p < .01$. Statistical analyses were performed with SPSS Version 18 (© SPSS, Inc., 2009, Chicago, IL, www.spss.com).

Results

War experiences

The boys witnessed a wide range of traumatic events during the war as presented in Table 1. Of a possible 22, the mean number of different traumatic events experienced was 12. Table 1 shows the number (of the 50 interviewed at baseline) and percentage of adolescents who witnessed each type of traumatic event. The most common event reported was severe punishment or revenge (88%). Over 70% also reported experience of lack of food/water, being forced to carry heavy loads, bad beating, abduction and mutilation. When asked what was the worst thing that happened during the war, the most common responses were death of a parent ($n = 17$) and personally killing or torturing other people ($n = 16$). Some of the boys had watched their family members or friends being killed. Of the former child soldiers, the time spent with armed groups ranged from 2 weeks to 7 years ($\overline{X}$ = 19 months).

Attendance

The mean number of sessions attended was 13.4 (range 10–15). Seven boys attended every session. The main reasons for absences were physical illness, bereavement and family or community obligations (e.g. fetching water during drought). One boy dropped out after 2 sessions due to gaining full-time employment and was not included in analysis.

Effectiveness of TF-CBT

As displayed in Table 2, an ANCOVA (co-varying for baseline scores) found that the TF-CBT group had highly significant reductions in posttraumatic stress symptoms [$F(1, 45) = 89.27$, $p < .001$, $\eta_p^2 = .665$], overall psychosocial distress [$F(1, 45) = 72.47$, $p < .001$, $\eta_p^2 = .617$], depression/anxiety-like symptoms [$F(1, 45) = 58.82$, $p < .001$, $\eta_p^2 = .567$], conduct problems [$F(1, 45) = 18.18$, $p < .001$, $\eta_p^2 = .288$] and an increase in prosocial behaviour [$F(1, 45) = 34.18$, $p < .001$, $\eta_p^2 = .432$] when compared with the wait-list control group.

Table 3 shows a sub-analysis that was completed for former child soldiers only with the other war-affected boys excluded. ANCOVA (co-varying for baseline scores and for months spent as child soldier) showed between-treatment effect sizes to

Table 2 Whole group – Comparisons between TF-CBT intervention group and wait-list control group at postintervention on primary and secondary outcome measures

Variable	TF-CBT Intervention group ($n = 24$).Mean (*SD*)			Wait-list control group ($n = 24$). Mean (*SD*)			*F* value $(1, 45)$ [a]	*p*-value[b]	Effect size (η_p^2)
	Pre	Post	Difference	Pre	Post	Difference			
Posttraumatic stress UCLA-PTSD RI	37.1 (9.2)	10.6 (4.5)	−26.5 (10.7)	37.3 (8.5)	34.8 (11.6)	−2.6 (13.2)	89.27	<.001	.665
Psychosocial distress AYPA total	63.2 (13.3)	16.9 (8.4)	−46.3 (15.2)	67.0 (16.0)	54.5 (19.9)	−12.5 (19.8)	72.47	<.001	.617
Depression/Anxiety AYPA subscale	38.1 (9.3)	7.0 (5.8)	−31.1 (9.4)	38.1 (11.1)	29.3 (13.6)	−8.9 (14.3)	58.82	<.001	.567
Conduct problems AYPA subscale	5.6 (6.4)	0.7 (0.9)	−4.8 (6.3)	7.2 (6.4)	7.1 (7.0)	−0.1 (7.8)	18.18	<.001	.288
Prosocial behaviour AYPA subscale	17.1 (5.5)	25.3 (3.2)	+8.2 (6.6)	15.2 (6.0)	19.3 (3.6)	−4.0 (6.4)	34.18	<.001	.432

[a]Based on analysis of covariance with preintervention scores as covariates.
[b]Significance of the difference in postintervention scores between the intervention and wait-list control group after the intervention.

slightly larger for each variable when the child soldiers were analysed separately from the whole group: posttraumatic stress symptoms [$F(1, 34) = 72.70$, $p < .001$, $\eta_p^2 = .688$], overall psychosocial distress [$F(1, 34) = 59.35$, $p < .001$, $\eta_p^2 = .643$], depression/anxiety-like symptoms [$F(1, 34) = 46.97$, $p < .001$, $\eta_p^2 = .587$], conduct problems [$F(1, 34) = 13.99$, $p = .001$, $\eta_p^2 = .298$] and prosocial behaviour [$F(1, 34) = 23.66$, $p < .001$, $\eta_p^2 = .463$].

Maintenance of treatment gains

Table 4 shows the percentage change in mean score from baseline to 3-month follow-up, the significance level and the within-treatment effect size (Cohen's *d*) for the 12 boys who were assessed at 3-month follow-up. The paired samples *t* tests indicated that the significant improvements and large effect sizes found in posttesting were well maintained at 3-month follow-up for posttraumatic stress symptoms [$t(11) = 7.50$, $p < .001$, $d = 2.17$], overall psychosocial distress [$t(11) = 7.03$, $p < .001$, $d = 2.03$], depression or anxiety-like symptoms [$t(11) = 9.17$, $p < .001$, $d = 2.64$] and prosocial behaviour [$t(11) = 3.72$, $p = .003$, $d = 1.07$], but not for conduct problems [$t(11) = .36$, $p = .723$, $d = 0.11$].

There was no significant increase in posttraumatic stress symptoms [$t(11) = .54$, $p = .600$], overall psychosocial distress [$t(11) = .73$, $p = .484$], depression/anxiety-like symptoms [$t(11) = .14$, $p = .893$], prosocial behaviour [$t(11) = .28$, $p = .786$] or conduct problems [$t(11) = 1.63$, $p = .131$] from postintervention to 3 month follow-up.

Discussion

This RCT demonstrated that culturally modified, group-based TF-CBT was effective in reducing posttraumatic stress and psychosocial difficulties in former child soldiers and other war-affected boys. Postintervention comparison with a wait-list control group shows that the significant reduction in posttraumatic stress, depression/anxiety-like symptoms, conduct problems and the increase in prosocial behaviour cannot be attributed to spontaneous recovery or other effects. The within-treatment improvements were maintained for those who were assessed again at 3-month follow-up.

Group intervention

To our knowledge, this is the first RCT of a group--based trauma intervention with former child soldiers. The large between-group and within-treatment effect sizes compare favourably with other RCTs of group interventions with war-affected children and adolescents (Bolton et al., 2007; Gupta & Zimmer, 2008; Jordans et al., 2010; Khamis et al., 2004; Tol et al., 2008). Group interventions are often the only feasible option in countries such as the DRC where

Table 3 Former child soldiers only – Comparisons between TF-CBT intervention group and wait-list control group at postintervention on primary and secondary outcome measures

Variable	TF-CBT Intervention group ($n = 18$[a]). Mean (*SD*)			Wait-list control group ($n = 19$[a]). Mean (*SD*)			*F* value (1, 34)	*p*-value	Effect size (η_p^2)
	Pre	Post	Difference	Pre	Post	Difference			
Posttraumatic Stress UCLA-PTSD RI	38.6 (8.7)	9.2 (3.4)	−29.4 (8.6)	38.8 (8.1)	35.4 (12.1)	−3.7 (14.6)	72.70	<.001	.688
Psychosocial DistressAYPA total	63.1 (13.6)	14.9 (7.6)	−48.2 (13.8)	68.7 (16.4)	56.4 (20.5)	−12.3 (21.6)	59.35	<.001	.643
Depression/Anxiety AYPA subscale	36.9 (8.1)	5.7 (5.2)	−31.2 (6.3)	39.9 (10.9)	30.4 (13.7)	−9.6 (15.8)	46.97	<.001	.587
Conduct Problems AYPA subscale	6.1 (6.9)	0.8 (0.9)	−5.3 (7.0)	7.2 (6.0)	7.7 (7.5)	0.6 (8.3)	13.99	=.001	.298
Prosocial behaviour AYPA subscale	17.2 (6.1)	25.8 (3.0)	−8.6 (6.7)	15.5 (6.2)	19.5 (3.8)	−3.9 (6.6)	23.66	<.001	.463

[a]All former child soldiers (boys abducted or recruited by an armed group) included in analysis.

Table 4 TF-CBT intervention group – Mean scores, Percentage change in Mean scores and within-treatment effect sizes (Cohen's *d*) for primary and secondary outcomes at postintervention and 3-month follow-up

Measure	Baseline (n = 24)	Postintervention (n = 24)				3-month follow-up (n = 12)				
	Mean (*SD*)	Mean (*SD*)	% change[a]	*T* value[b]	*p*-value	Mean (*SD*)	% change[a]	*T* value[b]	*p*-value	Effect size (Cohen's *d*)[c]
Posttraumatic stress UCLA-PTSD revised	37.1 (9.2)	10.6 (4.5)	−71.4%	12.23	<.001	13.9 (7.9)	−62.5%	7.50	<.001	2.17
Psychosocial distress AYPA total	63.2 (13.3)	16.9 (8.4)	−73.3%	14.72	<.001	24.1 (20.6)	−61.8%	7.03	<.001	2.03
Depression/Anxiety AYPA subscale	38.2 (9.3)	7.0 (5.8)	−81.6%	16.24	<.001	10.1 (9.5)	−73.4%	9.17	<.001	2.64
Conduct problems AYPA subscale	5.6 (6.4)	0.7 (0.9)	−87.5%	3.78	=.001	4.3 (8.2)	−23.2%	0.36	=.723	.11
Prosocial behaviour AYPA subscale	17.1 (5.5)	25.3 (3.2)	+32%	6.09	<.001	24.6 (4.8)	+30%	3.72	=.003	1.07

[a]From baseline scores for the 12 participants included in 3-month follow-up.
[b]Based on paired samples *t* test (95% CI) comparison with baseline scores for the 12 participants.
[c]Effect size of treatment gains from baseline to 3-month follow-up. These were calculated by dividing the difference between the means of the baseline and 3-month follow-up scores by the standard deviation of the difference (for the 12 participants).

great need coincides with limited resources. As well as providing for basic necessities, considerable benefits were found in conducting trauma therapy in group format. Working as a group reduced the risk of stigma and promoted understanding and normalisation of symptoms. Furthermore, we found that group work fostered friendships and a sense of safety and emotional support that may last long after the end of the intervention. This was especially vital for those boys who had no parental or family contact. Completing the trauma narratives in individual sessions reduced any risk of vicarious traumatisation of other group members. Subsequent discussion of irrational and incorrect cognitions as a collective again promoted peer support that may act preventatively in dealing with future stressful life events.

Child soldiers and other war-affected children are not helpless, hopeless victims. Many are functional and, with proper support, can transition to positive lives as civilians (Wessells, 2006). This study showed that children with moderate and severe levels of psychological distress can benefit from a trauma intervention in the same group. Group therapy can be offered to all war-affected children showing psychological and psychosocial distress without the use of cut-off points for clinical significance of PTSD, which may preclude some of those who need help most. A heterogeneous group of child soldiers and other boys who had not been abducted or recruited was chosen mainly to avoid stigmatisation of former combatants. As described, it was not clear if the boys were victims, perpetrators or witnesses of the war experiences in Table 1. It is therefore difficult to interpret the level of exposure to the war-related events. We found the heterogeneity of the group to be a strength as it promoted understanding, reduced stigma and demonstrated that TF-CBT was both robust enough to cater for diverse experiences and specific enough to teach individual skills that all participants benefitted from.

Trauma-Focused Cognitive–Behavioural Therapy

The improvements in the TF-CBT treatment group are of clinical significance. Trauma-focused CBT is the recommended treatment choice for children and young people in the general population experiencing PTSD and is also considered the first-line treatment for children with mild depression and generalised anxiety. Only weak evidence exists for the effectiveness of stand-alone CBT in treating disturbances of conduct (NICE, 2005; Wolpert et al., 2006). This intervention found a significant postintervention impact on both posttraumatic stress and psychosocial difficulties including conduct problems. While CBT has been used as a component part of previous group interventions with war-affected young people, to the authors' knowledge, no specific trauma-focused CBT model has previously been

evaluated with this population. This study had TF-CBT as the clear treatment modality and hence the positive outcomes can be related to the efficacy of this intervention.

Culture

There have been growing calls for assessment tools, based on a local understanding of psychological and psychosocial distress that have been developed within local cultures and can be learnt and employed by local people in postconflict settings (Barenbaum et al., 2004; Bolton et al., 2007; Jordans et al., 2009). The AYPA offers one alternative to this end, for northern Uganda in its original form and for eastern DRC in the format validated for this study.

Interventions that are not developed or adapted for the culture in which they take place are unlikely make a lasting difference. Having local Congolese facilitators for the intervention provided cultural expertise, adaptation and engagement that may not have been possible if the intervention had been delivered solely by nonlocal clinicians through an interpreter. Daily training and evaluation with these facilitators allowed us to modify the programme within the existing structure and, combined with the translation of the manual into French, ensures that this intervention can be repeated with fidelity to the original treatment protocol. There is a great need for further translational research in LAMIC countries. Improving accessibility to effective interventions is of prime importance. Interventions that can be delivered by nonspecialists and therefore reduce training time and costs are vital. Western psychology has a contribution to make to the treatment of trauma but the challenge is to ensure these methods are presented in a way that is meaningful and appropriate at the local level (Dowdney, 2007).

Limitations

We did not think it was ethically appropriate to have a further 3-month delay in the delivery of an intervention with evidence of efficacy to our wait-list control group. These young people had noticed the change in their peers and were keen to start their intervention. Hence, there are only measurements of within-treatment effect at 3-month follow-up. In addition, we were only able to interview half of the boys in the intervention group at 3-month follow-up as others had been repatriated back to their communities, long distances from Beni. Further controlled and longitudinal studies are necessary to determine the longer term outcome for young people who receive TF-CBT intervention.

Baseline and postintervention assessment took the form of individual interviews with each boy. While direct interviews were more likely to produce accurate responses than child-completed self-report forms (Barenbaum et al., 2004), additional sources of baseline data would have been beneficial. The boys may, for example, have under-reported antisocial behaviour. Parent and teacher ratings alone may underestimate the extent of children's suffering (Barenbaum et al., 2004), but together with self-report interviews these may have made the findings more robust. Psychiatric interview may be required to fully understand the clinical significance of similar interventions.

The children were well known by the CERAO staff, which we hoped would increase honesty in the pre- and postinterviews. Whilst every effort was made to ensure that these interviewers were blinded to group allocation, it is possible that they may have been informed of which children were in the intervention group. This may have resulted in some observer bias in the recording of the children's responses on the Likert scale.

Finally, because TF-CBT was compared with a wait-list control and not to an active treatment, the results could be regarded as being influenced by nonspecific psychotherapeutics effects rather than the specific effects of TF-CBT. The limitations listed above may reduce the external validity of the findings.

Implications

Evaluation of the effectiveness of interventions in war-affected, low-income countries is extremely challenging (Barenbaum et al., 2004), not least in the DRC, which is one of the least developed countries in the world. Concerns and constraints around safety, transport, finance, health, climate, time and sustainability could not have been surmounted without strong partnerships with local facilitators, advisors, community leaders and NGO staff.

Placement in the wait-list group did not increase psychological distress during the course of the intervention. In fact, the wait-list control group also showed small, nonsignificant, improvements on each outcome measure during postintervention assessment. These may be due to vocational training and sports sessions that took place with both groups. This demonstrates that completing RCTs with wait-list controls in LAMIC countries is ethically appropriate, feasible and important, especially since there is a scarcity of rigorous controlled trials among war-affected populations (Jordans et al., 2009).

There is strong advocacy for integrated multilayered or pyramidal approaches in providing mental health or psychosocial assistance to war-affected children and adolescents (Jordans et al., 2010; Layne et al., 2008; Machel, 2009; Wessells, 2006). This TF-CBT intervention was embedded into an existing psychosocial programme that provided food, shelter and vocational training. Culturally modified, group-based interventions such as this one could form a component part of a large multilayered programme or run alongside programmes that pro-

vide basic needs. Further controlled studies are required to compare TF-CBT with other mental health interventions in lower and middle-income, postwar communities.

Acknowledgement

No external funding was provided for this study. This project was made possible through generous support from Queens University, colleagues, family and friends. Sincere gratitude to all the boys who participated; to our facilitators- Jonas Makusudi, Françoise Maroyi and Olga Mashingo; to the staff of CERAO; and to World Vision DRC who continue to employ this intervention.

Correspondence

John McMullen, Doctorate in Educational, Child and Adolescent Psychology, School of Psychology, Queens University, Belfast, BT7 1NN, Northern Ireland; Email: jmcmullen01@qub.ac.uk

Key points

- Baseline assessment provided further evidence that many war-affected adolescents have elevated levels of psychological distress. Child soldiers may be particularly vulnerable as they are simultaneously both victims and perpetrators of the most extreme violence.
- This group-based, culturally modified TF-CBT intervention was effective in reducing posttraumatic stress, depression/anxiety-like symptoms and conduct problems and increasing prosocial behaviour, compared with a wait-list control group. Within-treatment improvements were maintained for those who were assessed again at 3-month follow-up.
- Group intervention helped to promote understanding, normalise symptoms, foster friendships and provide a sense of safety and emotional support.
- It is both feasible and important to complete RCTs in LAMIC countries, involving local facilitators in planning and delivery.

References

Amone-P'Olak, K., Garnefski, N., & Kraaij, V. (2007). The impact of war experiences and physical abuse on formerly abducted boys in northern Uganda. *South African Psychiatry Review*, *10*, 76–82.

Barenbaum, J., Ruchkin, V., & Schwab-Stone, M. (2004). The psychosocial aspects of children exposed to war: Practice and policy initiatives. *Journal of Child Psychology and Psychiatry*, *45*, 41–62.

Bayer, C., Klasen, F., & Adam, H. (2007). Association of trauma and PTSD symptoms with openness to reconciliation and feelings of revenge among former Ugandan and Congolese Child Soldiers. *Journal of American Medical Association*, *298*, 555–559.

Bell, M. (2006). Child alert: Democratic republic of Congo. Martin Bell reports on children caught in war. *UNICEF*. Available from http://www.unicef.org/childalert/drc/ [last accessed 15 April 2010].

Betancourt, T., Agnew-Blais, J., Gilman, S., Williams, D., & Ellis, B. (2010). Past horrors, present struggles: the role of stigma in the association between war experiences and psychosocial adjustment among former child soldiers in Sierra Leone. *Social Science and Medicine*, *70*, 17–26.

Betancourt, T., Bass, J., Borisova, I., Neugebauer, R., Speelman, L., Onyango, G., & Bolton, P. (2009). Assessing local instrument reliability and validity: A field-based example from northern Uganda. *Social Psychiatry Psychiatric Epidemiology*, *44*, 685–692.

Betancourt, T.S., Borisova, I., Rubin-Smith, J.E., Gingerich, T., Williams, T., & Agnew-Blais, J. (2008). *Psychosocial adjustment and social reintegration of children associated with armed forces and armed groups: The state of the field and future directions*. Austin, TX: Psychology Beyond Borders.

Bolton, P., Bass, J., Betancourt, T., Speelman, L., Onyango, G., Clougherty, K., … & Verdeli, H. (2007). Interventions for depression symptoms among adolescent survivors of war and displacement in northern Uganda: A randomised controlled trial. *Journal of the American Medical Association*, *298*, 519–527.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd edn). Hillsdale, NJ: Lawrence Erlbaum.

Cohen, J., Mannarino, A., & Deblinger, E. (2006). *Treating trauma and traumatic grief in children and adolescents*. New York: Guildford Press.

Derluyn, I., Broekaert, E., Schuyten, G., & de Temmerman, E. (2004). Post-traumatic stress in former Ugandan child soldiers. *Lancet*, *363*, 861–863.

Dowdney, L. (Ed) (2007). Trauma, resilience and cultural healing: How do we move forward? *Coalition to Stop the Use of Child Soldiers (CSUCS)*. Available from http://www.childsoldiers.org/psychosocial/Trauma_Resilience_and_Cultural_Healing_2007.pdf [last accessed 10 January 2010].

Ehntholt, K.A., & Yule, W. (2006). Practitioner review: assessment and treatment of refugee children and adolescents who have experienced war-related trauma. *Journal of Child Psychology and Psychiatry*, *47*, 1197–1210.

Ertl, V., Pfeiffer, A., Schauer, E., Elbert, T., & Neuner, F. (2011). Community-implemented trauma therapy for former child soldiers in northern Uganda: A randomized controlled trial. *Journal of the American Medical Association*, *206*, 503–512.

Gordon, J., Staples, J., Blyta, A., Bytyqi, M., & Wilson, A. (2008). Treatment of posttraumatic stress disorder in post-war Kosovar adolescents using mind-body skills groups: A randomized controlled trial. *Journal of Clinical Psychiatry*, *69*, 1469–1476.

Gregory, J., & Embrey, D. (2010). Companion recovery model to reduce the effects of profound catastrophic trauma for former child soldiers in Ganta, Liberia. *Traumatology*, *15*, 40–51.

Gupta, L., & Zimmer, C. (2008). Psychosocial intervention for war-affected children in Sierra Leone. *The British Journal of Psychiatry*, *192*, 212.

Jordans, M.J.D., Komproe, I.H., Tol, W.A., Kohrt, B.A., Luitel, N.P., Macy, R.D., & de Jong, J.T.V.M. (2010). Evaluation of a classroom-based psychosocial intervention in conflict-affected Nepal: A cluster randomized controlled trial. *Journal of Child Psychology and Psychiatry*, *51*, 818–826.

Jordans, M.J.D., Tol, W.A., Komproe, I.H., & de Jong, J.V.T.M. (2009). Systematic review of evidence and treatment approaches: Psychosocial and mental health care for children in war. *Child and Adolescent Mental Health*, *14*, 2–14.

Khamis, V., Macy, R., & Coignez, V. (2004). *Classroom-Based Intervention (CBI) Impact Evaluation*. Westport, CT, USA: Save the Children USA.

Layne, C.M., Saltzman, W.R., Poppleton, L., Burlingame, G.M., Pasalic, A., Durakovic, E., … & Pynoos, R.S. (2008). Effectiveness of a school based group psychotherapy program for war-exposed adolescents: A randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, *47*, 1048–1062.

Machel, G. (2009). *Machel study 10-year strategic review: children and conflict in a changing world*. Office of the Special Representative of the Secretary-General for Children and Armed Conflict in collaboration with UNICEF UN Children's Fund. Available from www.unicef.org/publications/index_49985.html [last accessed 2 July 2010].

McMullen, J., O'Callaghan, P., Richards, J., Eakin, J., & Rafferty, H. (2011). Screening for traumatic exposure and psychological distress among war-affected adolescents in post-conflict Uganda. *Social Psychiatry and Psychiatric Epidemiology*, *47*, 1489–1498.

National Institute for Clinical Excellence. (2005). *Post traumatic stress disorder (PTSD): The management of adults and children in primary and secondary care*. London: NICE Guidelines.

Pynoos, R.S., & Steinberg, A.M. (2002). *UCLA PTSD reaction index for children and adolescents – DSM IV (Revision)*. Los Angeles, CA: UCLA Trauma Psychiatry Services.

Schauer, M., Neuner, F., & Elbert, T. (2005). *Narrative exposure therapy: A short-term intervention for traumatic stress disorders after war, terror, or torture*. Germany: Hogrefe & Huber Göttingen.

Silverman, W.K., Claudio, O.D., Viswesvaran, C., Burns, B.J., Kolko, D.J., Putnam, F.W., & Amaya-Jackson, L. (2008). Evidence-based psychosocial treatments for children and adolescents exposed to traumatic events. *Journal of Clinical Child and Adolescent Psychology*, *37*, 156–183.

Smith, D.W., & Saunders, B.E. (2005). *TF-CBTWeb: A Web-based Learning Course for Trauma-Focused Cognitive-Behavioral Therapy*. Charleston, SC: National Crime Victims Research and Treatment Center, Medical University of South Carolina. Available from www.musc.edu/tfcbt [last accessed 17 January 2010].

Staples, J.K., Abdel Attai, J.A., & Gordon, J.S. (2011). Mind-body skills groups for posttraumatic c stress disorder and depression symptoms in Palestinian children and adolescents in Gaza. *International Journal of Stress Management*, *18*, 246–262.

Steinberg, A.M., Brymer, M.J., Decker, K.B., & Pynoos, R.S. (2004). UCLA PTSD reaction index. *Current Psychiatry Reports*, *6*, 96–100.

Thabet, A.A., Abed, Y., & Vostanis, P (2004). Comorbidity of PTSD and depression refuge children during war conflict. *Journal of child psychology and psychiatry*, *45*, 533–542.

Tol, W.A., Komproe, I.H., Susanty, D., Jordans, M.D., Macy, R.D., & de Jong, J.M. (2008). School-based mental health intervention for children affected by political violence in Indonesia: A cluster randomized trial. *Journal of the American Medical Association*, *300*, 655–662.

Wessells, M. (2006). *Child soldiers: From violence to protection*. Cambridge, MA: Harvard University Press.

Wolpert, M., Fuggle, P., Cottrell, D., Fonagy, P., Phillips, J., & Target, M. (2006). *Drawing on the evidence: Advice for mental health professionals working with children and adolescents* (2nd edn). University College London, UK: CAMHS Publications.

Accepted for publication: 17 April 2013
Published online: 6 June 2013